Balancing dairy production and profits in northern Australia

Queensland Dairy Accounting Scheme - 2010

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Balancing dairy production and profits in Northern Australia

QDAS Financial and production trends – 2010

Compiled by

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Department of Employment, Economic Development and Innovation 2010

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Introduction

This report contains physical and financial data from 54 farms and includes data from the South East Coastal, Darling Downs and North Queensland dairy regions, see Figure 1.

Milk production in Queensland increased in 2009-10, from 512 to 529 million litres. This is the second year that milk production has increased in Queensland since the deregulation of the industry. The number of dairies has declined to 595. Table 1 shows the trend in milk supply and farm numbers for Queensland over the last four years.

In 2009-10 Australian milk production was 9.0 billion litres with Queensland contributing 5.9% or 529 million litres.

Figure 2 shows that the monthly milk production in Queensland has a spring – summer peak. The production is largely influenced by payment schemes, all year round calving and feed supply.

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 8.

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

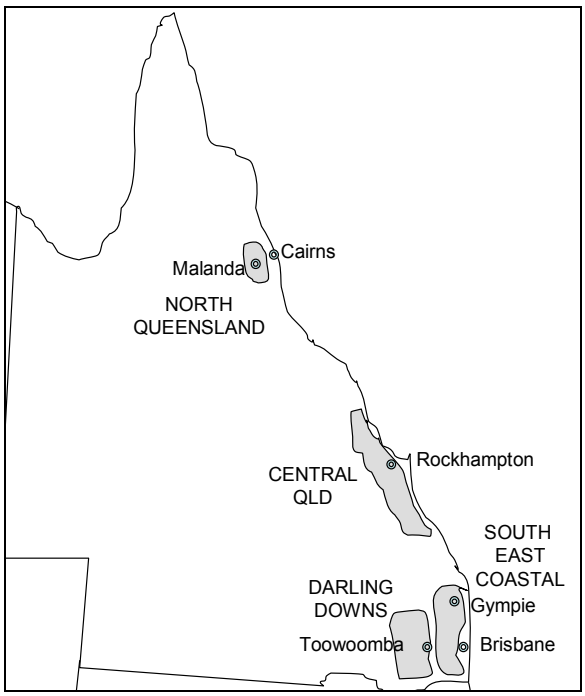
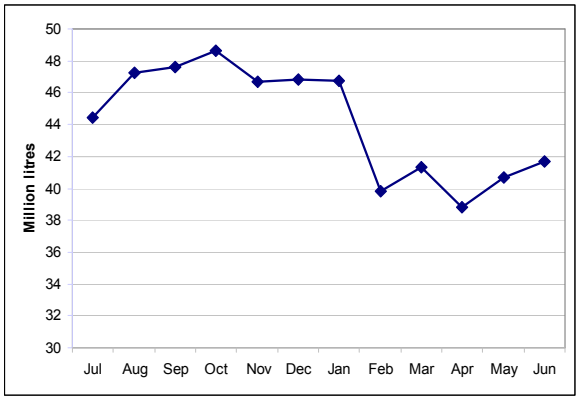


Table 1. Dairy farm numbers and annual production for Queensland (2006-07 to 2009-10)

	Farms	Annual production
2009-10	595	529 m L
2008-09	610	512 m L
2007-08	630	485 m L
2006-07	734	534 m L

Figure 2. Queensland monthly milk production (2009-10)



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.

Acknowledgements

The authors wish to thank all cooperating farmers who supplied data and provided valuable feedback in discussion groups held during late 2010.

The authors also acknowledge the support and efforts of the following people for their assistance with data collection.

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Belinda Haddow
Michelle Platell

This is the first QDAS report written since the retirement of Graeme Busby, the instigator of QDAS. Graeme has left a great legacy and the Queensland dairy industry is thankful for his many years of dedication to dairy farm business management.

QDAS activities and this report are undertaken as part of the Business Plu$ project. Business Plu$ is a project of the Department of Employment, Economic Development and Innovation (DEEDI) and co-funded by DEEDI and Dairy Australia.

Ray Murphy
Project Leader

Business Plu$
Department of Employment, Economic Development and Innovation
December 2010.

Contents

Tables

Figures

1. 2009–2010 Key findings

Fifteen Key Performance Indicators (KPI) are used to highlight the results for profitability, solvency and efficiency. Table 2 shows these results for 2009-2010 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 (2006-07 to 2009-10)

Business traits and indicators[1]	**Top 25%**	**QDAS average**	**Past QDAS averages**		
Profitability	**2009-10**	**2009-10**	**2008-09**	**2007-08**	**2006-07**
Return on assets - operational (%)	9.1	4.2	4.6	10.3	1.1
Return on equity - operational (%)	9.4	3.6	4.1	10.7	-0.3
Operating profit margin (%)	34.4	20.3	21.2	27.8	6.1
Dairy operating profit ($/cow)	1,490	754	804	1,605	147
Solvency					
Equity (%)	83	85	84	83	84
Debt to equity ratio	0.21	0.18	0.19	0.20	0.20
Efficiency – Capital/Finance					
Asset turnover ratio	0.27	0.21	0.22	0.27	0.18
Total liabilities per cow ($)	2,810	2,705	2,805	2,598	2,182
Interest paid/cow ($)	180	176	188	212	184
Efficiency – Productivity					
Feed related costs (c/L)	26.1	29.1	31.3	30.2	24.7
Margin over feed related costs ($/L)	31.8	27.1	25.0	21.1	13.0
Total variable costs (c/L)	29.0	32.9	35.1	33.7	28.1
Gross margin - milk ($/cow)	1,951	1,664	1,668	1,019	544
Efficiency – Physical					
Production per cow (L)	6,849	6,248	6,146	5,894	5,664
Litres per labour unit					
- On farms <1.0 m L	325,386	281,304	303,131	321,378	331,424
- On farms >1.0 m L	561,861	488,665	502,885	504,583	513,677

[1] The definition of each indicator and how it is calculated can be found in Appendix 9.10

A year of consolidation

The 2009-10 financial year was a year of consolidation for the Queensland dairy industry.

- Milk prices have been stable with the majority of farmers having supply contracts. However, some contracts finished on June 30 2010 and milk prices have reduced for these farmers.
- South East Coastal and Darling Downs average milk price ranged from 56.4 c/L to 58.5 c/L depending on the regional production system, processor payment system and milk composition. North Queensland farmers received an average price of 49.7 c/L.
- Feed and fertiliser prices stayed at levels similar to 2008-09.
- There has continued to be strong investment in improvements to dairies, feeding systems and other fixed improvements, in part due to delayed processing of investments that attracted the Federal Government accelerated depreciation rates.

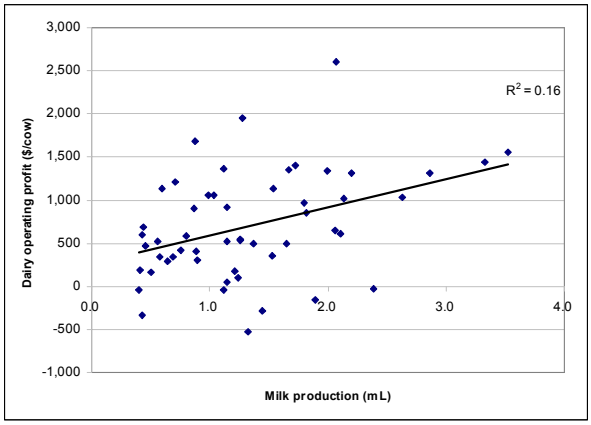
Profitability

Table 2 shows dairy operating profit decreased by $50 per cow to $754 in 2009-10 but this is still significantly higher than the $147 per cow recorded in 2006-07. Even though total variable costs per litre decreased by 2.2 c/L, this has been out weighed by a 0.2 c/L reduction in milk receipts, increases in administration, labour and depreciation costs and a reduction in stored feed inventories. This all flows on to a 0.4 point reduction in return on assets from 4.6% to 4.2%.

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.

It is a misconception that the size of the dairy operating profit per cow will reduce as herd size increases. Figure 3 shows that large herds still achieve a high margin and generate more total dollars. It also shows that there is a variation in dairy operating profit per cow at all production levels.

Figure 3. The relationship between milk production and dairy operating profit per cow (2009-10)



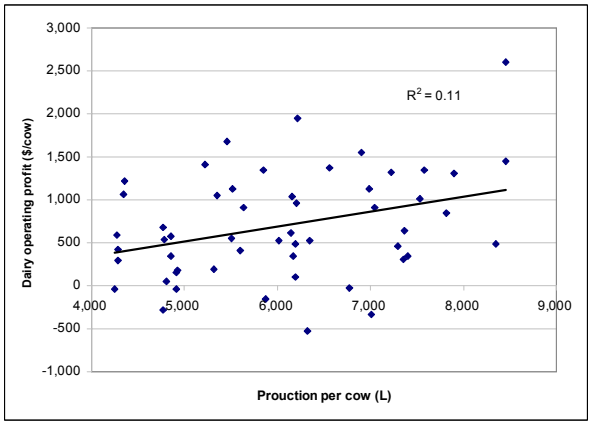
Debts reduce slightly

2009-10 saw a slight reduction in the levels of debt and interest KPI. Table 2 shows that total liabilities per cow decreased from $2,805 to 2,705 and interest per cow decreased from $188 to $176. Consequently the debt to equity ratio decreased and the equity percentage increased to 85%.

Production per cow

The QDAS average production per cow increased again by 102 litres during the year to 6,248 litres. Production per cow is a significant profit driver. This is evident when comparing the production per cow of the top 25% group who achieved 6,849 litres, while the average was 6,248 litres. Figure 4 shows that as production per cow increases, so does the dairy operating profit per cow. This is further examined in section 2.

Figure 4. The relationship between production per cow and dairy operating profit per cow (2009-10)



Feed related costs

Feed related costs decreased by 2.2 c/L from 31.3 c/L to 29.1 c/L in 2009-10. This is a result of decreases in the costs of producing home grown feed, for instance fertiliser expenditure dropped by 1.4 c/L. The cost of purchased feed actually rose by 0.1 c/L to 20.0 c/L. This reduction in feed related costs flows on to reduce total variable costs by 2.2c/L to 32.9c/L and increase the margin over feed related costs by 2.0 c/L to 27.1 c/L.

The top 25% group achieved feed related costs of 26.1 c/L (3.0 c/L lower than the QDAS average) and a margin over feed related costs of 31.8 c/L (4.7 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 51.8% of milk income.

Table 3. Indicative prices per tonne of major farm inputs (2009-10)

	June 2009	June 2010
Grain/pellets		
Sorghum	$195	$200
Barley	$215	$230
Wheat	$235	$240
Soybean meal	$560	$530
Canola meal	$368	$370
14% dairy pellet	$362	$335
Fertiliser		
Urea	$540	$570
Starter Z	$850	$810
Diesel		
Bowser price	$1.26	$1.32

Input costs stable

The cost of feed and fertiliser were relatively stable over the last year. Table 3 shows the prices of major farm inputs, with some increasing slightly and others easing. These prices are sourced in southern Queensland, and vary depending on contractual arrangements.

Administration efficiencies

The QDAS average administration cost was $50,780 or 3.9c/L. While administration costs increase as production increases, the costs get proportionately lower per litre. Table 4 shows administration falling from 5.1c/L to 3.0c/L as production increases.

Administration includes accountancy, rates, registration of farm vehicles, insurance, telephone, office expenses, repairs to permanent improvements and membership of professional organisations.

Labour usage up

The cost of labour increased by 0.5 c/L to 5.6 c/L in 2009-10. This is a result of higher labour related costs plus an increase in the amount of paid labour used on farms. The amount of paid labour was up 0.1 of a labour unit to 1.5 paid labour units per farm. Unpaid labour (owner / operator labour) also increased by 0.2 of a labour unit to 1.6 labour units per farm.

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 488,665 litres per labour unit.

Table 4 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.

Table 4. Analysis of administration costs and labour inputs and costs (2009-10)

	<750,000 L	750,000 – 1.25m L	1.25 – 1.75m L	>1.75m L
Milk production (L)	526,067	1,015,845	1,463,619	2,343,980
Cows (milkers + dry)	103	186	239	329
Admin ($)	26,665	40,701	68,802	68,524
Admin (c/L)	5.1	4.1	4.8	3.0
Unpaid labour (FTE)	1.7	1.7	1.4	1.7
Paid labour (FTE)	0.4	1.0	1.7	2.9
Paid labour cost (c/L)	3.7	4.1	5.1	7.0

2. Factors affecting profitability

To investigate the factors affecting profitability, the QDAS results of the top 25% group (sorted by dairy operating profit per cow) are compared with the results of the remaining 75% of farms. Table 5 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 885 litres per cow more than the remaining 75% group.
- Selling more litres of milk. The top 25% group sold 647,276 more litres of milk than the remaining 75% group. This is driven by production per cow and by having 69 more cows (milkers and dry).
- 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 adjusted feed related cost. The top 25% group had feed related costs 4.6c/L lower than the other group and 6.5 c/L less after adjusting for changes in stored feed inventories. The margin over feed related costs is also significantly higher.

Table 5. KPI for top 25% and the remaining 75% of farms (2009-10)

	Top 25%	Remaining 75%
Physical traits		
Cows (milkers + dry)	266	197
Production per cow (L)	6,849	5,964
Farm production (m L)	1,821,236	1,173,960
Cash Analysis		
Milk receipts (c/L)	57.9	55.1
Feed related costs (c/L)	26.1	30.7
Margin over FRC ($/cow)	2,145	1,429
Profit Analysis		
Change in feed inventory (c/L)	0.7	-1.2
Adjusted FRC (c/L)	25.4	31.9
Total dairy receipts (c/L)	64.2	58.5
Dairy operating profit ($/cow)	1,491	406
Average investment ($/cow)	16,336	18,625

Production per cow

It has always been the case that high producing farms, measured either by per cow production, herd size or milk volume have the highest profitability. This year is no exception to that statement.

Table 6 shows that as production per cow increases from below 5,000 litres to above 7,000 litres, the following occurs:

- Total farm production and therefore milk receipts increase.
- Dairy operating profit per cow increases from $349 to $973 as production per cow increases.
- While the margin over feed related costs per litre is not the highest in the above 7,000 litres group, the additional volume produced per cow drives the profitability.

Table 6. KPI for four production per cow groups in Queensland (2009-10)

	<5,000	5,000 - 6,000	6,000 - 7,000	>7,000
Farm milk production (L)	835,752	1,121,003	1,615,151	1,739,819
Cows (milkers + dry)	179	202	251	225
Production per cow (L)	4,659	5,558	6,424	7,746
Milk receipts (c/L)	55.0	55.6	55.3	57.6
Margin over FRC (c/L)	24.6	29.8	30.1	24.4
Margin over FRC ($/cow)	1,127	1,616	1,895	1,863
Dairy operating profit ($/cow)	349	863	793	973

Herd size

Table 7 shows size does matter. The large farms producing more than 2 million litres not only have large herds, they also have the highest production per cow at 7,227 litres.

The group of large farms have the highest profitability by all measures, including a dairy operating profit per cow of $1,138 and a return on assets of 6.9%.

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.

Labour usage is excellent with over 555,000 litres produced per labour unit in the larger herds. Labour efficiency drops to 246,003 litres per labour unit for the small herds.

Table 7. KPI for farms with increasing annual production (2009-10)

	<750,000 L	750,000 – 1.25m L	1.25 – 2.0m L	>2.0m L
Farm milk production (L)	526,067	1,015,845	1,566,465	2,531,571
Cows (milkers + dry)	103	186	248	350
Production per cow (L)	5,107	5,473	6,312	7,227
Margin over FRC ($/cow)	1,494	1,457	1,577	1,975
Litres per labour unit	246,003	389,711	453,227	555,779
Return on assets (%)	1.9	3.8	3.4	6.9
Dairy operating profit ($)	50,194	111,201	152,363	398,732
Dairy operating profit ($/cow)	487	599	614	1,138

Production efficiency

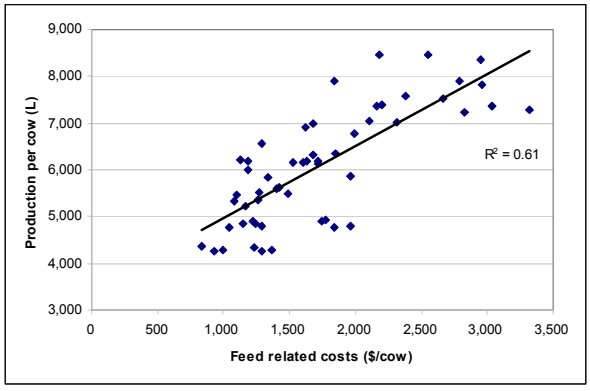
Figure 5 shows the large variation in efficiency of farm production systems. The upward trend line gives an indication of an average production per cow that can be achieved as feed related costs per cow are increased. Individual farms can then see if they fall below or above this trend line.

The average feed related costs per cow for the south east coastal grazing group (shown in section 9.5) is $1,405 /cow. By examining this level of feed related costs per cow in Figure 5, the resulting production achieved by farmers varies from 4,200 to 6,500 litres per cow. There is a large potential benefit to farmers who are below the trend line if they were to improve the efficiency of their feeding. If a farmer could increase production by 1,000 litres per cow, this represents $120,615 in extra milk receipts assuming the QDAS average milk return of 56.1 c/L and 215 cows.

A similar variation in production per cow can be seen in the more intensive feeding systems costing $1,750 per cow. At this level, Figure 5 shows production per cow results of between 4,900 and 7,900 litres per cow.

The challenge for farmers who find themselves below the trend line is to increase production per cow by better utilising the amount of money they are already spending on feed. This can be done by feeding a high quality balanced diet, culling cows that under perform or who are difficult to get in calf, having heifers in good condition and attention to detail. Farmers who have high production efficiency pay attention to details such as cleaning feed and water troughs out regularly, having tidy and comfortable lane ways, adequate shade and good animal management.

Figure 5. Relationship between feed related costs per cow and production per cow (2009-10)



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 8 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. Only three participating Darling Downs farms have been categorised as PMR so this regional production system is not reported separately. However, these three farms are included in the reports containing all farms.

Table 8. The number of farms collected in each regional production system (2009-10)

Region	GRA	PMR	TMR
North Queensland	14	0	0
Darling Downs	5	3	10
South East Coastal	15	7	0

Table 9 presents a summary of the KPI for each regional production system. There are several points of interest.

- Milk receipts were 7 to 9 c/L higher in the South East Coastal and Darling Downs systems than in North Queensland.
- The feed related costs of the Darling Downs grazing system of 28.2 c/L is higher than the South East Coastal grazing cost of 25.2 c/L. They also have higher production per cow.
- Production per cow increases within a region as the feeding system intensifies. On the Darling Downs, production per cow increases from 6,102 for grazing to 7,673 for a TMR system.
- North Queensland has a low cost grazing system, similar to the South East Coastal grazing system. However, they pay considerably more for purchased grain and concentrates in North Queensland which leads to higher feed related costs. This, combined with lower milk receipts per litre in North Queensland, flows through to a lower margin over feed related costs and return on assets.

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 that change.

Table 9. KPI for farming systems (2009-10)

	Sth East Coastal Grazing	Sth East Coastal PMR	Darling Downs Grazing	Darling Downs TMR	North Queensland Grazing
Cows (milkers + dry)	228	253	118	244	194
Farm production (L)	1,267,547	1,529,204	717,557	1,872,286	1,093,890
Production per cow (L)	5,558	6,048	6,102	7,673	5,628
Milk receipts (c/L)	58.5	56.8	56.4	57.9	49.7
Feed related costs(c/L)	25.6	28.1	28.2	33.4	28.5
Margin over feed related costs (c/L)	32.9	28.7	28.2	24.6	21.2
Total variable costs (c/L)	29.9	31.7	32.2	36.4	33.2
Dairy operating profit ($/cow)	943	772	908	1,082	152
Return on assets – operational (%)	5.4	4.4	4.1	7.5	0.7

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 $17,348 per cow in their operation, of which 78% is in the land value. This is the highest land value of all the regional production systems. They still managed to generate an operational return on assets of 5.4%. They have a very high equity level at 86%.

The production range for this system is normally 18 to 20 litres per day with peaks of 22 litres.

Table 11 shows the data trends for farms with continuous participation in QDAS over the last 4 years, 2006-07 to the present. This sample of farms is slightly smaller than the sample used in Table 10. There are several points of interest.

- There have been three years of significantly higher milk receipts and margin over feed related costs than were achieved in 2006-07.
- Corrected feed related costs have been stable for the last three years.
- Herd size has steadily increased.
- The high dairy operating profit per cow in 2007-08 is due to an appreciation in the value of cows.

Table 10. Statistics for South East Coastal grazing farms (2009-10)

Resources	
Cows (milkers + dry)	228
Mated heifers	55
Other heifers	89
Total dairy herd	372
Milking cow area (ha)	85
Effective dairy area (ha)	155
Labour units	3.3
Assets and Liabilities	
Land & buildings ($)	3,094,232
Stock ($)	497,383
Plant ($)	240,121
Other ($)	124,860
TOTAL ($)	3,956,596
Liabilities ($)	548,046
Equity (%)	86.1
Investment per cow ($)	17,348
Debt per cow ($)	2,403
Productivity	
Milk production (L)	1,267,547
Production per cow (L)	5,558
Financial	
Milk receipts (c/L)	58.5
Feed related costs (cash c/L)	25.6
Feed related costs (corrected c/L)	25.8
Total variable costs (c/L)	29.9
Margin over feed related costs (corrected c/L)	33.7
Dairy operating profit ($/cow)	943
Return on assets – operational (%)	5.4

Table 11. Trends for South East Coastal grazing farms (2006-07 to 2009-10)

	2006-2007	2007-2008	2008-2009	2009-2010
Milk receipts (c/L)	40.6	54.0	58.1	57.7
Cows (milkers and dry)	224	225	227	233
Production per cow (L)	5,451	5,441	5,747	5,714
Feed related costs (corrected c/L)	20.5	26.7	26.4	26.0
Margin over feed related costs (corrected c/L)	20.1	27.3	31.7	31.7
Total variable costs (c/L)	25.5	30.0	31.6	30.0
Dairy operating profit ($/cow)	349	1,661	873	920

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 slightly higher investment in stock and this production system results in higher per cow production than that on South East Coastal grazing farms.

They have invested $16,344 per cow in their operation with 68% tied to the land. Production per cow is 6,048 litres, a 490 litre advantage over cows in the South East Coastal grazing farms.

Table 13 shows the data trends for farms with continuous participation in QDAS over the last 4 years, 2006-07 to the present. This sample of farms is slightly smaller than the sample used in Table 12. There are several points of interest.

- There have been three years of significantly higher milk receipts and margin over feed related costs than were achieved in 2006-07.
- Production per cow has continually increased.
- Seasonal conditions have caused variations in corrected feed related costs and total variable costs over the last four years.
- Corrected margin over feed related costs have continually increased, gaining 15.7 c/L since 2006-07.
- 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 PMR farms (2009-10)

Resources	
Cows (milkers + dry)	253
Mated heifers	34
Other heifers	113
Total dairy herd	399
Milking cow area (ha)	122
Effective dairy area (ha)	169
Labour units	3.7
Assets and Liabilities	
Land & buildings ($)	2,814,286
Stock ($)	590,264
Plant ($)	300,429
Other ($)	427,713
TOTAL ($)	4,132,691
Liabilities ($)	505,464
Equity (%)	87.8
Investment per cow ($)	16,344
Debt per cow ($)	1,999
Productivity	
Milk production (L)	1,529,204
Production per cow (L)	6,048
Financial	
Milk receipts (c/L)	56.8
Feed related costs (cash c/L)	28.1
Feed related costs (corrected c/L)	27.6
Total variable costs (c/L)	31.7
Margin over feed related costs (corrected c/L)	28.8
Dairy operating profit ($/cow)	722
Return on assets – operational (%)	4.4

Table 13. Trends for South East Coastal PMR farms (2006-07 to 2009-10)

	2006-2007	2007-2008	2008-2009	2009-2010
Milk receipts (c/L)	39.6	52.9	57.1	57.2
Cows (milkers and dry)	282	273	267	268
Production per cow (L)	5,856	5,969	6,047	6,134
Feed related costs (corrected c/L)	24.6	27.5	30.3	26.5
Margin over feed related costs (corrected c/L)	15.0	25.5	26.8	30.7
Total variable costs (c/L)	29.6	33.2	33.7	30.3
Dairy operating profit ($/cow)	291	1,832	799	900

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 grazing group had the smallest herds with 118 milking cows, the lowest stocking rate, but the highest investment per cow at $22,323 of any regional production system. Land made up 71% of the asset value.

Production per cow was 6,102 litres, which has been achieved through feed related costs being higher than in the South East Coastal grazing farms.

Table 15 shows the data trends for farms with continuous participation in QDAS over the last 4 years, 2006-07 to the present. In this case the sample of farms in Table 15 is the same as the sample in Table 14. There are several points of interest.

- There have been three years of significantly higher milk receipts and margin over feed related costs than were achieved in 2006-07.
- Seasonal conditions have caused variations in corrected feed related costs and total variable costs over the last four years.
- Dairy operating profit per cow has been strong for the last three years.
- The high dairy operating profit per cow in 2007-08 is due to an appreciation in the value of cows.

Table 14. Statistics for Darling Downs grazing farms (2009-10)

Resources	
Cows (milkers + dry)	118
Mated heifers	25
Other heifers	38
Total dairy herd	180
Milking cow area (ha)	133
Effective dairy area (ha)	174
Labour units	2.0
Assets and Liabilities	
Land & buildings ($)	1,877,000
Stock ($)	246,016
Plant ($)	237,000
Other ($)	265,185
TOTAL ($)	2,625,201
Liabilities ($)	410,378
Equity (%)	84.4
Investment per cow ($)	22,323
Debt per cow ($)	3,490
Productivity	
Milk production (L)	717,557
Production per cow (L)	6,102
Financial	
Milk receipts (c/L)	56.4
Feed related costs (cash c/L)	28.2
Feed related costs (corrected c/L)	28.7
Total variable costs (c/L)	32.2
Margin over feed related costs (corrected c/L)	30.1
Dairy operating profit ($/cow)	908
Return on assets – operational (%)	4.1

Table 15. Trends for Darling Downs grazing farms (2006-07 to 2009-10)

	2006-2007	2007-2008	2008-2009	2009-2010
Milk receipts (c/L)	39.8	54.3	58.2	56.4
Cows (milkers and dry)	102	104	114	118
Production per cow (L)	5,068	5,033	5,354	6,102
Feed related costs (corrected c/L)	25.5	24.2	28.6	28.7
Margin over feed related costs (corrected c/L)	14.3	30.1	29.6	27.7
Total variable costs (c/L)	31.1	36.0	28.9	32.2
Dairy operating profit ($/cow)	128	1,598	851	908

7. 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 plantings are minimal and opportunistic in years when sub soil moisture is available.

These farms have been using this production system for a number of years and have refined their operations. They have commodity sheds, grain, byproducts and protein meals are purchased in bulk and forward contracting is common. With the investment in infrastructure required they have a debt per cow of $3,470 and have the lowest equity of the groups.

They are ideally situated in relation to the grain growing areas of Queensland. This reduces freight on grain. It is common to feed up to 12 -14 kilograms of concentrate per cow per day. In reasonable years they grow all their own forage requirements.

Table 17 shows the data trends for farms with continuous participation in QDAS over the last 4 years, 2006-07 to the present. This sample of farms is slightly smaller than the sample used in Table 16. There are several points of interest.

- Production per cow has increased by 618 litres since 2006-07 as these farms refine their feeding and management.
- Herd size has increased by 27% over these four years.
- Corrected margin over feed costs have been stable for the last three years.
- Dairy operating profit per cow has been strong for the last three years.
- 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 TMR farms (2009-10)

Resources	
Cows (milkers + dry)	244
Mated heifers	55
Other heifers	118
Total dairy herd	417
Milking cow area (ha)	180
Effective dairy area (ha)	383
Labour units	3.3
Assets and Liabilities	
Land & buildings ($)	2,229,920
Stock ($)	613,025
Plant ($)	499,975
Other ($)	163,939
TOTAL ($)	3,506,859
Liabilities ($)	846,793
Equity (%)	75.9
Investment per cow ($)	14,372
Debt per cow ($)	3,470
Productivity	
Milk production (L)	1,872,286
Production per cow (L)	7,673
Financial	
Milk receipts (c/L)	57.9
Feed related costs (cash c/L)	33.4
Feed related costs (corrected c/L)	34.9
Total variable costs (c/L)	36.4
Margin over feed related costs (corrected c/L)	25.9
Dairy operating profit ($/cow)	1,082
Return on assets – operational (%)	7.5

Table 17. Trends for Darling Downs TMR farms (2006-07 to 2009-10)

	2006-2007	2007-2008	2008-2009	2009-2010
Milk receipts (c/L)	39.1	53.9	58.9	58.2
Cows (milkers and dry)	197	207	223	250
Production per cow (L)	7,036	7,222	7,454	7,654
Feed related costs (corrected c/L)	27.6	30.1	35.6	34.0
Margin over feed related costs (corrected c/L)	11.5	23.8	23.3	24.2
Total variable costs (c/L)	32.2	40.4	38.4	36.0
Dairy operating profit ($/cow)	416	2,011	1,327	1,258

8. 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.

Land is highly valued at $18,000 per hectare and accounts for 70% of the asset base. The investment per cow is $21,198.

Milk receipts were 7 to 9 c/L lower in North Queensland than in the South East Coastal and Darling Downs systems.

Input costs fluctuate with the seasons and in drier years when grain and concentrates have to be sourced from central Queensland, input costs rise. The freight component is at least $100 per tonne.

Table 19 shows the data trends for farms with continuous participation in QDAS over the last 4 years, 2006-07 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 2009-10 but are still 14.4 c/L higher than in 2006-07.
- Seasonal conditions causing variations in corrected feed related costs and total variable costs over the last four years.
- While milk receipts are higher than in 2006-07, so too are total variable costs and this results in a low dairy operating profit per cow of $75 being achieved in 2009-10.
- The high dairy operating profit per cow in 2007-08 is due to an appreciation in the value of cows.

Table 18. Statistics for North Queensland grazing farms (2009-10)

Resources	
Cows (milkers + dry)	194
Mated heifers	33
Other heifers	84
Total dairy herd	311
Milking cow area (ha)	92
Effective dairy area (ha)	158
Labour units	2.9
Assets and Liabilities	
Land & buildings ($)	2,866,857
Stock ($)	467,709
Plant ($)	312,886
Other ($)	472,584
TOTAL ($)	4,120,036
Liabilities ($)	517,815
Equity (%)	87.4
Investment per cow ($)	21,198
Debt per cow ($)	2,664
Productivity	
Milk production (L)	1,093,890
Production per cow (L)	5,628
Financial	
Milk receipts (c/L)	49.7
Feed related costs (cash c/L)	28.5
Feed related costs (corrected c/L)	29.9
Total variable costs (c/L)	33.2
Margin over feed related costs (corrected c/L)	21.7
Dairy operating profit ($/cow)	152
Return on assets – operational (%)	0.7

Table 19. Trends for North Queensland grazing farms (2006-07 to 2009-10)

	2006-2007	2007-2008	2008-2009	2009-2010
Milk receipts (c/L)	35.4	44.7	51.7	49.8
Cows (milkers and dry)	196	194	192	190
Production per cow (L)	5,983	5,998	5,957	5,741
Feed related costs (corrected c/L)	21.9	23.9	30.2	30.2
Margin over feed related costs (corrected c/L)	13.6	20.8	21.5	19.6
Total variable costs (c/L)	25.5	28.1	36.5	33.4
Dairy operating profit ($/cow)	350	1,223	331	75

9. Appendices

9.1 Group cash gross margin – All 54 QDAS farms (2009–10)

Queensland dairy accounting scheme

Group cash gross margin

7/2009 - 6/2010

All farms

Receipts	Cents/litre	Dollars/cow		Total $ earned
Milk	48.2	2,957.60		635,171
Milk bonuses/incentives/rebates/other	7.9	484.10		103,965
Milk Receipts (1,317,040 l)	**56.1**	**3,441.70**		**739,136**
Stock sales - dairy	2.4	146.85		31,537
Stock sales - other	0.3	19.69		4,229
Produce sales	0.1	7.90		1,696
Other receipts	1.1	66.65		14,314
Non-milk receipts	**3.9**	**241.09**		**51,776**
Total farm receipts	**60.1**	**3,682.78**		**790,912**
Production costs	**Cents/litre**	**Dollars/cow**	**% Milk income**	**Total $ spent**
Purchased feeds	20.0	1,223.64	35.6	262,789
Fertiliser	2.3	138.00	4.0	29,637
Fuel & oil	1.3	81.77	2.4	17,562
Seed	0.7	41.02	1.2	8,810
Irrigation costs	0.8	46.38	1.3	9,961
Repairs & maintenance	1.9	117.02	3.4	25,131
Other feed costs	2.2	134.86	2.2	28,962
Feed related costs	**29.1**	**1,782.70**	**51.8**	**382,851**
Margin over feed related costs	**27.1**	**1,659.00**	**48.2**	**356,285**
Animal health	1.3	77.06	2.2	16,550
Herd improvement	0.6	39.32	1.1	8,444
Herd costs	**1.9**	**116.38**	**3.4**	**24,994**
Dairy shed costs - electricity	0.7	41.94	1.2	9,008
Dairy shed costs - chemicals	0.7	40.53	1.2	8,705
Shed costs	**1.3**	**82.48**	**2.4**	**17,713**
Cartage	0.1	6.44	0.2	1,383
Levies	0.3	19.78	0.6	4,248
Sundry variable costs	0.2	10.79	0.3	2,316
Other variable costs	**0.6**	**37.00**	**1.1**	**7,947**
Total variable costs	**32.9**	**2,018.56**	**58.7**	**433,505**
Gross margins - milk only	**23.2**	**1,423.13**	**41.3**	**305,631**
- whole farm	**27.1**	**1,664.22**	**48.4**	**357,407**
Permament wages	5.6	345.38	10.0	74,175

Labour inputs		Areas (ha)		Stock		Production		
Unpaid labour	1.6	Milking cow	117	Milking and Dry Cows	215	Fed to calves (L)	24,733	2%
Paid labour	1.5	Effective dairy	212	Mated heifers	44	Protein total (kg)	43,441	3.30%
Total labour	3.1	Irrigation	31	Other heifers	97	Butterfat total (kg)	51,819	3.93%
Imputed (38 hr/wk)	3.6			Adult equivalents	278	Milk solids (kg)	95,259	
Litres / labour unit	431,927					Litres / cow	6,248	
Litres / imp labour unit	369,593					Milk solids / cow (kg)	444	

Farms in report 54

Total Operating Costs	$635,570
Dairy Operating Surplus (EBIT)	$161,957
ROA (Operational)	4.2%
Asset value	$3,844,469
Equity	85%

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9.2 Group cash gross margin – Top 25% of farms (2009–10)

Queensland dairy accounting scheme

Group cash gross margin

7/2009 - 6/2010

Top 25%

Receipts	Cents/litre	Dollars/cow		Total $ earned
Milk	47.6	3,213.25		854,496
Milk bonuses/incentives/rebates/other	10.3	693.44		184,407
Milk Receipts (1,794,075 l)	**57.9**	**3,906.70**		**1,038,903**
Stock sales - dairy	2.2	148.41		39,466
Stock sales - other	0.3	19.50		5,186
Produce sales	0.2	12.61		3,354
Other receipts	1.2	83.21		22,128
Non-milk receipts	**3.9**	**263.73**		**70,134**
Total farm receipts	**61.8**	**4,170.43**		**1,109,036**
Production costs	**Cents/litre**	**Dollars/cow**	**% Milk income**	**Total $ spent**
Purchased feeds	16.9	1,139.74	29.2	303,089
Fertiliser	1.3	90.92	2.3	24,178
Fuel & oil	1.4	96.43	2.5	25,643
Seed	0.7	48.02	1.2	12,771
Irrigation costs	0.9	58.73	1.5	15,619
Repairs & maintenance	2.0	134.24	3.4	35,698
Other feed costs	2.9	193.53	2.9	51,465
Feed related costs	**26.1**	**1,761.61**	**45.1**	**468,463**
Margin over feed related costs	**31.8**	**2,145.09**	**54.9**	**570,440**
Animal health	0.7	49.09	1.3	13,053
Herd improvement	0.4	28.68	0.7	7,627
Herd costs	**1.2**	**77.77**	**2.0**	**20,681**
Dairy shed costs - electricity	0.7	44.25	1.1	11,767
Dairy shed costs - chemicals	0.6	37.93	1.0	10,086
Shed costs	**1.2**	**82.18**	**2.1**	**21,853**
Cartage	0.0	3.26	0.1	868
Levies	0.3	21.68	0.6	5,765
Sundry variable costs	0.1	8.41	0.2	2,236
Other variable costs	**0.5**	**33.35**	**0.9**	**8,869**
Total variable costs	**29.0**	**1,954.91**	**50.0**	**519,865**
Gross margins - milk only	**28.9**	**1,951.79**	**50.0**	**519,037**
- whole farm	**32.8**	**2,215.52**	**56.7**	**589,171**
Permament wages	5.3	359.72	9.2	95,659

Labour inputs		Areas (ha)		Stock		Production		
Unpaid labour	1.8	Milking cow	154	Milking and Dry Cows	266	Fed to calves (L)	27,161	1%
Paid labour	1.6	Effective dairy	288	Mated heifers	53	Protein total (kg)	60,033	3.35%
Total labour	3.4	Irrigation	37	Other heifers	131	Butterfat total (kg)	70,805	3.95%
Imputed (38 hr/wk)	4.1			Adult equivalents	347	Milk solids (kg)	130,838	
Litres / labour unit	528,990					Litres / cow	6,849	
Litres / imp labour unit	446,915					Milk solids / cow (kg)	492	

Farms in report 14

Total Operating Costs	$755,985
Dairy Operating Surplus (EBIT)	$396,358
ROA (Operational)	9.1%
Asset value	$4,345,400
Equity	83%

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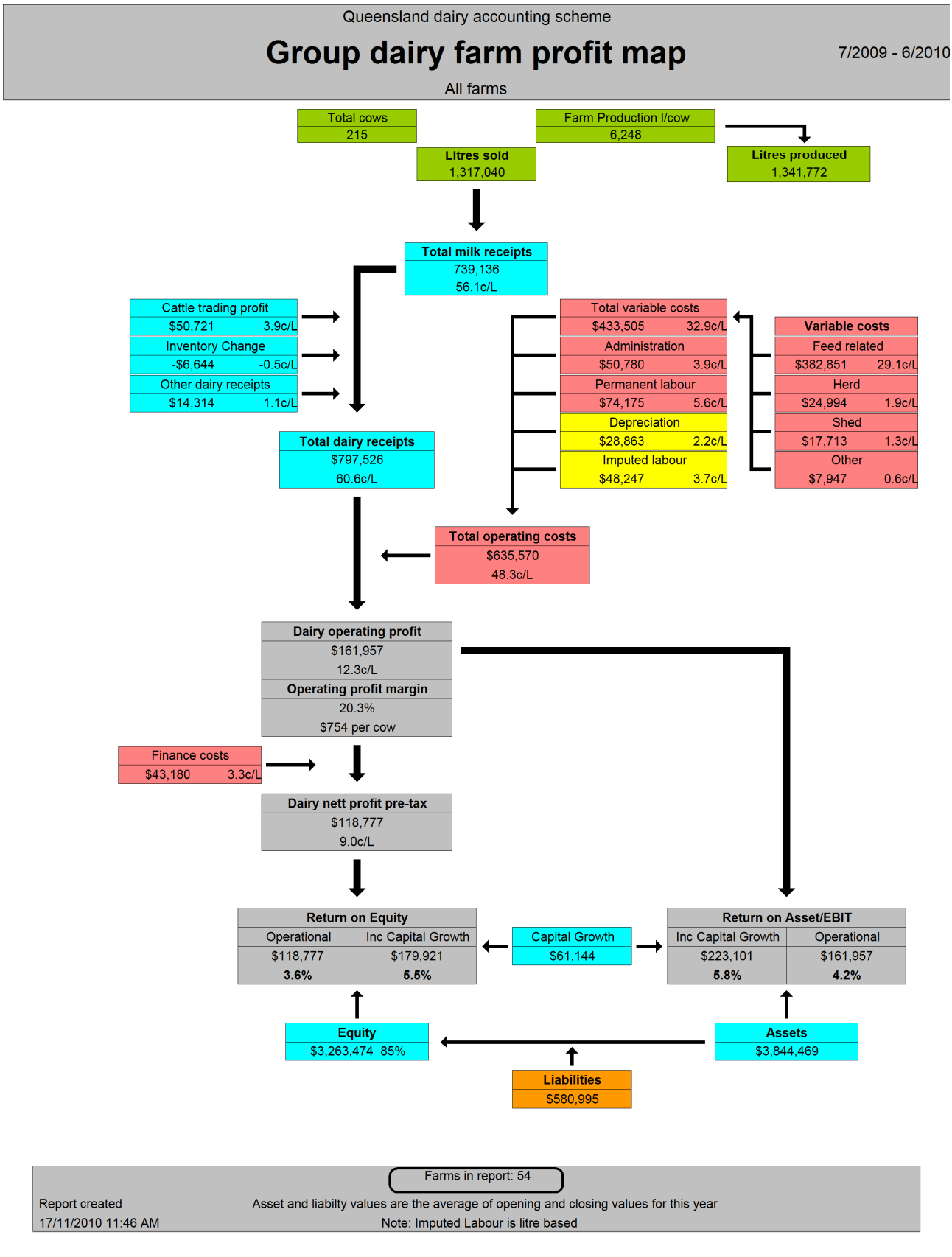
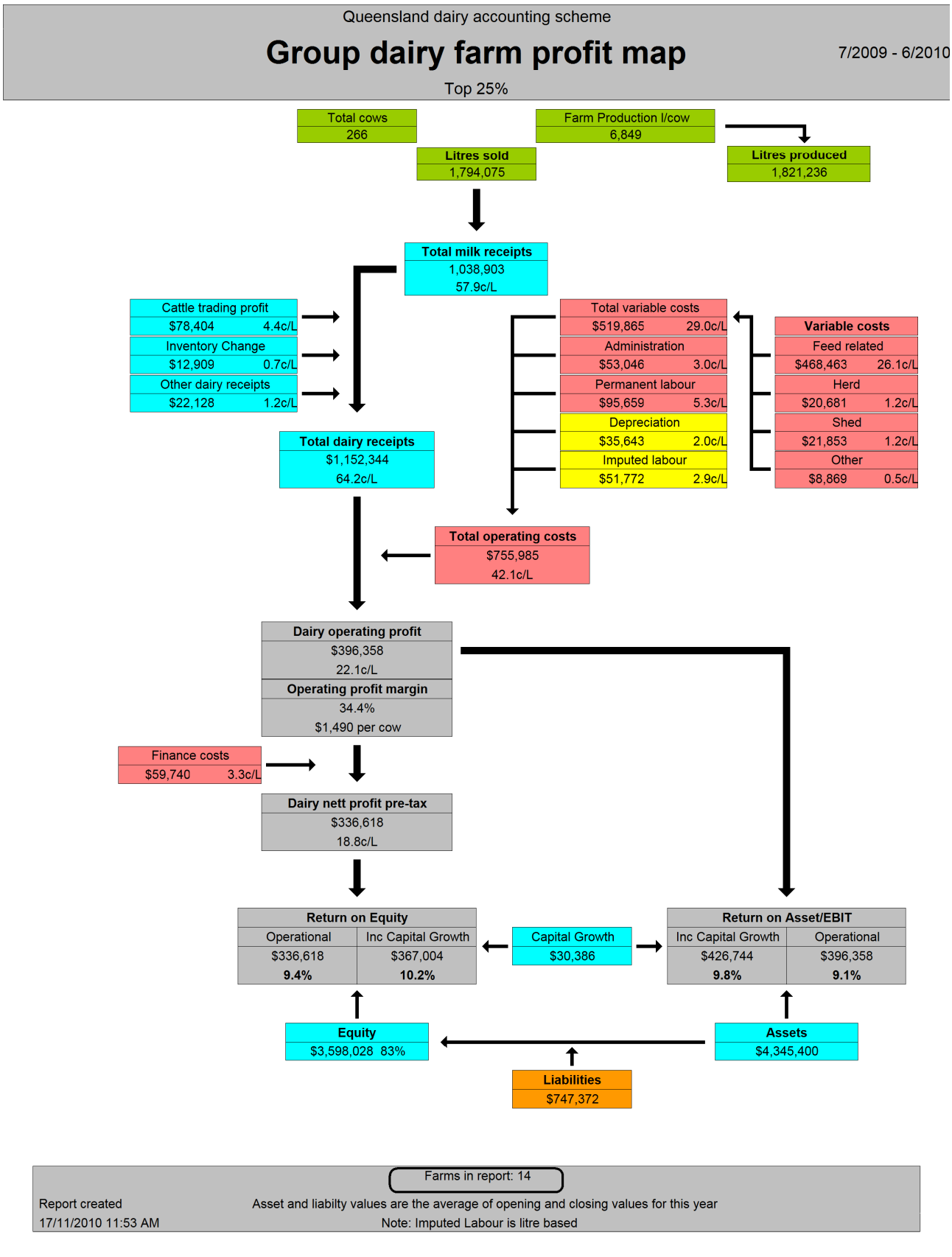
9.3 Map of farm performance – All 54 QDAS farms (2009–10)



9.4 Map of farm performance – Top 25% of farms (2009–10)



9.5 Group cash gross margin – South East Coastal – Grazing (2009–10)

Queensland dairy accounting scheme

Group cash gross margin

7/2009 - 6/2010

South East Coastal - Grazing

Receipts	Cents/litre	Dollars/cow		Total $ earned
Milk	51.1	2,803.41		639,364
Milk bonuses/incentives/rebates/other	7.4	403.23		91,963
Milk Receipts (1,250,262 l)	**58.5**	**3,206.64**		**731,327**
Stock sales - dairy	1.8	100.82		22,993
Stock sales - other	0.0	0.00		0
Produce sales	0.0	0.19		43
Other receipts	0.8	42.19		9,622
Non-milk receipts	**2.6**	**143.20**		**32,658**
Total farm receipts	**61.1**	**3,349.83**		**763,985**
Production costs	**Cents/litre**	**Dollars/cow**	**% Milk income**	**Total $ spent**
Purchased feeds	15.7	861.60	26.9	196,502
Fertiliser	3.2	177.89	5.5	40,570
Fuel & oil	1.2	66.53	2.1	15,174
Seed	0.8	43.87	1.4	10,005
Irrigation costs	1.3	73.29	2.3	16,716
Repairs & maintenance	2.0	109.58	3.4	24,991
Other feed costs	1.3	72.61	1.3	16,561
Feed related costs	**25.6**	**1,405.37**	**43.8**	**320,519**
Margin over feed related costs	**32.9**	**1,801.26**	**56.2**	**410,808**
Animal health	1.6	89.44	2.8	20,397
Herd improvement	0.6	32.45	1.0	7,401
Herd costs	**2.2**	**121.89**	**3.8**	**27,798**
Dairy shed costs - electricity	0.7	37.77	1.2	8,613
Dairy shed costs - chemicals	0.8	42.17	1.3	9,618
Shed costs	**1.5**	**79.94**	**2.5**	**18,231**
Cartage	0.1	3.86	0.1	880
Levies	0.3	18.57	0.6	4,234
Sundry variable costs	0.1	6.80	0.2	1,551
Other variable costs	**0.5**	**29.23**	**0.9**	**6,666**
Total variable costs	**29.9**	**1,636.43**	**51.0**	**373,214**
Gross margins - milk only	**28.6**	**1,570.21**	**49.0**	**358,113**
- whole farm	**31.3**	**1,713.41**	**53.4**	**390,771**
Permament wages	7.3	401.83	12.5	91,644

Labour inputs		Areas (ha)		Stock		Production		
Permanent unpaid	1.5	Milking cow	85	Milking and Dry Cows	228	Fed to calves (L)	17,285	1%
Permanent paid	1.8	Effective dairy	155	Mated heifers	55	Protein total (kg)	41,970	3.36%
Casual paid	0.0	Irrigation	42	Other heifers	89	Butterfat total (kg)	50,655	4.05%
Imputed (38 hr/wk)	3.9			Adult equivalents	298	Milk solids (kg)	92,625	
Litres / labour unit	384,105					Litres / cow	5,558	
Litres / imp labour unit	322,613					Milk solids / cow (kg)	406	

Farms in report 15

Total Operating Costs	$579,358
Dairy Operating Surplus (EBIT)	$215,132
ROA (Operational)	5.4%
Asset value	$3,956,596
Equity	86%

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9.6 Group cash gross margin – South East Coastal – PMR (2009–10)

Queensland dairy accounting scheme

Group cash gross margin

7/2009 - 6/2010

South East Coastal - PMR

Receipts	Cents/litre	Dollars/cow		Total $ earned
Milk	47.2	2,809.72		710,458
Milk bonuses/incentives/rebates/other	9.7	575.25		145,456
Milk Receipts (1,506,204 l)	**56.8**	**3,384.97**		**855,913**
Stock sales - dairy	2.2	128.71		32,544
Stock sales - other	0.6	36.08		9,122
Produce sales	0.3	15.15		3,830
Other receipts	0.7	38.95		9,849
Non-milk receipts	**3.7**	**218.88**		**55,346**
Total farm receipts	**60.5**	**3,603.85**		**911,259**
Production costs	**Cents/litre**	**Dollars/cow**	**% Milk income**	**Total $ spent**
Purchased feeds	17.8	1,060.35	31.3	268,118
Fertiliser	1.4	83.79	2.5	21,186
Fuel & oil	1.3	78.87	2.3	19,942
Seed	1.0	61.95	1.8	15,664
Irrigation costs	1.3	74.88	2.2	18,934
Repairs & maintenance	2.0	117.21	3.5	29,637
Other feed costs	3.3	198.58	3.3	50,213
Feed related costs	**28.1**	**1,675.63**	**49.5**	**423,695**
Margin over feed related costs	**28.7**	**1,709.34**	**50.5**	**432,218**
Animal health	1.0	62.42	1.8	15,784
Herd improvement	0.6	38.16	1.1	9,649
Herd costs	**1.7**	**100.58**	**3.0**	**25,433**
Dairy shed costs - electricity	0.7	43.05	1.3	10,886
Dairy shed costs - chemicals	0.7	40.30	1.2	10,189
Shed costs	**1.4**	**83.35**	**2.5**	**21,075**
Cartage	0.1	3.03	0.1	767
Levies	0.3	19.20	0.6	4,855
Sundry variable costs	0.1	8.59	0.3	2,172
Other variable costs	**0.5**	**30.82**	**0.9**	**7,794**
Total variable costs	**31.7**	**1,890.38**	**55.8**	**477,997**
Gross margins - milk only	**25.1**	**1,494.59**	**44.2**	**377,917**
- whole farm	**28.8**	**1,713.47**	**50.6**	**433,262**
Permament wages	7.1	423.52	12.5	107,091

Labour inputs		Areas (ha)		Stock		Production		
Unpaid labour	1.5	Milking cow	122	Milking and Dry Cows	253	Fed to calves (L)	23,000	2%
Paid labour	2.2	Effective dairy	169	Mated heifers	34	Protein total (kg)	49,754	3.30%
Total labour	3.7	Irrigation	55	Other heifers	113	Butterfat total (kg)	58,656	3.89%
Imputed (38 hr/wk)	4.1			Adult equivalents	313	Milk solids (kg)	108,410	
Litres / labour unit	414,900					Litres / cow	6,048	
Litres / imp labour unit	371,199					Milk solids / cow (kg)	429	

Farms in report 7

Total Operating Costs	$710,422
Dairy Operating Surplus (EBIT)	$182,569
ROA (Operational)	4.4%
Asset value	$4,132,691
Equity	88%

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9.7 Group cash gross margin – Darling Downs – Grazing (2009–10)

Queensland dairy accounting scheme

Group cash gross margin

7/2009 - 6/2010

Darling Downs - Grazing

Receipts	Cents/litre	Dollars/cow		Total $ earned
Milk	46.3	2,777.17		326,595
Milk bonuses/incentives/rebates/other	10.1	608.03		71,505
Milk Receipts (706,097 l)	**56.4**	**3,385.20**		**398,099**
Stock sales - dairy	2.7	163.84		19,268
Stock sales - other	0.0	0.00		0
Produce sales	0.0	0.00		0
Other receipts	3.2	194.48		22,871
Non-milk receipts	**6.0**	**358.32**		**42,139**
Total farm receipts	**62.3**	**3,743.52**		**440,238**
Production costs	**Cents/litre**	**Dollars/cow**	**% Milk income**	**Total $ spent**
Purchased feeds	18.5	1,112.00	32.8	130,771
Fertiliser	1.8	108.17	3.2	12,720
Fuel & oil	1.5	91.66	2.7	10,779
Seed	1.2	74.21	2.2	8,727
Irrigation costs	0.9	56.76	1.7	6,674
Repairs & maintenance	2.2	130.18	3.8	15,309
Other feed costs	2.0	121.38	2.0	14,274
Feed related costs	**28.2**	**1,694.35**	**50.1**	**199,256**
Margin over feed related costs	**28.2**	**1,690.85**	**49.9**	**198,844**
Animal health	1.0	57.04	1.7	6,708
Herd improvement	1.0	58.49	1.7	6,878
Herd costs	**1.9**	**115.53**	**3.4**	**13,586**
Dairy shed costs - electricity	0.7	40.30	1.2	4,740
Dairy shed costs - chemicals	0.8	45.09	1.3	5,302
Shed costs	**1.4**	**85.39**	**2.5**	**10,042**
Cartage	0.1	7.76	0.2	913
Levies	0.3	19.83	0.6	2,332
Sundry variable costs	0.2	11.23	0.3	1,320
Other variable costs	**0.6**	**38.82**	**1.1**	**4,566**
Total variable costs	**32.2**	**1,934.10**	**57.1**	**227,450**
Gross margins - milk only	**24.2**	**1,451.10**	**42.9**	**170,650**
- whole farm	**30.1**	**1,809.43**	**53.5**	**212,789**
Permament wages	2.8	170.58	5.0	20,060

Labour inputs		Areas (ha)		Stock		Production		
Permanent unpaid	1.5	Milking cow	133	Milking and Dry Cows	118	Fed to calves (L)	11,460	2%
Permanent paid	0.5	Effective dairy	174	Mated heifers	25	Protein total (kg)	24,175	3.42%
Casual paid	0.0	Irrigation	25	Other heifers	38	Butterfat total (kg)	29,054	4.11%
Imputed (38 hr/wk)	2.1			Adult equivalents	148	Milk solids (kg)	53,230	
Litres / labour unit	366,101					Litres / cow	6,102	
Litres / imp labour unit	336,076					Milk solids / cow (kg)	453	

Farms in report 5

Total Operating Costs	$337,431
Dairy Operating Surplus (EBIT)	$106,734
ROA (Operational)	4.1%
Asset value	$2,625,201
Equity	84%

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9.8 Group cash gross margin – Darling Downs – TMR (2009–10)

Queensland dairy accounting scheme

Group cash gross margin

7/2009 - 6/2010

Darling Downs - TMR

Receipts	Cents/litre	Dollars/cow		Total $ earned
Milk	48.4	3,672.90		896,187
Milk bonuses/incentives/rebates/other	9.6	726.87		177,357
Milk Receipts (1,852,776 l)	**57.9**	**4,399.77**		**1,073,544**
Stock sales - dairy	2.3	177.77		43,375
Stock sales - other	0.2	14.03		3,424
Produce sales	0.3	26.28		6,414
Other receipts	1.5	112.57		27,467
Non-milk receipts	**4.4**	**330.65**		**80,679**
Total farm receipts	**62.3**	**4,730.42**		**1,154,223**
Production costs	**Cents/litre**	**Dollars/cow**	**% Milk income**	**Total $ spent**
Purchased feeds	24.8	1,884.90	42.8	459,916
Fertiliser	1.5	112.57	2.6	27,466
Fuel & oil	1.8	137.53	3.1	33,558
Seed	0.5	36.99	0.8	9,026
Irrigation costs	0.0	1.67	0.0	407
Repairs & maintenance	1.8	140.45	3.2	34,270
Other feed costs	2.9	220.31	2.9	53,755
Feed related costs	**33.4**	**2,534.42**	**57.6**	**618,398**
Margin over feed related costs	**24.6**	**1,865.35**	**42.4**	**455,146**
Animal health	0.8	62.16	1.4	15,168
Herd improvement	0.4	28.69	0.7	6,999
Herd costs	**1.2**	**90.85**	**2.1**	**22,167**
Dairy shed costs - electricity	0.6	44.08	1.0	10,755
Dairy shed costs - chemicals	0.6	44.75	1.0	10,920
Shed costs	**1.2**	**88.83**	**2.0**	**21,674**
Cartage	0.1	6.43	0.1	1,570
Levies	0.3	24.59	0.6	6,000
Sundry variable costs	0.2	15.23	0.3	3,717
Other variable costs	**0.6**	**46.26**	**1.1**	**11,287**
Total variable costs	**36.4**	**2,760.36**	**62.7**	**673,527**
Gross margins - milk only	**21.6**	**1,639.42**	**37.3**	**400,017**
- whole farm	**25.9**	**1,970.07**	**44.8**	**480,696**
Permament wages	3.4	259.08	5.9	63,215

Labour inputs		Areas (ha)		Stock		Production		
Unpaid labour	2.0	Milking cow	180	Milking and Dry Cows	244	Fed to calves (L)	19,510	1%
Paid labour	1.4	Effective dairy	383	Mated heifers	55	Protein total (kg)	61,968	3.34%
Total labour	3.3	Irrigation	10	Other heifers	118	Butterfat total (kg)	73,359	3.96%
Imputed (38 hr/wk)	3.7			Adult equivalents	323	Milk solids (kg)	135,326	
Litres / labour unit	565,645					Litres / cow	7,673	
Litres / imp labour unit	503,403					Milk solids / cow (kg)	555	

Farms in report 10

Total Operating Costs	$883,073
Dairy Operating Surplus (EBIT)	$264,062
ROA (Operational)	7.5%
Asset value	$3,506,859
Equity	76%

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9.9 Group cash gross margin – North Queensland – Grazing (2009–10)

Queensland dairy accounting scheme

Group cash gross margin

7/2009 - 6/2010

North Queensland - Grazing

Receipts	Cents/litre	Dollars/cow		Total $ earned
Milk	45.6	2,483.10		482,609
Milk bonuses/incentives/rebates/other	4.1	225.40		43,808
Milk Receipts (1,058,190 l)	**49.7**	**2,708.50**		**526,417**
Stock sales - dairy	3.3	181.83		35,339
Stock sales - other	0.9	47.89		9,307
Produce sales	0.0	0.00		0
Other receipts	1.0	54.40		10,574
Non-milk receipts	**5.2**	**284.12**		**55,220**
Total farm receipts	**55.0**	**2,992.62**		**581,637**
Production costs	**Cents/litre**	**Dollars/cow**	**% Milk income**	**Total $ spent**
Purchased feeds	21.0	1,144.87	42.3	222,513
Fertiliser	3.1	171.49	6.3	33,330
Fuel & oil	0.7	40.74	1.5	7,918
Seed	0.3	17.62	0.7	3,424
Irrigation costs	0.6	30.40	1.1	5,909
Repairs & maintenance	1.4	78.02	2.9	15,165
Other feed costs	1.3	68.53	1.3	13,320
Feed related costs	**28.5**	**1,551.68**	**57.3**	**301,579**
Margin over feed related costs	**21.2**	**1,156.83**	**42.7**	**224,837**
Animal health	1.7	90.67	3.3	17,622
Herd improvement	1.0	51.83	1.9	10,074
Herd costs	**2.6**	**142.50**	**5.3**	**27,696**
Dairy shed costs - electricity	0.7	40.53	1.5	7,878
Dairy shed costs - chemicals	0.6	33.56	1.2	6,523
Shed costs	**1.4**	**74.10**	**2.7**	**14,401**
Cartage	0.2	11.16	0.4	2,169
Levies	0.3	16.42	0.6	3,192
Sundry variable costs	0.2	13.12	0.5	2,549
Other variable costs	**0.7**	**40.70**	**1.5**	**7,911**
Total variable costs	**33.2**	**1,808.97**	**66.8**	**351,587**
Gross margins - milk only	**16.5**	**899.53**	**33.2**	**174,830**
- whole farm	**21.7**	**1,183.65**	**43.7**	**230,050**
Permament wages	4.3	233.07	8.6	45,299

Labour inputs		Areas (ha)		Stock		Production		
Unpaid labour	1.7	Milking cow	92	Milking and Dry Cows	194	Fed to calves (L)	35,700	3%
Paid labour	1.2	Effective dairy	158	Mated heifers	33	Protein total (kg)	33,133	3.13%
Total labour	2.9	Irrigation	17	Other heifers	84	Butterfat total (kg)	40,033	3.78%
Imputed (38 hr/wk)	3.5			Adult equivalents	245	Milk solids (kg)	73,166	
Litres / labour unit	380,012					Litres / cow	5,628	
Litres / imp labour unit	311,983					Milk solids / cow (kg)	376	

Farms in report 14

Total Operating Costs	$541,731
Dairy Operating Surplus (EBIT)	$29,464
ROA (Operational)	0.7%
Asset value	$4,120,036
Equity	87%

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9.10 Business traits, key performance indicators and definitions

Key performance indicators (KPI) are used in QDAS to monitor farm performance. Table 20 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 20. Key performance indicators used in QDAS

Profitability

- Return on asset (RoA) operational – %
- Return on equity (RoE) operational – %
- Operating profit margin (OPM) – %
- Dairy operating profit (DOP) –$/cow

Solvency

- Equity% – %
- Debt to equity ratio

Efficiency - Capital

- Asset turnover ratio (ATO)
- Total liabilities per cow – $/cow
- Interest per cow – $/cow

Efficiency - Production

- Feed related cost (FRC) – c/L
- Margin over feed related costs (MOFRC) – $/cow
- Total variable cost (TVC) – c/L
- Gross margin milk (GM) – $/cow

Efficiency – Physical

- Litres of milk from home grown feed (L/HGF) – L
- Production per cow (PPC) – L
- Litres per labour unit (LLU) – L

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

(Dairy operating profit ÷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

((Dairy operating profit + increase in the value of land and improvements) ÷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

(Dairy net profit (pre tax) ÷ 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

((Dairy net profit (pre tax) + increase 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 dairy 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 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%age 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

Average Liabilities ÷ 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

Total dairy receipts ÷ Assets.

Total liabilities (debt) per milker

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

Calculation

Liabilities ÷ 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

Total interest payments ÷ 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.