

# Balancing dairy production and profits in Northern Australia

QDAS Financial and production trends – 2011

Compiled by

Ray Murphy  
Gordon Simpson

Department of Employment, Economic Development and Innovation 2011

## **Department of Employment, Economic Development and Innovation**

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### **Data enquiries should be addressed to:**

#### **Ray Murphy**

Department of Employment, Economic Development and Innovation

203 Tor Street

PO Box 102

TOOWOOMBA QLD 4350

Australia

Phone +61 7 4688 1094

Fax +61 7 4688 1477

Email: [ray.murphy@deedi.qld.gov.au](mailto:ray.murphy@deedi.qld.gov.au)

# 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, see Figure 1.

Milk production in Queensland decreased 8.1% in 2010-11, from 529 to 485 million litres. This decrease was due to a very wet summer which included flooding and cyclones in some areas. The number of dairies has declined to 566. Table 1 shows the trend in milk supply and farm numbers for Queensland over the last four years.

In 2010-11 Australian milk production was 9.1 billion litres with Queensland contributing 5.3% of this.

Figure 2 shows Queensland's monthly milk production and the impact of the wet summer had on milk production.

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.

Liquidity shows the cash position by monitoring all cash transactions. Farms cooperating in the Queensland Dairy Accounting Scheme (QDAS) use computer accounting programs to record monthly transactions, prepare their Business Activity Statements and other records for preparation of annual taxation returns. While QDAS compiles cash flow data – liquidity measures such as current ratios and the net cash surplus are not reported in this document.

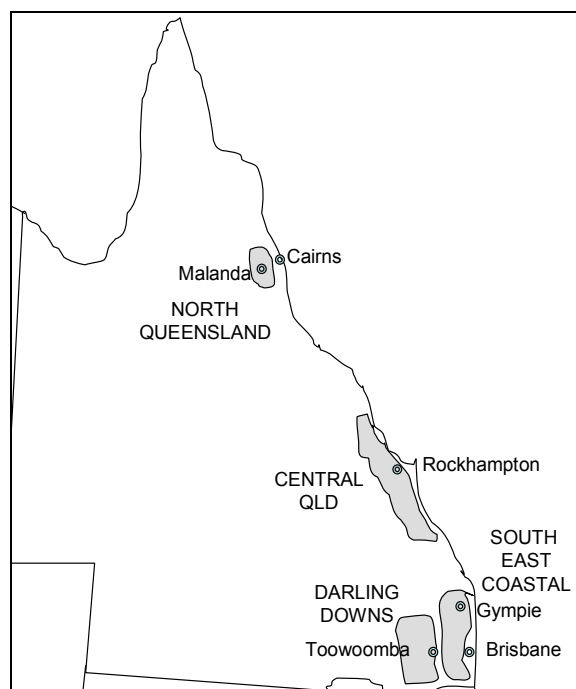
Section 1 of this report presents a summary of the key findings. Three business traits – profitability, solvency and efficiency were used to measure farm performance. The results for these traits are presented using 15 key performance indicators.

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.

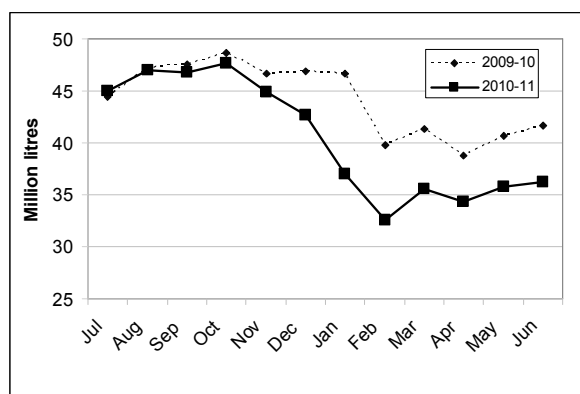
**Figure 1.** The location of dairy farms in Queensland



**Table 1.** Dairy farm numbers and annual production for Queensland (2007-08 to 2010-11)

	Farms	Annual production
2007-08	630	485 m L
2008-09	610	512 m L
2009-10	595	529 m L
2010-11	566	485 m L

**Figure 2.** Queensland monthly milk production (2009-10 and 2010-11)



## **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 Employment, Economic Development and Innovation 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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## **Ray Murphy Senior Scientist – Dairy Farm Business Management**

Department of Employment, Economic  
Development and Innovation  
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# 1. 2010–2011 Key findings

Fifteen Key Performance Indicators (KPI) are used to highlight the results for profitability, solvency and efficiency. Table 2 shows these results for 2010-2011 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 (2007-08 to 2010-11)

Business traits and indicators <sup>(1)</sup>	Top 25%	QDAS average	Past QDAS averages		
	2010-11	2010-11	2009-10	2008-09	2007-08
<b>Profitability</b>					
Return on assets - operational (%)	5.4	2.7	4.2	4.6	10.3
Return on equity - operational (%)	4.6	1.4	3.6	4.1	10.7
Operating profit margin (%)	27.1	14.1	20.3	21.2	27.8
Dairy operating profit (\$/cow)	940	471	754	804	1,605
<b>Solvency</b>					
Equity (%)	84	83	85	84	83
Debt to equity ratio	0.19	0.21	0.18	0.19	0.20
<b>Efficiency – Capital/Finance</b>					
Asset turnover ratio	0.20	0.19	0.21	0.22	0.27
Total liabilities per cow (\$)	2,771	3,050	2,705	2,805	2,598
Interest paid/cow (\$)	237	236	176	188	212
<b>Efficiency – Productivity</b>					
Feed related costs (c/L)	24.1	28.2	29.1	31.3	30.2
Margin over feed related costs (\$/L)	30.7	25.7	27.1	25.0	21.1
Total variable costs (c/L)	28.2	32.6	32.9	35.1	33.7
Gross margin - milk (\$/cow)	1,833	1,564	1,664	1,668	1,019
<b>Efficiency – Physical</b>					
Production per cow (L)	5,977	5,926	6,248	6,146	5,894
Litres per labour unit					
- On farms <1.0 m L	345,151	290,952	281,304	303,131	321,378
- On farms >1.0 m L	505,032	477,611	488,665	502,885	504,583

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

## ***A summer of natural disasters***

Queensland was hit by a summer of natural disasters in 2010-11 with record flooding and cyclones. Of the 566 dairy farms in Queensland, 99% were within natural disaster declared areas.

In June 2011, the Queensland Dairyfarmers Organisation (QDO) estimated the cost of these natural disasters to the Queensland dairy industry to be in excess of \$80 million. These losses were the accumulation of the following impacts.

- Cow comfort issues, including lameness, reducing milk production and conception rates.
- Increased incidence and severity of mastitis, reducing production per cow and cow numbers due to increased culling.
- Loss of livestock in some cases.
- Loss of soil, stored and standing feed.
- Loss of summer cropping opportunities.
- Damage to infrastructure, equipment and housing.
- Loss of power supply.
- Flood waters causing road closures preventing the collection of milk and delivery of supplies in many areas.

The losses caused by these events are difficult to fully measure in this report due to the timing of the events and this report. This report examines the 2010-11 financial year, which included two very different conditions for dairying. From July 2010 until Christmas 2010, the seasons were good in many areas and many farmers recorded good milk production. The remainder of the year was very harsh.

The effects on milk production are continuing to be felt well into the 2011-12 financial year, with lower than normal production per cow and cow numbers. Furthermore, many of the repairs needed as a result of flooding and the prolonged wet have only been able to be undertaken after June 2011.



## ***Production and prices are down***

The 2010-11 average milk production was 94,073 litres lower than the 2009-10 average, as a result of the climatic conditions discussed above. Several farms experienced decreases in milk production in excess of 200,000 litres.

After several years of stable milk prices, many Queensland dairy farms experienced lower milk prices in 2010-11. Average milk receipts decreased by 2.1 c/L from 56.1 c/L in 2009-10 to 54.0 c/L in 2010-11. However, some farms recorded a decrease in their milk receipts of in excess of 11 c/L.

The result of the decrease in milk production and milk price has been a \$79,085 reduction in average milk receipts.

## ***Production per cow***

The QDAS average production per cow decreased by 322 litres during the year to 5,926 litres. QDAS has shown production per cow to be a significant profit driver over many years. However, this was not the case in 2010-11. In 2009-10 one of the characteristics of the top 25% group is that their production per cow was 601 litres higher than the QDAS average. This year the top 25% group's production per cow is only 51 litres higher than the QDAS average.



## Profitability

Table 2 shows dairy operating profit decreased from \$754 to \$471 per cow in 2010-11. This decrease is the result of the price and production losses explained above, as well as a reduced cattle trading profit, feed inventory losses and increased administration costs.

The calculation of dairy operating profit can be seen in the map of farm performance (Appendix 10.3). Here it shows the dairy operating profit being \$99,431, which is 39% lower than in 2009-10.

The map of farm performance shows cattle trading profit, at \$27,854, which is \$22,867 lower than the previous year. The increased incidence and severity of mastitis lead to increased culling of affected cattle, but at lower prices than these cattle were valued on 1 July 2010, leading to the reduced cattle trading profit.

Further contributing to the reduction in dairy operating profit per cow is a \$5,394 or 0.4 c/L decrease in stored feed inventories and an increase in administration costs.

The drivers of profitability are, on the income side, the number of completed lactations, the production per cow and the milk price received. On the cost side the inputs that have the largest impact are feed related cost, labour and finance costs.

## Production costs

A summary of the QDAS average cash costs of production for 2010-11 can be seen in Table 3. The average total production cost is 56.0 c/L.

**Table 3.** Cash analysis of the costs of production (2010-11)

	Average
Total farm receipts (c/L)	59.7
Variable costs (c/L)	32.6
Administration (c/L)	4.2
Paid labour (c/L)	6.0
Interest + principal (c/L)	8.3
Living expenses (c/L) <sup>(1)</sup>	4.9
Total production costs (c/L)	56.0

<sup>(1)</sup> \$60,000 was used as living expenses



## Intensive systems suffer in the wet

One of the differences between the 2010-11 QDAS results to previous years is the reduction in the profitability of farms with intensive production systems. The intensive production systems, Total Mixed Ration (TMR) and Partial Mixed Ration (PMR), are defined in section 3. On these farms cows are fed on feed pads at least once a day for at least three months of the year.

The intensive cattle traffic on laneways and feed pads in the wet conditions led to very boggy conditions for cattle for many months.

The relative impact of the wet conditions on the profitability of different production systems can be seen in Table 9. For the first time since QDAS has examined regional production systems, grazing systems have recorded higher dairy operating profit per cow results than the PMR and TMR systems.

Furthermore, the top 25% group reported in Table 2 is dominated by grazing farms. In 2009-10 the top 25% group was made up of a relatively equal spread of grazing (28%), PMR (36%) and TMR (36%) farms. However, in 2010-11 the top 25% group was mostly made up of grazing farms (81%). This shows the ability of the grazing system farms to better cope with extreme wet conditions over the existing intensive production systems.

**Table 4.** Indicative prices per tonne of major farm inputs (2010-11)

	June 2010	June 2011
<b>Grain/pellets</b>		
Sorghum	\$200	\$225
Barley	\$230	\$260
Wheat	\$240	\$260
Soybean meal	\$530	\$505
Canola meal	\$370	\$340
14% dairy pellet	\$335	\$330
<b>Fertiliser</b>		
Urea	\$570	\$640
Starter Z	\$810	\$890
<b>Diesel</b>		
Bowser price	\$1.32	\$1.50

## Labour

Average paid labour costs are \$73,900 for 1.4 labour units. This is nearly unchanged from the previous year, but with the litres produced on farm reducing, the labour cost per litre rose by 0.4 c/L to 6.0 c/L.

As farms milk more cows there are opportunities to utilise labour more effectively. Table 2 shows that, on average, the farms producing more than a million litres produced 477,611 litres per labour unit.

Table 5 gives more information on the labour input and costs as farms produce more milk. The amount of paid labour, measured as full time equivalents (FTE), increases as milk production increases. The amount of unpaid labour is relatively stable as milk production increases.

## Variable costs

Feed related costs decreased by 0.9 c/L from 29.1 c/L to 28.2 c/L in 2010-11. The change in feed related costs is the sum of a 0.9 c/L decrease in purchased feeds, a 0.3 c/L decrease in irrigation costs and a 0.3 c/L increase in fuel and oil costs.

There was a 0.3 c/L increase in herd and shed costs, which when combined with the decrease in feed related costs, results in variable costs decreasing by 0.3 c/L. The margin over feed related costs reduced by 1.4 c/L to 25.7 c/L.

The top 25% group achieved feed related costs of 24.1 c/L (4.1 c/L lower than the QDAS average) and a margin over feed related costs of 30.7 c/L (5.0 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 52.3% of milk income.

The cost of feed and fertiliser were relatively stable over the last year. Table 4 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.

## Administration efficiencies

The QDAS average administration cost was \$51,385 or 4.2 c/L. While administration costs increase as production increases, the costs get proportionately lower per litre. Table 5 shows administration falling from 7.4 c/L to 3.2 c/L as production increases.

A large component of administration is the repairs to fixed improvements caused by floods and cyclones. It should be noted that for many farms these repairs could not commence until after June 2011 because of continued wet conditions and availability of contractors.

**Table 5.** Analysis of administration costs and labour inputs and costs (2010-11)

	<750,000 L	750,000 – 1.25m L	1.25 – 1.75m L	>1.75m L
<b>Milk production (L)</b>	518,671	973,029	1,441,654	2,407,521
<b>Cows (milkers + dry)</b>	107	188	245	356
<b>Admin (\$)</b>	38,192	41,680	58,763	78,040
<b>Admin (c/L)</b>	7.4	4.3	4.1	3.2
<b>Unpaid labour (FTE)</b>	1.6	1.5	1.5	1.8
<b>Paid labour (FTE)</b>	0.4	0.9	1.8	3.0
<b>Paid labour cost (c/L)</b>	3.6	5.1	5.9	7.7

## 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. In past QDAS reports, 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.
- Selling more litres of milk.
- Higher milk receipts.
- Lower feed related cost.

However, the extreme wet conditions in 2010-11 have changed the type of farms that have achieved the highest dairy operating profit per cow. 81% of the farms in the 2010-11 top 25% were grazing farms as compared to 28% in 2009-10. The less intensive grazing systems have been able to better cope with the extreme wet.

There are still lessons to be learnt from comparing the top 25% group with the remaining 75% group. Table 5 shows the performance of the top 25% group can be linked to the following.

- Higher milk receipts. The top 25% group received 1.8 c/L more for their milk which was due to processor payment structures and rewards for quality.
- Lower feed costs. The top 25% group have feed related costs 5.6 c/L less than the remaining 75% group.

### **Milk from home grown feed**

QDAS analysis over the years has shown that one of the drivers of profit is the better utilisation of home grown feed. In 2010-11 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 6.** KPI for top 25% and the remaining 75% of farms (2010-11)

	<b>Top 25%</b>	<b>Remaining 75%</b>
<b>Physical traits</b>		
Cows (milkers + dry)	209	212
Farm production (L)	1,248,513	1,253,366
<b>Efficiency - Physical</b>		
Production per cow (L)	5,977	5,909
Milk from home grown feed (%) <sup>(1)</sup>	60.3	55.0
Litres per labour unit	463,484	413,444
<b>Profit Analysis</b>		
Dairy operating profit (\$/cow)	940	310
Average investment (\$/cow)	17,366	17,666
<b>Cash Analysis</b>		
Milk receipts (c/L)	54.8	53.7
Feed related costs (c/L)	24.1	29.7
Total variable costs (c/L)	28.2	34.2
Margin over FRC (\$/cow)	1,797	1,384
Gross margin (\$/cow)	1,558	1,124

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

This allows the calculation of the KPI shown below in Table 7. 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 \$302 per cow more in margin over feed costs and \$278 more dairy operating profit per cow.

**Table 7.** KPI for farms with increasing litres from home grown feed (2010-11)

	<b>&lt;11.0 litres per cow per day</b>	<b>&gt;11.0 litres per cow per day</b>
<b>Milk from home grown feed (%)</b>	55.3	56.8
<b>Production per cow</b>	4,945	6,506
<b>Feed related costs (c/L)</b>	24.5	27.2
<b>Margin over FRC (\$/cow)</b>	1,144	1,446
<b>Dairy operating profit (\$/cow)</b>	138	416

## Herd size

An important profit driver is the scale of operation. Table 8 shows the effect of 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 larger herds even have the highest margin over feed related costs per cow. This is an indicator of their attention to detail and recognition of the need for efficient feeding systems.

The farms producing more than 2 million litres have the highest production per cow (6,983 litres) and return on assets (3.7%).

Labour usage is excellent with over 600,000 litres produced per labour unit in the larger herds. Labour efficiency drops to 263,069 litres per labour unit for the small herds.

**Table 8.** KPI for farms with increasing annual production (2010-11)

	<750,000 L	750,000 – 1.25m L	1.25 – 2.0m L	>2.0m L
<b>Farm milk production (L)</b>	532,811	1,002,135	1,537,437	2,692,493
<b>Cows (milkers + dry)</b>	107	188	252	386
<b>Production per cow (L)</b>	4,973	5,329	6,111	6,983
<b>Margin over FRC (\$/cow)</b>	1,344	1,342	1,514	1,738
<b>Litres per labour unit</b>	263,069	443,728	462,584	603,430
<b>Return on assets (%)</b>	1.8	2.9	2.4	3.7
<b>Dairy operating profit (\$)</b>	47,272	84,767	104,618	238,273
<b>Dairy operating profit (\$/cow)</b>	441	451	415	618

## Production per cow

For many years, QDAS data has shown that as production per cow increases, so does dairy operating profit per cow. The extreme wet conditions of 2010-11 has lessened the response of dairy operating profit per cow to increases in production per cow, but the response can still be seen in Table 9. In 2009-10 the dairy operating profit per cow increased from \$349 (<5,000L) to \$973 (>7,000L). In 2010-11 dairy operating profit increased from \$279 (<5,000L) to \$596 (>7,000L).

The margin over feed related costs also shows a steady increase from \$1,142 to \$1,828 per cow as production per cow increases from below 5,000 litres to beyond 7,000 litres

Table 9 also shows that it is the larger herds that are achieving the highest production per cow. The average production of the below 5,000 litres per cow group was 776,431 where as the above 7,000 litre group produced 2,236,466 litres.

**Table 9.** KPI for four production per cow groups in Queensland (2010-11)

	<5,000	5,000 - 6,000	6,000 - 7,000	>7,000
<b>Farm milk production (L)</b>	776,431	1,041,285	1,533,979	2,236,466
<b>Cows (milkers + dry)</b>	178	188	240	293
<b>Production per cow (L)</b>	4,358	5,545	6,395	7,626
<b>Milk receipts (c/L)</b>	52.4	53.6	54.1	55.2
<b>Margin over FRC (c/L)</b>	27.0	27.3	24.2	24.6
<b>Margin over FRC (\$/cow)</b>	1,142	1,477	1,519	1,828
<b>Dairy operating profit (\$/cow)</b>	279	466	516	596

### 3. Production system analysis

Again QDAS data collection concentrated on gaining a “snap-shot” into different production systems in the regions. The three systems identified were:

**Grazing (GRA)** – Milk production principally from grazing and grain and concentrates fed in the dairy. There is little or no feeding of silage based feed on a feed pad.

**Partial Mixed Ration (PMR)** – Milk production from a combination of grazing, grain, concentrates and silage based feed on a pad.

**Total Mixed Ration (TMR)** – Milk production principally from a silage based mixed ration fed on a pad. There is little or no grazing.

Table 10 shows the break up of the participating QDAS farms among the regional production systems. If a regional production system has a zero in this table, it does not mean there are no farms of this system in the region. It simply means there are no farms of that system participating in QDAS. No reports are generated for a regional production system when less than 5 farms are surveyed in that system. However, these farms are included in the reports containing all farms.

**Table 10.** The number of farms collected in each regional production system (2010-11)

Region	GRA	PMR	TMR
North Queensland	15	1	0
Darling Downs	5	7	9
South East Coastal	17	8	0

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

- Milk receipts were 3 to 7 c/L higher in the South East Coastal and Darling Downs systems than in North Queensland.
- The relative impact of the wet conditions on the profitability of different production systems can be seen in Table 11. For the first time since QDAS has examined regional production systems, grazing systems have recorded higher dairy operating profit results than the PMR and TMR systems.
- The feed related costs are dramatically higher on the TMR farms, due to intensive feeding and the extreme wet conditions reducing production per cow.
- Production per cow increases within a region as the feeding system intensifies. On the Darling Downs, production per cow increases from 5,566 for grazing, 6,484 for PMR to 6,912 for a TMR system.

*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 (2010-11)

	Sth East Coastal	Sth East Coastal	Darling Downs	Darling Downs	Darling Downs	North Qld
	Grazing	PMR	Grazing	PMR	TMR	Grazing
<b>Cows (milkers + dry)</b>	221	240	135	189	261	187
<b>Farm production (L)</b>	1,230,984	1,339,757	753,597	1,226,365	1,802,595	1,062,847
<b>Production per cow (L)</b>	5,566	5,582	5,566	6,484	6,912	5,696
<b>Milk receipts (c/L)</b>	55.1	54.9	52.5	54.6	56.4	49.6
<b>Feed related costs(c/L)</b>	25.2	26.9	28.7	27.2	35.8	25.8
<b>Total variable costs (c/L)</b>	30.0	30.7	33.0	31.2	39.4	31.1
<b>Margin over feed related costs (c/L)</b>	29.9	28.0	23.9	27.4	20.4	23.8
<b>Dairy operating profit (\$/cow)</b>	627	452	634	415	486	354
<b>Return on assets – operational (%)</b>	3.9	2.8	2.7	2.4	3.3	1.6

## 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 \$15,983 per cow in their operation, of which 75% is in the land value. Equity levels are high, averaging at 83.5% and a return on assets of 3.9% (the highest of the regional production systems) 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 second year and are at levels similar to 2007-08.
- Cow numbers are relatively stable over these four years.
- Following two years of increasing production per cow, 2010-11 saw production decrease by 81 litres per cow.
- Dairy operating profit has decreased over the last two years. The high dairy operating profit per cow in 2007-08 is due to an appreciation in the value of cows.

**Table 12.** Statistics for South East Coastal grazing farms (2010-11)

<b>Resources</b>	
Cows (milkers + dry)	221
Mated heifers	58
Other heifers	98
Total dairy herd	377
Milking cow area (ha)	91
Effective dairy area (ha)	148
Labour units	3.2
<b>Assets and Liabilities</b>	
Land & buildings (\$)	2,655,901
Stock (\$)	475,785
Plant (\$)	232,223
Other (\$)	171,203
TOTAL (\$)	3,535,112
Liabilities (\$)	581,754
Equity (%)	83.5
Investment per cow (\$)	15,983
Debt per cow (\$)	2,630
<b>Productivity</b>	
Milk production (L)	1,230,984
Production per cow (L)	5,566
<b>Financial</b>	
Milk receipts (c/L)	55.1
Feed related costs (c/L)	25.2
Total variable costs (c/L)	30.0
Margin over feed related costs (c/L)	29.9
Dairy operating profit (\$/cow)	627
Return on assets – operational (%)	3.9

**Table 13.** Trends for South East Coastal grazing farms (2007-08 to 2010-11)

	2007-2008	2008-2009	2009-2010	2010-2011
<b>Milk receipts (c/L)</b>	54.3	58.2	57.6	54.7
<b>Cows (milkers and dry)</b>	219	225	225	222
<b>Production per cow (L)</b>	5,512	5,768	5,774	5,693
<b>Feed related costs (c/L)</b>	25.5	26.9	26.1	25.5
<b>Margin over feed related costs (c/L)</b>	28.8	31.3	31.6	29.1
<b>Total variable costs (c/L)</b>	29.2	31.1	30.4	30.3
<b>Dairy operating profit (\$/cow)</b>	1,711	945	860	590

## 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 rye.

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 \$16,050 per cow in their operation with 69% tied to the land. Equity levels are high, averaging at 84.3% and a return on assets of 2.8% 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 returns have decreased by 2.7 c/L in 2010-11 after 2 years on increased milk receipts.
- Cow numbers have been very stable.
- Production per cow decreased by 308 litres in 2010-11 due to the wet conditions. This is examined in more detail in section 1.
- Feed related costs increased by 0.9 c/L and total variable costs increased by 1.5 c/L in 2010-11.
- Dairy operating profit has fluctuated over the four years but has decreased by \$597 per cow in 2010-11. The high dairy operating profit per cow in 2007-08 is due to an appreciation in the value of cows.

**Table 14.** Statistics for South East Coastal PMR farms (2010-11)

<b>Resources</b>	
Cows (milkers + dry)	240
Mated heifers	48
Other heifers	104
Total dairy herd	392
Milking cow area (ha)	97
Effective dairy area (ha)	151
Labour units	3.3
<b>Assets and Liabilities</b>	
Land & buildings (\$)	2,643,750
Stock (\$)	523,556
Plant (\$)	291,250
Other (\$)	393,488
TOTAL (\$)	3,852,044
Liabilities (\$)	603,643
Equity (%)	84.3
Investment per cow (\$)	16,050
Debt per cow (\$)	2,515
<b>Productivity</b>	
Milk production (L)	1,339,757
Production per cow (L)	5,582
<b>Financial</b>	
Milk receipts (c/L)	54.9
Feed related costs (c/L)	26.9
Total variable costs (c/L)	30.7
Margin over feed related costs (c/L)	28.0
Dairy operating profit (\$/cow)	452
Return on assets – operational (%)	2.8

**Table 15.** Trends for South East Coastal PMR farms (2007-08 to 2010-11)

	2007-2008	2008-2009	2009-2010	2010-2011
<b>Milk receipts (c/L)</b>	52.7	57	57.3	54.6
<b>Cows (milkers and dry)</b>	278	264	278	278
<b>Production per cow (L)</b>	5,761	5,963	5,953	5,645
<b>Feed related costs (c/L)</b>	31.1	31.0	26.3	27.2
<b>Margin over feed related costs (c/L)</b>	21.5	26.0	31.0	27.4
<b>Total variable costs (c/L)</b>	34.0	34.3	29.5	31.0
<b>Dairy operating profit (\$/cow)</b>	1,722	688	1,000	403

## 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 135 cows, but the highest investment per cow at \$23,461 of any regional production system. Land made up 77% of the asset value. Equity levels are high, averaging at 80.2% and a return on assets of 2.7% 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. In this case the sample of farms in Table 15 is the same as the sample in Table 16. There are several points of interest.

- Milk receipts have decreased for the second year with milk receipts in 2010-11 being 0.8 c/L lower than they were in 2007-08.
- Cow numbers have steadily increased over these four years.
- Production per cow decreased by 770 litres in 2010-11 but farmers were able to decrease feed related costs by 4.0 c/L.
- Dairy operating profit decreased over these four years but the decrease in 2010-11 was not as large as in other regional production systems. The high dairy operating profit per cow in 2007-08 is due to an appreciation in the value of cows.

**Table 16.** Statistics for Darling Downs grazing farms (2010-11)

<b>Resources</b>	
Cows (milkers + dry)	135
Mated heifers	20
Other heifers	67
Total dairy herd	222
Milking cow area (ha)	149
Effective dairy area (ha)	236
Labour units	2.2
<b>Assets and Liabilities</b>	
Land & buildings (\$)	2,451,000
Stock (\$)	290,524
Plant (\$)	250,000
Other (\$)	185,049
TOTAL (\$)	3,176,573
Liabilities (\$)	629,459
Equity (%)	80.2
Investment per cow (\$)	23,461
Debt per cow (\$)	4,649
<b>Productivity</b>	
Milk production (L)	753,597
Production per cow (L)	5,566
<b>Financial</b>	
Milk receipts (c/L)	52.5
Feed related costs (c/L)	28.7
Total variable costs (c/L)	33.0
Margin over feed related costs (c/L)	23.9
Dairy operating profit (\$/cow)	634
Return on assets – operational (%)	2.7

**Table 17.** Trends for Darling Downs grazing farms (2007-08 to 2010-11)

	2007-2008	2008-2009	2009-2010	2010-2011
<b>Milk receipts (c/L)</b>	54.3	58.5	56.5	53.5
<b>Cows (milkers and dry)</b>	97	102	107	110
<b>Production per cow (L)</b>	5,020	5,402	5,741	4,971
<b>Feed related costs (c/L)</b>	31.2	22.9	27.1	23.1
<b>Margin over feed related costs (c/L)</b>	23.1	35.6	29.4	30.4
<b>Total variable costs (c/L)</b>	34.8	26.2	30.5	27.2
<b>Dairy operating profit (\$/cow)</b>	1,763	1,082	905	861



## 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 \$17,023 per cow in their operation with 67% tied to the land. Equity levels of this group average at 78.9% and a return on assets of 2.4% 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 in 2010-11 by 2.2 c/L which followed a 0.4 c/L decrease in 2009-10.
- Cow numbers have steadily increased over these four years.
- Production per cow had been increasing up to 2009-10 but decreased by 735 litres in 2010-11
- Feed related costs decreased by 4.5 c/L in 2010-11 which lead to an increase in the margin over feed related costs of 2.4 c/L.
- Dairy operating profit decreased by \$592 per cow in 2010-11. The high dairy operating profit per cow in 2007-08 is due to an appreciation in the value of cows.

**Table 18.** Statistics for Darling Downs PMR farms (2010-11)

<b>Resources</b>	
Cows (milkers + dry)	189
Mated heifers	49
Other heifers	117
Total dairy herd	356
Milking cow area (ha)	200
Effective dairy area (ha)	331
Labour units	2.8
<b>Assets and Liabilities</b>	
Land & buildings (\$)	2,161,429
Stock (\$)	464,914
Plant (\$)	381,429
Other (\$)	211,944
TOTAL (\$)	3,219,716
Liabilities (\$)	677,827
Equity (%)	78.9
Investment per cow (\$)	17,023
Debt per cow (\$)	3,584
<b>Productivity</b>	
Milk production (L)	1,226,365
Production per cow (L)	6,484
<b>Financial</b>	
Milk receipts (c/L)	54.6
Feed related costs (c/L)	27.2
Total variable costs (c/L)	31.2
Margin over feed related costs (c/L)	27.4
Dairy operating profit (\$/cow)	415
Return on assets – operational (%)	2.4

**Table 19.** Trends for Darling Downs PMR farms (2007-08 to 2010-11)

	2007-2008	2008-2009	2009-2010	2010-2011
<b>Milk receipts (c/L)</b>	53.8	57.8	57.4	55.2
<b>Cows (milkers and dry)</b>	190	202	205	211
<b>Production per cow (L)</b>	6,367	6,749	7,638	6,903
<b>Feed related costs (c/L)</b>	34.9	32.8	30.3	25.8
<b>Margin over feed related costs (c/L)</b>	19.0	24.9	27.1	29.5
<b>Total variable costs (c/L)</b>	37.7	36.1	34.1	30.2
<b>Dairy operating profit (\$/cow)</b>	2,338	782	979	387

## 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 \$14,624 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 \$3,912 and equity of 73.0%, the lowest equity of all groups. A return on assets of 3.3% 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 in 2010-11 by 1.6 c/L which followed a 1.2 c/L decrease in 2009-10. Feed related costs increased by 1.2 c/L in 2010-11
- Cow numbers have steadily increased over these four years. Production per cow had been increasing up to 2009-10 but decreased by 603 litres in 2010-11
- Dairy operating profit per cow decreased by \$456 in 2010-11. The high dairy operating profit per cow in 2007-08 is due to an appreciation in the value of cows.

**Table 20.** Statistics for Darling Downs TMR farms (2010-11)

<b>Resources</b>	
Cows (milkers + dry)	261
Mated heifers	59
Other heifers	137
Total dairy herd	457
Milking cow area (ha)	194
Effective dairy area (ha)	406
Labour units	3.2
<b>Assets and Liabilities</b>	
Land & buildings (\$)	2,217,535
Stock (\$)	623,321
Plant (\$)	685,667
Other (\$)	287,106
TOTAL (\$)	3,813,629
Liabilities (\$)	1,029,750
Equity (%)	73.0
Investment per cow (\$)	14,624
Debt per cow (\$)	3,949
<b>Productivity</b>	
Milk production (L)	1,802,595
Production per cow (L)	6,912
<b>Financial</b>	
Milk receipts (c/L)	56.4
Feed related costs (c/L)	35.8
Total variable costs (c/L)	39.4
Margin over feed related costs (c/L)	20.4
Dairy operating profit (\$/cow)	486
Return on assets – operational (%)	3.3

**Table 21.** Trends for Darling Downs TMR farms (2007-08 to 2010-11)

	2007-2008	2008-2009	2009-2010	2010-2011
<b>Milk receipts (c/L)</b>	53.6	59.2	58.0	56.4
<b>Cows (milkers and dry)</b>	212	230	259	272
<b>Production per cow (L)</b>	7,258	7,435	7,599	6,996
<b>Feed related costs (c/L)</b>	38.7	36.7	34.6	35.8
<b>Margin over feed related costs (c/L)</b>	15.0	22.5	23.4	20.6
<b>Total variable costs (c/L)</b>	41.3	39.3	37.5	39.2
<b>Dairy operating profit (\$/cow)</b>	1,888	1,246	948	492

## 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 fed whole cottonseed and many feed rhodes grass hay for limited periods.

The farms in this group have invested \$22,732 per cow in their operation, of which 73% is in the land value. Equity levels are high, averaging at 89.0% (the highest of the regional production systems) and a return on assets of 1.6% was achieved (the lowest of the regional production systems).

Milk receipts were 3 to 7 c/L 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 (0.6 c/L), production per cow (252 litres) and dairy operating profit (\$232/cow) in 2010-11. However, North Queensland still has the lowest milk receipts and dairy operating profit per cow of all regional production systems.
- Cow numbers have been steadily decreasing.
- Feed related costs decreased and margin over feed related costs increased in 2010-11.
- The high dairy operating profit per cow in 2007-08 is due to an appreciation in the value of cows.

**Table 22.** Statistics for North Queensland grazing farms (2010-11)

<b>Resources</b>	
Cows (milkers + dry)	187
Mated heifers	34
Other heifers	101
Total dairy herd	321
Milking cow area (ha)	97
Effective dairy area (ha)	171
Labour units	2.7
<b>Assets and Liabilities</b>	
Land & buildings (\$)	3,091,733
Stock (\$)	465,270
Plant (\$)	295,333
Other (\$)	389,456
TOTAL (\$)	4,241,793
Liabilities (\$)	467,245
Equity (%)	89.0
Investment per cow (\$)	22,732
Debt per cow (\$)	2,504
<b>Productivity</b>	
Milk production (L)	1,062,847
Production per cow (L)	5,696
<b>Financial</b>	
Milk receipts (c/L)	49.6
Feed related costs (c/L)	25.8
Total variable costs (c/L)	31.1
Margin over feed related costs (c/L)	23.8
Dairy operating profit (\$/cow)	354
Return on assets – operational (%)	1.6

**Table 23.** Trends for North Queensland grazing farms (2007-08 to 2010-11)

	2007-2008	2008-2009	2009-2010	2010-2011
<b>Milk receipts (c/L)</b>	44.7	51.7	49.6	50.2
<b>Cows (milkers and dry)</b>	185	182	179	175
<b>Production per cow (L)</b>	6,111	6,047	5,905	6,157
<b>Feed related costs (c/L)</b>	24.9	31.9	27.2	26.6
<b>Margin over feed related costs (c/L)</b>	19.9	19.8	22.4	23.6
<b>Total variable costs (c/L)</b>	28.7	36.4	31.8	32.0
<b>Dairy operating profit (\$/cow)</b>	1,270	355	135	367

# 10. Appendices

## 10.1 Group cash gross margin – All 62 QDAS farms (2010–11)

Queensland dairy accounting scheme				
Group cash gross margin				7/2010 - 6/2011
All Farms				
Receipts	Cents/litre	Dollars/cow	Total \$ earned	
Milk	46.6	2,695.15	569,416	
Milk bonuses/incentives/rebates/other	7.4	428.99	90,635	
<b>Milk Receipts (1,222,967 l)</b>	<b>54.0</b>	<b>3,124.14</b>	<b>660,051</b>	
Stock sales - dairy	3.4	196.14	41,438	
Stock sales - other	0.5	26.28	5,553	
Produce sales	0.1	7.94	1,677	
Other receipts	1.7	99.46	21,014	
<b>Non-milk receipts</b>	<b>5.7</b>	<b>329.82</b>	<b>69,682</b>	
<b>Total farm receipts</b>	<b>59.7</b>	<b>3,453.96</b>	<b>729,733</b>	
Production costs	Cents/litre	Dollars/cow	% Milk income	Total \$ spent
Purchased feeds	19.1	1,105.17	35.4	233,494
Fertiliser	2.4	138.15	4.4	29,188
Fuel & oil	1.6	93.06	3.0	19,660
Seed	0.7	41.25	1.3	8,716
Irrigation costs	0.5	27.16	0.9	5,738
Repairs & maintenance	1.8	101.58	3.3	21,461
Other feed costs	2.2	127.99	2.2	27,041
<b>Feed related costs</b>	<b>28.2</b>	<b>1,634.36</b>	<b>52.3</b>	<b>345,298</b>
<b>Margin over feed related costs</b>	<b>25.7</b>	<b>1,489.78</b>	<b>47.7</b>	<b>314,753</b>
Animal health	1.5	87.65	2.8	18,517
Herd improvement	0.7	39.80	1.3	8,408
<b>Herd costs</b>	<b>2.2</b>	<b>127.44</b>	<b>4.1</b>	<b>26,926</b>
Dairy shed costs - electricity	0.8	45.17	1.4	9,544
Dairy shed costs - chemicals	0.8	45.01	1.4	9,509
<b>Shed costs</b>	<b>1.6</b>	<b>90.18</b>	<b>2.9</b>	<b>19,052</b>
Cartage	0.1	7.27	0.2	1,536
Levies	0.3	18.58	0.6	3,924
Sundry variable costs	0.2	11.75	0.4	2,482
<b>Other variable costs</b>	<b>0.6</b>	<b>37.59</b>	<b>1.2</b>	<b>7,942</b>
<b>Total variable costs</b>	<b>32.6</b>	<b>1,889.58</b>	<b>60.5</b>	<b>399,219</b>
<b>Gross margins - milk only</b>	<b>21.3</b>	<b>1,234.57</b>	<b>39.5</b>	<b>260,832</b>
<b>- whole farm</b>	<b>27.0</b>	<b>1,564.39</b>	<b>50.1</b>	<b>330,515</b>
Permanent wages	6.0	349.78	11.2	73,900

Labour inputs	Areas (ha)	Stock	Production
Unpaid labour	1.6	Milking cow 125	Milking and Dry Cows 211
Paid labour	1.4	Effective dairy 219	Mated heifers 46
Total labour	2.9	Irrigation 31	Other heifers 105
Imputed (38 hr/wk)	3.5		Adult equivalents 279
Litres / labour unit	425,259		
Litres / imp labour unit	358,583		
			Fed to calves (L) 29,146 2%
			Protein total (kg) 40,480 3.31%
			Butterfat total (kg) 48,890 4.00%
			Milk solids (kg) 89,371
			Litres / cow 5,926
			Milk solids / cow (kg) 423

### Farms in report 62

Total Operating Costs	\$604,094
Dairy Operating Surplus (EBIT)	\$99,431
ROA (Operational)	2.7%
Asset value	\$3,716,300
Equity	83%

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## 10.2 Group cash gross margin – Top 25% of farms (2010–11)

Queensland dairy accounting scheme

### Group cash gross margin

7/2010 - 6/2011

Top 25%

Receipts	Cents/litre	Dollars/cow		Total \$ earned
Milk	45.8	2,685.91		561,019
Milk bonuses/incentives/rebates/other	8.9	523.33		109,310
<b>Milk Receipts (1,223,883 l)</b>	<b>54.8</b>	<b>3,209.23</b>		<b>670,329</b>
Stock sales - dairy	2.8	166.53		34,784
Stock sales - other	0.2	14.28		2,983
Produce sales	0.2	11.44		2,390
Other receipts	1.4	83.60		17,463
<b>Non-milk receipts</b>	<b>4.7</b>	<b>275.85</b>		<b>57,619</b>
<b>Total farm receipts</b>	<b>59.5</b>	<b>3,485.09</b>		<b>727,948</b>
Production costs	Cents/litre	Dollars/cow	% Milk income	Total \$ spent
Purchased feeds	15.8	925.19	28.8	193,248
Fertiliser	2.6	154.07	4.8	32,182
Fuel & oil	1.4	79.35	2.5	16,575
Seed	0.7	40.25	1.3	8,407
Irrigation costs	0.6	35.07	1.1	7,326
Repairs & maintenance	1.7	98.31	3.1	20,534
Other feed costs	1.4	79.81	1.4	16,669
<b>Feed related costs</b>	<b>24.1</b>	<b>1,412.05</b>	<b>44.0</b>	<b>294,941</b>
<b>Margin over feed related costs</b>	<b>30.7</b>	<b>1,797.19</b>	<b>56.0</b>	<b>375,388</b>
Animal health	1.3	78.60	2.4	16,418
Herd improvement	0.6	36.65	1.1	7,655
<b>Herd costs</b>	<b>2.0</b>	<b>115.25</b>	<b>3.6</b>	<b>24,073</b>
Dairy shed costs - electricity	0.8	46.54	1.5	9,721
Dairy shed costs - chemicals	0.7	42.80	1.3	8,940
<b>Shed costs</b>	<b>1.5</b>	<b>89.34</b>	<b>2.8</b>	<b>18,661</b>
Cartage	0.1	6.95	0.2	1,451
Levies	0.3	18.32	0.6	3,827
Sundry variable costs	0.2	9.70	0.3	2,026
<b>Other variable costs</b>	<b>0.6</b>	<b>34.97</b>	<b>1.1</b>	<b>7,304</b>
<b>Total variable costs</b>	<b>28.2</b>	<b>1,651.61</b>	<b>51.5</b>	<b>344,979</b>
<b>Gross margins - milk only</b>	<b>26.6</b>	<b>1,557.63</b>	<b>48.5</b>	<b>325,349</b>
<b>- whole farm</b>	<b>31.3</b>	<b>1,833.48</b>	<b>57.1</b>	<b>382,968</b>
Permanent wages	4.6	268.50	8.4	56,083

Labour inputs	Areas (ha)	Stock	Production	
Unpaid labour	1.7	Milking cow 116	Milking and Dry Cows 209	Fed to calves (L) 24,629 2%
Paid labour	1.0	Effective dairy 190	Mated heifers 38	Protein total (kg) 40,487 3.31%
Total labour	2.7	Irrigation 34	Other heifers 105	Butterfat total (kg) 48,284 3.95%
Imputed (38 hr/wk)	3.0		Adult equivalents 270	Milk solids (kg) 88,771
Litres / labour unit	463,485			Litres / cow 5,977
Litres / imp labour unit	418,511			Milk solids / cow (kg) 425

#### Farms in report 16

Total Operating Costs	\$528,175
Dairy Operating Surplus (EBIT)	\$196,254
ROA (Operational)	5.4%
Asset value	\$3,627,421
Equity	84%

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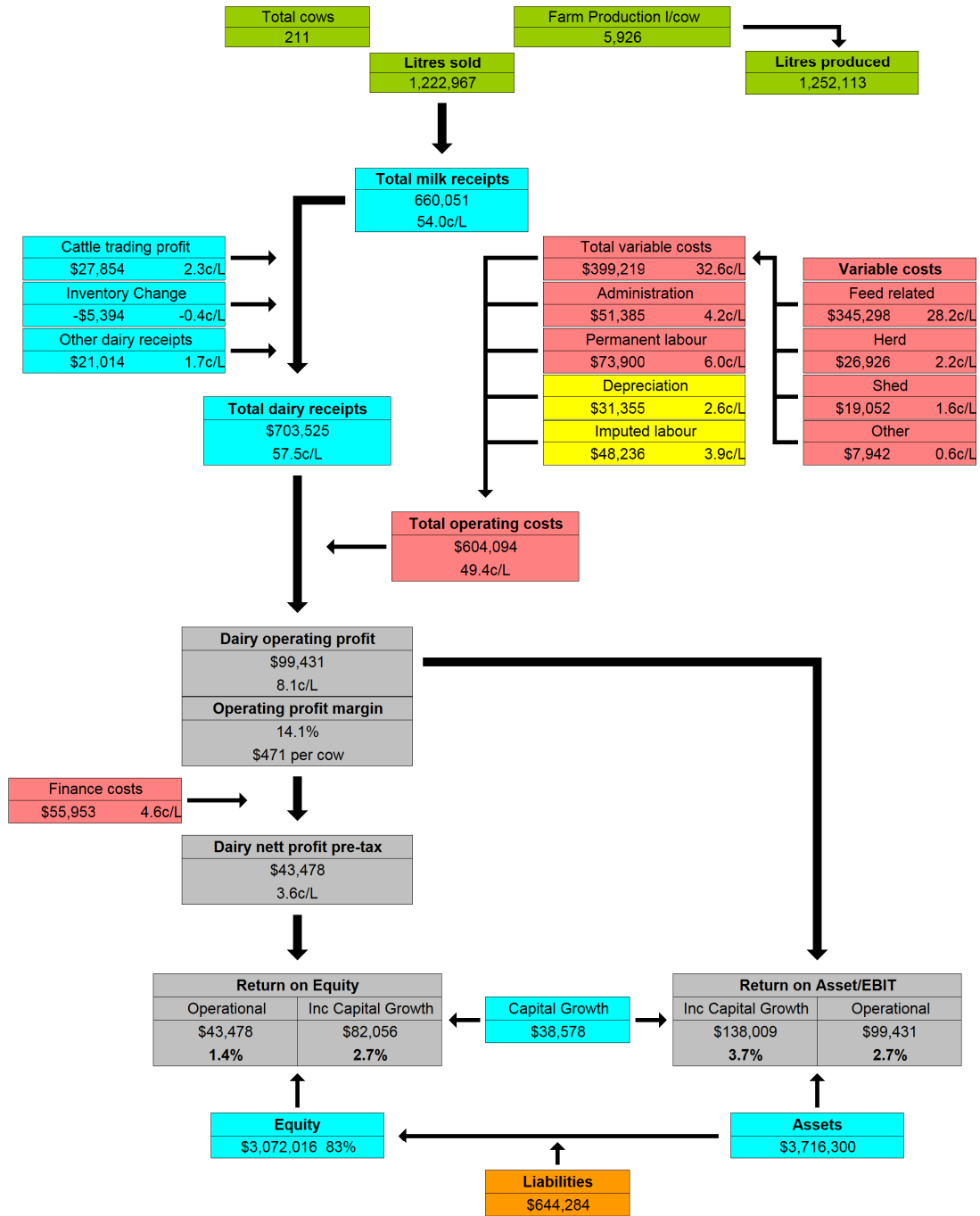
# 10.3 Map of farm performance – All 62 QDAS farms (2010–11)

Queensland dairy accounting scheme

## Group dairy farm profit map

7/2010 - 6/2011

All Farms

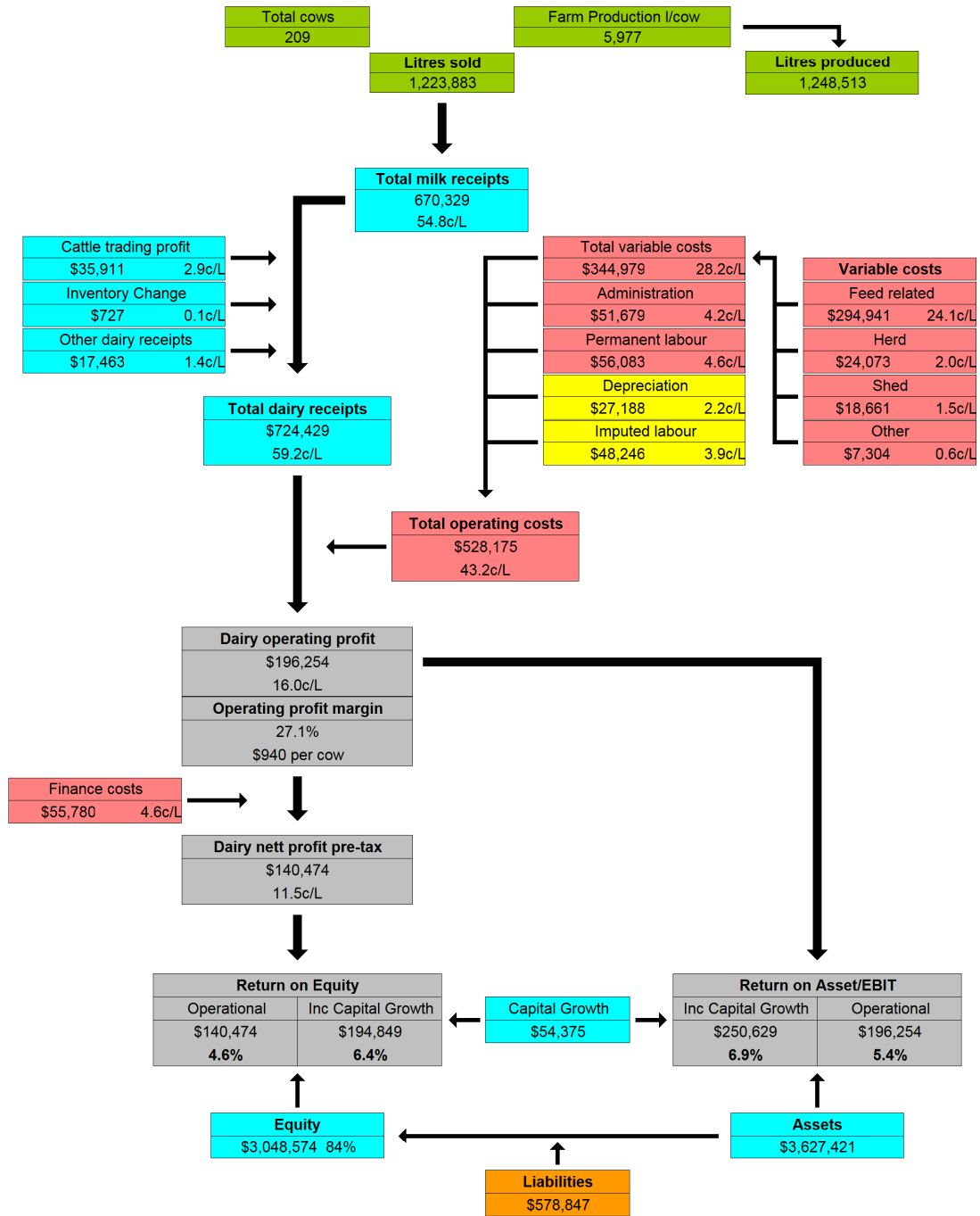


Farms in report: 62

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Asset and liability values are the average of opening and closing values for this year  
Note: Imputed Labour is litre based

# 10.4 Map of farm performance – Top 25% of farms (2010–11)



## 10.5 Group cash gross margin – South East Coastal – Grazing (2010–11)

Queensland dairy accounting scheme

### Group cash gross margin

7/2010 - 6/2011

South East Coastal Grazing

Receipts	Cents/litre	Dollars/cow		Total \$ earned
Milk	47.0	2,579.94		570,623
Milk bonuses/incentives/rebates/other	8.1	442.31		97,827
<b>Milk Receipts (1,213,286 l)</b>	<b>55.1</b>	<b>3,022.25</b>		<b>668,450</b>
Stock sales - dairy	2.9	160.37		35,470
Stock sales - other	0.1	7.55		1,669
Produce sales	0.0	2.39		530
Other receipts	1.3	71.74		15,867
<b>Non-milk receipts</b>	<b>4.4</b>	<b>242.05</b>		<b>53,536</b>
<b>Total farm receipts</b>	<b>59.5</b>	<b>3,264.30</b>		<b>721,986</b>
Production costs	Cents/litre	Dollars/cow	% Milk income	Total \$ spent
Purchased feeds	16.4	898.14	29.7	198,647
Fertiliser	3.3	180.42	6.0	39,905
Fuel & oil	1.5	81.07	2.7	17,930
Seed	0.7	40.52	1.3	8,961
Irrigation costs	0.8	43.67	1.4	9,659
Repairs & maintenance	1.7	92.92	3.1	20,551
Other feed costs	0.8	45.19	0.8	9,996
<b>Feed related costs</b>	<b>25.2</b>	<b>1,381.92</b>	<b>45.7</b>	<b>305,649</b>
<b>Margin over feed related costs</b>	<b>29.9</b>	<b>1,640.33</b>	<b>54.3</b>	<b>362,802</b>
Animal health	1.8	99.72	3.3	22,055
Herd improvement	0.8	42.55	1.4	9,410
<b>Herd costs</b>	<b>2.6</b>	<b>142.26</b>	<b>4.7</b>	<b>31,466</b>
Dairy shed costs - electricity	0.7	37.97	1.3	8,397
Dairy shed costs - chemicals	0.9	49.99	1.7	11,056
<b>Shed costs</b>	<b>1.6</b>	<b>87.95</b>	<b>2.9</b>	<b>19,453</b>
Cartage	0.1	4.89	0.2	1,082
Levies	0.3	18.23	0.6	4,032
Sundry variable costs	0.2	9.72	0.3	2,150
<b>Other variable costs</b>	<b>0.6</b>	<b>32.85</b>	<b>1.1</b>	<b>7,265</b>
<b>Total variable costs</b>	<b>30.0</b>	<b>1,644.99</b>	<b>54.4</b>	<b>363,832</b>
<b>Gross margins - milk only</b>	<b>25.1</b>	<b>1,377.26</b>	<b>45.6</b>	<b>304,618</b>
<b>- whole farm</b>	<b>29.5</b>	<b>1,619.31</b>	<b>53.6</b>	<b>358,154</b>
Permanent wages	7.6	415.14	13.7	91,819

Labour inputs	Areas (ha)	Stock	Production
Unpaid labour	1.4	Milking cow 91	Milking and Dry Cows 221
Paid labour	1.8	Effective dairy 148	Mated heifers 58
Total labour	3.2	Irrigation 44	Other heifers 98
Imputed (38 hr/wk)	3.8	Adult equivalents 296	
Litres / labour unit	390,424		
Litres / imp labour unit	321,388		
			Fed to calves (L) 17,698 1%
			Protein total (kg) 40,983 3.38%
			Butterfat total (kg) 49,959 4.12%
			Milk solids (kg) 90,942
			Litres / cow 5,566
			Milk solids / cow (kg) 411

#### Farms in report 17

Total Operating Costs	\$575,010
Dairy Operating Surplus (EBIT)	\$138,755
ROA (Operational)	3.9%
Asset value	\$3,535,113
Equity	84%

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## 10.6 Group cash gross margin – South East Coastal – PMR (2010–11)

Queensland dairy accounting scheme

### Group cash gross margin

7/2010 - 6/2011

South East Coastal PMR

Receipts	Cents/litre	Dollars/cow		Total \$ earned
Milk	47.5	2,611.04		626,650
Milk bonuses/incentives/rebates/other	7.3	403.73		96,895
<b>Milk Receipts (1,319,132 l)</b>	<b>54.9</b>	<b>3,014.77</b>		<b>723,546</b>
Stock sales - dairy	2.7	150.19		36,044
Stock sales - other	0.3	18.61		4,465
Produce sales	0.3	17.24		4,139
Other receipts	0.9	50.13		12,031
<b>Non-milk receipts</b>	<b>4.3</b>	<b>236.17</b>		<b>56,680</b>
<b>Total farm receipts</b>	<b>59.1</b>	<b>3,250.94</b>		<b>780,225</b>
Production costs	Cents/litre	Dollars/cow	% Milk income	Total \$ spent
Purchased feeds	17.0	936.73	31.1	224,816
Fertiliser	2.3	124.68	4.1	29,923
Fuel & oil	1.6	85.93	2.9	20,624
Seed	1.1	59.79	2.0	14,348
Irrigation costs	0.8	45.38	1.5	10,891
Repairs & maintenance	1.6	89.79	3.0	21,549
Other feed costs	2.4	133.72	2.4	32,092
<b>Feed related costs</b>	<b>26.9</b>	<b>1,476.01</b>	<b>49.0</b>	<b>354,243</b>
<b>Margin over feed related costs</b>	<b>28.0</b>	<b>1,538.76</b>	<b>51.0</b>	<b>369,302</b>
Animal health	1.3	69.25	2.3	16,620
Herd improvement	0.6	35.58	1.2	8,540
<b>Herd costs</b>	<b>1.9</b>	<b>104.83</b>	<b>3.5</b>	<b>25,160</b>
Dairy shed costs - electricity	0.8	44.20	1.5	10,609
Dairy shed costs - chemicals	0.6	34.74	1.2	8,338
<b>Shed costs</b>	<b>1.4</b>	<b>78.95</b>	<b>2.6</b>	<b>18,947</b>
Cartage	0.1	4.19	0.1	1,006
Levies	0.3	17.43	0.6	4,184
Sundry variable costs	0.1	7.99	0.3	1,917
<b>Other variable costs</b>	<b>0.5</b>	<b>29.61</b>	<b>1.0</b>	<b>7,106</b>
<b>Total variable costs</b>	<b>30.7</b>	<b>1,689.40</b>	<b>56.0</b>	<b>405,456</b>
<b>Gross margins - milk only</b>	<b>24.1</b>	<b>1,325.37</b>	<b>44.0</b>	<b>318,089</b>
<b>- whole farm</b>	<b>28.4</b>	<b>1,561.54</b>	<b>51.8</b>	<b>374,769</b>
Permanent wages	7.5	410.22	13.6	98,452

Labour inputs	Areas (ha)	Stock	Production
Unpaid labour	1.6	Milking cow 97	Milking and Dry Cows 240
Paid labour	1.7	Effective dairy 151	Mated heifers 48
Total labour	3.3	Irrigation 40	Other heifers 104
Imputed (38 hr/wk)	3.9	Adult equivalents 309	
Litres / labour unit	401,425		
Litres / imp labour unit	346,407		
			Fed to calves (L) 20,625 2%
			Protein total (kg) 43,624 3.31%
			Butterfat total (kg) 52,139 3.95%
			Milk solids (kg) 95,763
			Litres / cow 5,582
			Milk solids / cow (kg) 399

#### Farms in report 8

Total Operating Costs	\$624,761
Dairy Operating Surplus (EBIT)	\$108,555
ROA (Operational)	2.8%
Asset value	\$3,852,044
Equity	84%

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## 10.7 Group cash gross margin – Darling Downs – Grazing (2010–11)

Queensland dairy accounting scheme

### Group cash gross margin

7/2010 - 6/2011

Darling Downs Grazing

Receipts	Cents/litre	Dollars/cow		Total \$ earned
Milk	44.1	2,415.32		327,034
Milk bonuses/incentives/rebates/other	8.4	459.81		62,258
<b>Milk Receipts (740,837 l)</b>	<b>52.5</b>	<b>2,875.12</b>		<b>389,292</b>
Stock sales - dairy	3.9	213.44		28,900
Stock sales - other	0.0	0.00		0
Produce sales	0.0	0.83		112
Other receipts	2.3	127.16		17,218
<b>Non-milk receipts</b>	<b>6.2</b>	<b>341.43</b>		<b>46,230</b>
<b>Total farm receipts</b>	<b>58.8</b>	<b>3,216.55</b>		<b>435,521</b>
Production costs	Cents/litre	Dollars/cow	% Milk income	Total \$ spent
Purchased feeds	19.7	1,075.78	37.4	145,661
Fertiliser	1.9	102.45	3.6	13,871
Fuel & oil	1.4	77.35	2.7	10,473
Seed	1.4	74.53	2.6	10,092
Irrigation costs	0.7	38.95	1.4	5,274
Repairs & maintenance	2.4	133.32	4.6	18,052
Other feed costs	1.2	67.48	1.2	9,137
<b>Feed related costs</b>	<b>28.7</b>	<b>1,569.87</b>	<b>54.6</b>	<b>212,560</b>
<b>Margin over feed related costs</b>	<b>23.9</b>	<b>1,305.25</b>	<b>45.4</b>	<b>176,731</b>
Animal health	1.1	60.52	2.1	8,195
Herd improvement	0.4	22.82	0.8	3,090
<b>Herd costs</b>	<b>1.5</b>	<b>83.35</b>	<b>2.9</b>	<b>11,285</b>
Dairy shed costs - electricity	1.0	55.85	1.9	7,562
Dairy shed costs - chemicals	1.1	61.99	2.2	8,394
<b>Shed costs</b>	<b>2.2</b>	<b>117.84</b>	<b>4.1</b>	<b>15,956</b>
Cartage	0.1	6.68	0.2	904
Levies	0.3	17.90	0.6	2,424
Sundry variable costs	0.2	12.24	0.4	1,657
<b>Other variable costs</b>	<b>0.7</b>	<b>36.82</b>	<b>1.3</b>	<b>4,985</b>
<b>Total variable costs</b>	<b>33.0</b>	<b>1,807.88</b>	<b>62.9</b>	<b>244,787</b>
<b>Gross margins - milk only</b>	<b>19.5</b>	<b>1,067.25</b>	<b>37.1</b>	<b>144,505</b>
<b>- whole farm</b>	<b>25.7</b>	<b>1,408.68</b>	<b>49.0</b>	<b>190,735</b>
Permanent wages	2.6	142.36	5.0	19,276

Labour inputs	Areas (ha)	Stock	Production	
Unpaid labour	1.6	Milking cow 149	Milking and Dry Cows 135	Fed to calves (L) 12,760 2%
Paid labour	0.6	Effective dairy 236	Mated heifers 20	Protein total (kg) 24,505 3.31%
Total labour	2.2	Irrigation 24	Other heifers 67	Butterfat total (kg) 29,632 4.00%
Imputed (38 hr/wk)	2.4	Adult equivalents	171	Milk solids (kg) 54,137
Litres / labour unit	345,687			Litres / cow 5,566
Litres / imp labour unit	313,159			Milk solids / cow (kg) 400

#### Farms in report 5

Total Operating Costs	\$365,813
Dairy Operating Surplus (EBIT)	\$85,798
ROA (Operational)	2.7%
Asset value	\$3,176,573
Equity	80%

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## 10.8 Group cash gross margin – Darling Downs – PMR (2010–11)

Queensland dairy accounting scheme

### Group cash gross margin

7/2010 - 6/2011

Darling Downs PMR

Receipts	Cents/litre	Dollars/cow		Total \$ earned
Milk	45.6	2,855.17		540,036
Milk bonuses/incentives/rebates/other	9.0	561.57		106,217
<b>Milk Receipts (1,183,522 l)</b>	<b>54.6</b>	<b>3,416.74</b>		<b>646,252</b>
Stock sales - dairy	4.4	274.29		51,880
Stock sales - other	0.2	10.53		1,992
Produce sales	0.0	0.91		172
Other receipts	1.8	113.62		21,490
<b>Non-milk receipts</b>	<b>6.4</b>	<b>399.35</b>		<b>75,535</b>
<b>Total farm receipts</b>	<b>61.0</b>	<b>3,816.09</b>		<b>721,787</b>
Production costs	Cents/litre	Dollars/cow	% Milk income	Total \$ spent
Purchased feeds	15.9	997.05	29.2	188,585
Fertiliser	1.1	70.18	2.1	13,274
Fuel & oil	2.4	152.95	4.5	28,930
Seed	0.6	36.94	1.1	6,988
Irrigation costs	0.5	30.29	0.9	5,729
Repairs & maintenance	1.8	109.79	3.2	20,765
Other feed costs	4.9	305.96	4.9	57,870
<b>Feed related costs</b>	<b>27.2</b>	<b>1,703.16</b>	<b>49.8</b>	<b>322,141</b>
<b>Margin over feed related costs</b>	<b>27.4</b>	<b>1,713.58</b>	<b>50.2</b>	<b>324,111</b>
Animal health	1.0	62.27	1.8	11,777
Herd improvement	0.9	55.23	1.6	10,446
<b>Herd costs</b>	<b>1.9</b>	<b>117.49</b>	<b>3.4</b>	<b>22,223</b>
Dairy shed costs - electricity	0.8	51.23	1.5	9,690
Dairy shed costs - chemicals	0.6	36.43	1.1	6,891
<b>Shed costs</b>	<b>1.4</b>	<b>87.66</b>	<b>2.6</b>	<b>16,581</b>
Cartage	0.2	9.39	0.3	1,776
Levies	0.3	19.72	0.6	3,730
Sundry variable costs	0.2	15.44	0.5	2,920
<b>Other variable costs</b>	<b>0.7</b>	<b>44.55</b>	<b>1.3</b>	<b>8,426</b>
<b>Total variable costs</b>	<b>31.2</b>	<b>1,952.87</b>	<b>57.2</b>	<b>369,372</b>
<b>Gross margins - milk only</b>	<b>23.4</b>	<b>1,463.87</b>	<b>42.8</b>	<b>276,881</b>
<b>- whole farm</b>	<b>29.8</b>	<b>1,863.22</b>	<b>54.5</b>	<b>352,415</b>
Permanent wages	7.9	494.71	14.5	93,571

Labour inputs	Areas (ha)	Stock	Production	
Unpaid labour	1.5	Milking cow 200	Milking and Dry Cows 189	Fed to calves (L) 42,843 3%
Paid labour	1.3	Effective dairy 331	Mated heifers 49	Protein total (kg) 39,156 3.31%
Total labour	2.8	Irrigation 48	Other heifers 117	Butterfat total (kg) 45,661 3.86%
Imputed (38 hr/wk)	3.5	Adult equivalents 263	Milk solids (kg) 84,817	
Litres / labour unit	444,795		Litres / cow 6,484	
Litres / imp labour unit	349,907		Milk solids / cow (kg) 448	

#### Farms in report 7

Total Operating Costs	\$594,713
Dairy Operating Surplus (EBIT)	\$78,458
ROA (Operational)	2.4%
Asset value	\$3,219,716
Equity	79%

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## 10.9 Group cash gross margin – Darling Downs – TMR (2010–11)

Queensland dairy accounting scheme

### Group cash gross margin

7/2010 - 6/2011

Darling Downs TMR

Receipts	Cents/litre	Dollars/cow		Total \$ earned
Milk	46.6	3,184.19		830,365
Milk bonuses/incentives/rebates/other	9.8	667.88		174,168
<b>Milk Receipts (1,781,795 l)</b>	<b>56.4</b>	<b>3,852.07</b>		<b>1,004,533</b>
Stock sales - dairy	4.1	280.62		73,180
Stock sales - other	0.6	38.59		10,064
Produce sales	0.4	25.60		6,676
Other receipts	1.5	100.24		26,141
<b>Non-milk receipts</b>	<b>6.5</b>	<b>445.06</b>		<b>116,061</b>
<b>Total farm receipts</b>	<b>62.9</b>	<b>4,297.12</b>		<b>1,120,594</b>
Production costs	Cents/litre	Dollars/cow	% Milk income	Total \$ spent
Purchased feeds	25.8	1,763.41	45.8	459,858
Fertiliser	1.7	118.55	3.1	30,915
Fuel & oil	2.1	143.07	3.7	37,310
Seed	0.7	47.01	1.2	12,259
Irrigation costs	0.0	1.14	0.0	297
Repairs & maintenance	1.8	119.59	3.1	31,187
Other feed costs	3.7	254.91	3.7	66,474
<b>Feed related costs</b>	<b>35.8</b>	<b>2,447.68</b>	<b>63.5</b>	<b>638,301</b>
<b>Margin over feed related costs</b>	<b>20.6</b>	<b>1,404.39</b>	<b>36.5</b>	<b>366,232</b>
Animal health	1.1	77.65	2.0	20,248
Herd improvement	0.4	24.10	0.6	6,283
<b>Herd costs</b>	<b>1.5</b>	<b>101.74</b>	<b>2.6</b>	<b>26,532</b>
Dairy shed costs - electricity	0.7	48.35	1.3	12,609
Dairy shed costs - chemicals	0.7	50.50	1.3	13,168
<b>Shed costs</b>	<b>1.4</b>	<b>98.85</b>	<b>2.6</b>	<b>25,778</b>
Cartage	0.1	7.04	0.2	1,837
Levies	0.3	22.39	0.6	5,839
Sundry variable costs	0.2	12.10	0.3	3,156
<b>Other variable costs</b>	<b>0.6</b>	<b>41.54</b>	<b>1.1</b>	<b>10,832</b>
<b>Total variable costs</b>	<b>39.4</b>	<b>2,689.81</b>	<b>69.8</b>	<b>701,442</b>
<b>Gross margins - milk only</b>	<b>17.0</b>	<b>1,162.26</b>	<b>30.2</b>	<b>303,091</b>
<b>- whole farm</b>	<b>23.5</b>	<b>1,607.31</b>	<b>41.7</b>	<b>419,152</b>
Permanent wages	4.0	270.46	7.0	70,530

Labour inputs	Areas (ha)	Stock	Production
Unpaid labour	1.9	Milking cow 194	Milking and Dry Cows 261
Paid labour	1.3	Effective dairy 406	Mated heifers 59
Total labour	3.2	Irrigation 10	Other heifers 137
Imputed (38 hr/wk)	3.7		Adult equivalents 348
Litres / labour unit	557,504		Milk solids (kg) 130,899
Litres / imp labour unit	488,377		Litres / cow 6,912
			Milk solids / cow (kg) 502

#### Farms in report 9

Total Operating Costs	\$936,909
Dairy Operating Surplus (EBIT)	\$126,702
ROA (Operational)	3.3%
Asset value	\$3,813,629
Equity	73%

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## 10.10 Group cash gross margin – North Queensland – Grazing (2010–11)

Queensland dairy accounting scheme

### Group cash gross margin

7/2010 - 6/2011

North Queensland Grazing

Receipts	Cents/litre	Dollars/cow		Total \$ earned
Milk	46.1	2,507.21		467,845
Milk bonuses/incentives/rebates/other	3.5	191.38		35,711
<b>Milk Receipts (1,015,027 l)</b>	<b>49.6</b>	<b>2,698.58</b>		<b>503,556</b>
Stock sales - dairy	3.3	179.01		33,404
Stock sales - other	1.2	62.77		11,713
Produce sales	0.0	0.00		0
Other receipts	3.0	161.05		30,052
<b>Non-milk receipts</b>	<b>7.4</b>	<b>402.83</b>		<b>75,169</b>
<b>Total farm receipts</b>	<b>57.0</b>	<b>3,101.42</b>		<b>578,725</b>
Production costs	Cents/litre	Dollars/cow	% Milk income	Total \$ spent
Purchased feeds	18.7	1,019.63	37.8	190,263
Fertiliser	3.0	161.25	6.0	30,090
Fuel & oil	0.9	51.23	1.9	9,559
Seed	0.4	20.52	0.8	3,828
Irrigation costs	0.2	12.60	0.5	2,350
Repairs & maintenance	1.6	87.67	3.2	16,360
Other feed costs	0.9	50.15	0.9	9,357
<b>Feed related costs</b>	<b>25.8</b>	<b>1,403.04</b>	<b>52.0</b>	<b>261,807</b>
<b>Margin over feed related costs</b>	<b>23.8</b>	<b>1,295.55</b>	<b>48.0</b>	<b>241,749</b>
Animal health	1.9	102.63	3.8	19,151
Herd improvement	0.9	49.88	1.8	9,307
<b>Herd costs</b>	<b>2.8</b>	<b>152.51</b>	<b>5.7</b>	<b>28,458</b>
Dairy shed costs - electricity	0.9	48.22	1.8	8,998
Dairy shed costs - chemicals	0.8	42.50	1.6	7,930
<b>Shed costs</b>	<b>1.7</b>	<b>90.72</b>	<b>3.4</b>	<b>16,928</b>
Cartage	0.2	11.93	0.4	2,227
Levies	0.3	16.45	0.6	3,069
Sundry variable costs	0.3	15.73	0.6	2,935
<b>Other variable costs</b>	<b>0.8</b>	<b>44.11</b>	<b>1.6</b>	<b>8,231</b>
<b>Total variable costs</b>	<b>31.1</b>	<b>1,690.37</b>	<b>62.6</b>	<b>315,424</b>
<b>Gross margins - milk only</b>	<b>18.5</b>	<b>1,008.21</b>	<b>37.4</b>	<b>188,132</b>
<b>- whole farm</b>	<b>25.9</b>	<b>1,411.04</b>	<b>52.3</b>	<b>263,301</b>
Permanent wages	5.0	272.43	10.1	50,835

Labour inputs	Areas (ha)	Stock	Production	
Unpaid labour	1.6	Milking cow 97	Milking and Dry Cows 187	Fed to calves (L) 47,820 4%
Paid labour	1.1	Effective dairy 171	Mated heifers 34	Protein total (kg) 32,276 3.18%
Total labour	2.7	Irrigation 19	Other heifers 101	Butterfat total (kg) 40,055 3.95%
Imputed (38 hr/wk)	3.1	Adult equivalents 243	Milk solids (kg) 72,331	
Litres / labour unit	399,066		Litres / cow 5,696	
Litres / imp labour unit	341,986		Milk solids / cow (kg) 388	

#### Farms in report 15

Total Operating Costs	\$503,229
Dairy Operating Surplus (EBIT)	\$65,973
ROA (Operational)	1.6%
Asset value	\$4,241,793
Equity	89%

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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 essentially to measuring a business' 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><b>Profitability</b></p> <ul style="list-style-type: none"> <li>• Return on asset (RoA) operational – %</li> <li>• Return on equity (RoE) operational – %</li> <li>• Operating profit margin (OPM) – %</li> <li>• Dairy operating profit (DOP) –\$/cow</li> </ul> <p><b>Solvency</b></p> <ul style="list-style-type: none"> <li>• Equity% – %</li> <li>• Debt to equity ratio</li> </ul> <p><b>Efficiency - Capital</b></p> <ul style="list-style-type: none"> <li>• Asset turnover ratio (ATO)</li> <li>• Total liabilities per cow – \$/cow</li> <li>• Interest per cow – \$/cow</li> </ul> <p><b>Efficiency - Production</b></p> <ul style="list-style-type: none"> <li>• Feed related cost (FRC) – c/L</li> <li>• Margin over feed related costs (MOFRC) – \$/cow</li> <li>• Total variable cost (TVC) – c/L</li> <li>• Gross margin milk (GM) – \$/cow</li> </ul> <p><b>Efficiency – Physical</b></p> <ul style="list-style-type: none"> <li>• Litres of milk from home grown feed (L/HGF) – L</li> <li>• Production per cow (PPC) – L</li> <li>• Litres per labour unit (LLU) – L</li> </ul>
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### 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 (RoA) - operational

The KPI, RoA operational measures the profit-generating capacity of the total assets of the business. It measures the farm's effectiveness in using the available total capital, both debt and equity. This does not include any capital (land and improvements) appreciation.

#### Calculation

$(\text{Dairy operating profit} \div \text{Total assets}) * 100.$

### Return on Asset (RoA) – including capital appreciation

The KPI, RoA 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

$((\text{Dairy operating profit} + \text{increase in the value of land and improvements}) \div \text{Total assets}) * 100.$

### Return on equity (RoE) - 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 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

$(\text{Dairy net profit (pre tax)} \div \text{Equity}) * 100$

### **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*

$((\text{Dairy net profit (pre tax)} + \text{increase in the value of land and improvements}) \div \text{Equity}) * 100$

### **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*

$(\text{Dairy operating profit} \div \text{total dairy income}) * 100.$

### **Dairy operating profit per cow**

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

#### *Calculation*

$(\text{Dairy operating profit} \div \text{Number of milkers}) * 100.$

### **Solvency KPI used in QDAS**

Solvency ratios indicate how the business is financed, eg by owners 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*

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

### **Debt to equity ratio**

This is another way of expressing equity.

#### *Calculation*

$\text{Average Liabilities} \div \text{average net worth}.$

### **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*

$\text{Total dairy receipts} \div \text{Assets}.$

#### **Total liabilities (debt) per milker**

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

#### *Calculation*

$\text{Liabilities} \div \text{Number of milkers}.$

#### **Interest per milker**

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

#### *Calculation*

$\text{Total interest payments} \div \text{Number of milkers}$

## **Efficiency - Production**

### **Feed related cost (FRC)**

FRC is a variable cash cost and includes purchased as well as all home grown feed input costs.

#### *Calculation*

Total of all feed related costs ÷ Total production.

### **Margin over feed related costs (MOFRC)**

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

#### *Calculation*

(Gross milk income – FRC) ÷ Number of milkers.

### **Total variable cost (TVC)**

In QDAS total variable costs are compiled under four headings – FRC, herd, shed and other variable costs.

#### *Calculation*

TVC ÷ Total production.

### **Milk gross margin (GM)**

This highlights the milk production efficiency; the resulting dollars are available to pay fixed, financial, living and future development costs. It is should not be confused with the profit KPI.

#### *Calculation*

(Milk income – TVC) ÷ Number of milkers.

## **Efficiency - Physical**

### **Litres of milk from home grown feed**

Home grown forage (HGF) 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 HGF is expressed as litres per milker 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*

Total milk production ÷ Number of milkers.

## **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.