Balancing dairy production and profits in northern Australia

Queensland Dairy Accounting Scheme - 2009

Dairy Australia
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Queensland Government

Balancing dairy production and profits in Northern Australia

QDAS Financial and production trends – 2009

Compiled by

Graeme Busby
Ray Murphy
Gordon Simpson

Queensland Primary Industries and Fisheries 2009

Queensland Primary Industries and Fisheries

On 26 March 2009, the Department of Primary Industries and Fisheries was amalgamated with other government departments to form the Department of Employment, Economic Development and Innovation.

Data enquiries should be addressed to:
Ray Murphy
Queensland Primary Industries and Fisheries
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

Introduction

This report contains physical and financial data from 67 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 2008-09, from 485 to 512 million litres. This is the first increase in Queensland milk production since the deregulation of the industry. The number of dairies has declined to 610. Table 1 shows the trend in milk supply and farm numbers for Queensland over the last four years.

In 2008-09 Australian milk production was 9.4 billion litres with Queensland contributing 5.4 % or 512 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 16 key performance indicators.

Section 2 details the characteristics of the most profitable farms in QDAS. Production per cow, the effect of herd size and production from home grown feed are aspects 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

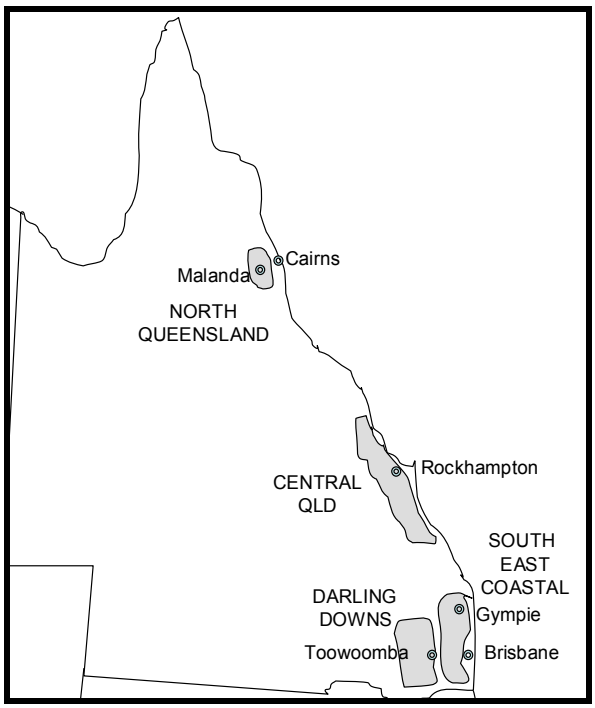
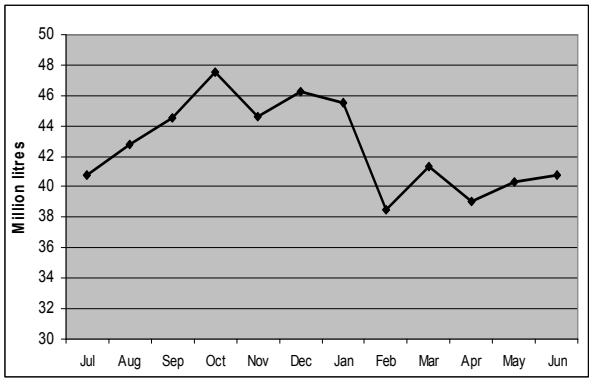


Table 1. Dairy farm numbers and annual production for Queensland (2005-06 to 2008-09)

	Farms	Annual production
2008-09	610	512 m L
2007-08	630	485 m L
2006-07	734	534 m L
2005-06	802	597 m L

Figure 2. Queensland monthly milk production (2008-09)



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 Queensland Primary Industries and Fisheries supervise the collection and processing of data between August and November.

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

Acknowledgements

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Ray Murphy
Project Leader

Business Plu$
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1. 2008–2009 Key findings

Sixteen Key Performance Indicators (KPI) are used to highlight the results for profitability, solvency and efficiency. Table 2 shows these results for 2008-2009 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 (2005-06 to 2008-09)

Business traits and indicators[1]	**Top 25%**	**QDAS average**	**Past QDAS averages**		
Profitability	**2008-09**	**2008-09**	**2007-08**	**2006-07**	**2005-06**
Return on assets - operational (%)	8.0	4.6	10.3	1.1	3.0
Return on equity - operational (%)	8.1	4.1	10.7	-0.3	1.9
Operating profit margin (%)	34.1	21.2	27.8	6.1	15.0
Dairy operating profit ($/cow)	1,556	804	1,605	147	362
Solvency					
Equity (%)	81	84	83	84	84
Debt to equity ratio	0.23	0.19	0.20	0.20	0.19
Efficiency – Capital/Finance					
Asset turnover ratio	0.24	0.22	0.27	0.18	0.20
Total liabilities per cow ($)	3,587	2,805	2,598	2,182	1,898
Interest paid/cow ($)	246	188	212	184	174
Efficiency – Productivity					
Feed related costs (c/L)	28.0	31.3	30.2	24.7	20.4
Margin over feed related costs ($/L)	30.3	25.0	21.1	13.0	15.3
Total variable costs (c/L)	31.0	35.1	33.7	28.1	23.9
Gross margin - milk ($/cow)	2,432	1,668	1,019	544	674
Efficiency – Physical					
Litres of milk from home grown feed (L/cow/day)	13.1	11.2	10.0	9.5	10.3
Production per cow (L)	6,981	6,146	5,894	5,664	5,678
Litres per labour unit					
- On farms <1.0 m L	318,676	303,131	321,378	331,424	356,710
- On farms >1.0 m L	535,604	502,885	504,583	513,677	523,511

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

A significant year

The 2008-09 financial year was a very significant year for the Queensland dairy industry.

- In December 2008 farmers who supplied the Dairy Farmers Cooperative received a substantial cash payout after the cooperative was purchased by National Foods Limited.
- The majority of farmers have milk supply contracts which ensure stable prices for 1 to 3 years.
- These stable prices have meant that Queensland farmers receive domestic milk price of 55.0 to 59.0 c/L in the southern Queensland and 51.0 c/L in North Queensland. They have been insulated from the effects of the global financial crisis and the impact it has had on dairy farmers in southern states.
- Grain and fertiliser prices have reduced from 2007-08 levels.
- The accelerated depreciation rates, introduced by the Federal Government as part of the financial stimulus package, have contributed to investment on farms not seen since deregulation. A lot of the investment could be regarded as "catch up" investment to replace aging machinery and infrastructure.

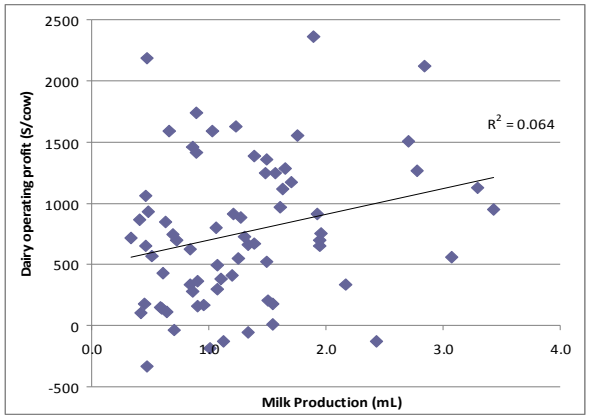
Profitable dairy farming

Milk receipts increased by 4.1 c/L to average 58.0 c/L in southern Queensland, while in North Queensland the return increased by 4.2 c/L to 51.0 c/L. This has driven a dairy operating profit result of $805 per cow. This is substantially lower than the 2007-08 result which was unusually high due to the increase in cattle values that happened in that year. If the increase in cattle values is discounted from the 2007-08 result, it is similar to that achieved in 2008-09.

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 has 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 production per cow at all production levels.

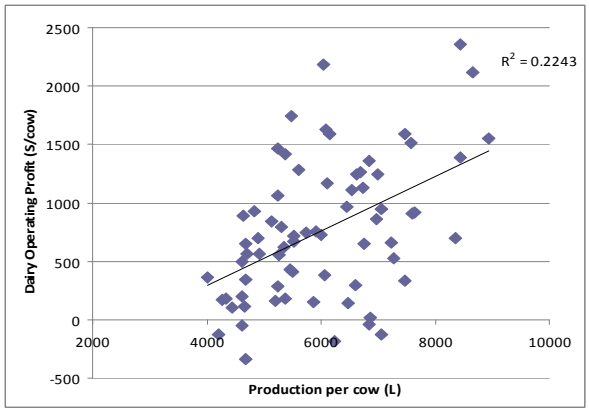
Figure 3. The relationship between milk production and dairy operating profit per cow (2008-09)



Production per cow

The QDAS average production per cow increased again by 252 litres during the year to 6,146 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 6,981 litres, while the average was 6,146 litres. Figure 4 shows that 22% of the variation in dairy operating profit per cow is due to the production achieved per cow.

Figure 4. The relationship between production per cow and dairy operating profit per cow (2008-09)



Investment increases

There has been a large increase in investment on farm, partly funded by new debt. The average debt per cow has increased by $207 to $2,805. An interesting insight is that the debt per cow of the top 25% group is $782 higher than the QDAS average. This top 25% group (which contains an equal number of farms from each production system) have been investing in new technology and expansion strategies.

Feed related costs

There was only a slight rise in the cash feed related costs to 31.3 c/L, with the top group averaging 28.0 c/L. The margin over feed costs improved as the milk price increased by 4 c/L during the year. Feed inventory changes had little impact on the adjusted cost as the inventory change was just $5,636 per farm or 0.4 c/L.

This year's analysis shows the importance of close control of feed related costs, with 50 to 55% of each milk dollar earned spent of feed related inputs. More detail on this can be found in the gross margin appendices.

Input costs ease

There has been an easing in feed and fertiliser input prices over the last year. Most notable is the urea price, dropping by up to $400 per tonne. Table 3 shows the prices of major farm inputs. These prices are sourced in southern Queensland, and vary depending on contractual arrangements.

Administration efficiencies

The QDAS average administration cost was $41,547, 3.3c/L, or $198/cow. While administration costs increase as production increases, the costs get proportionately lower per litre and per cow. Table 4 shows administration falling from 5.3c/L to 2.5c/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.

Table 3. Indicative prices per tonne of major farm inputs (2008-09)

	July 2008	June 2009
Grain/pellets		
Sorghum	$257	$195
Barley	$340	$215
Wheat	$400	$235
Soybean meal	$675-725	$560
Canola meal	$525	$368
14% dairy pellet	$404	$362
Fertiliser		
Urea	$981	$540
Starter Z	$1,200	$850
Diesel		
Bowser price	$1.62	$1.26

Labour insights

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 502,885 litres per labour unit.

Table 4 gives more information on the labour costs as farm produce more milk. Labour in this table is costed three different ways.

Paid labour is the actual payment to employees and includes superannuation and work cover.

The farm owner's labour is shown three ways. As an imputed cost at 6 c/L, $20.00 per hour based on the family's annual hourly input and the final row gives the owners a bonus of 1 c/L for their additional management skills. This rewards large farm owners.

Table 4. Analysis of administration and labour costs (2008-09)

	<750,000 L	750,000 – 1.25m L	1.25 – 1.75m L	>1.75m L
Farm milk production (L)	535,194	996,638	1,450,912	2,438,897
Cows (milkers + dry)	102	185	242	335
Admin ($)	28,432	35,793	46,037	61,684
Admin ($/cow)	278	193	190	184
Admin (c/L)	5.3	3.6	3.2	2.5
Labour costs				
Paid + 6 c/L	$569/cow (10.8c/L)	$444/cow (8.2 c/L)	$608/cow (10.1c/L)	$534/cow (7.3c/L)
Paid + $20/hr	$909/cow (17.3c/L)	$673/cow (12.5c/L)	$723/cow (12.1c/L)	$653/cow (9.0c/L)
Paid + $20/hr + 1c/L	$962/cow (18.3c/L)	$727/cow (13.5c/L)	$783/cow (13.1c/L)	$726/cow (10.0c/L)

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 other 75% of farms. Table 5 shows these results. As stated earlier all regions and systems are represented in the top 25% group.

The higher dairy operating profit per cow achieved by the top 25% group is directly linked to the following profit drivers.

- Higher production per cow. The top 25% group produced 1,130 litres per cow more than the remaining 75% group.
- A higher milk receipts. The top 25% group received 2.8 c/L more which was due to processor payment structures and rewards for quality.
- Higher cattle sales reflected in the total farm receipts. This can be seen in the gross margin reports, found in the appendices.
- Lower adjusted feed related cost. The top 25% group saved 5.1 c/L which results in a higher margin over feed costs (+$767 per cow).
- Attention to detail and the timeliness of operations is vital.

Table 5. KPI for top 25% and the remaining 75% of farms (2008-09)

	Top 25%	Remaining 75%
Physical traits		
Cows (milkers + dry)	216	208
Production per cow (L)	6,981	5,851
Farm production (m L)	1,508	1,214
Milk from HGF(L)	13.1	10.5
Cash Analysis		
Milk receipts (c/L)	58.3	55.5
Feed related costs (c/L)	28.0	32.8
Margin over FRC ($/cow)	2,075	1,308
Profit Analysis		
Change in feed inventory (c/L)	0.6	0.3
Adjusted FRC (c/L)	27.4	32.5
Total dairy receipts (c/L)	66.5	61.2
Dairy operating profit ($/cow)	1,556	539
Average investment ($/cow)	19,327	16,680

Production per cow

It has always been the case that high producing farms, measured either by per cow production or herd size and 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.
- The margin over feed related costs per cow increases from $963 to $1,784.
- 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 4 production per cow groups in Queensland (2008-09)

	<5,000	5,000 - 6,000	6,000 - 7,000	>7,000
Farm milk production (L)	958,323	925,933	1,383,183	1,970,023
Cows (milkers + dry)	208	169	212	255
Production per cow (L)	4,597	5,479	6,531	7,736
Milk receipts (c/L)	54.7	56.9	56.4	56.9
Margin over FRC (c/L)	21.4	28.8	26.6	23.5
Margin over FRC ($/cow)	963	1,547	1,710	1,784
Dairy operating profit ($/cow)	350	853	934	1,066

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 6,813 litres.

The group of large farms have the highest profitability by all measures, including a dairy operating profit per cow of $952 and a return on assets of 6.1%.

Home grown feed usage still accounts for over 50% of production in all groups even in the large herds. This is essential to maintain a low cost base and drive profitability.

Labour usage is excellent with over 600,000 litres produced per labour unit in the larger herds.

Figure 5. Relationship between farm milk production and dairy operating profit per cow (2008-09)

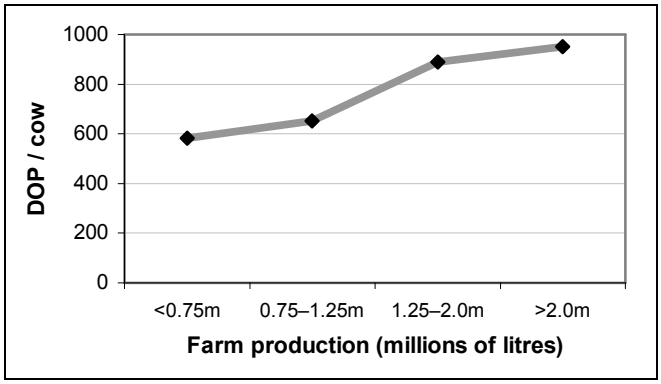


Table 7. KPI for farms with increasing annual production (2008-09)

	<750,000 L	750,000 – 1.25m L	1.25 – 2.0m L	>2.0m L
Farm milk production (L)	545,522	1,010,713	1,592,879	2,843,663
Cows (milkers + dry)	102	187	245	417
Production per cow (L)	5,334	5,395	6,496	6,813
Margin over FRC ($/cow)	1,435	1,447	1,579	1,499
Litres per labour unit	263,069	443,728	458,383	603,430
Return on assets (%)	2.3	4.0	5.4	6.1
Dairy operating profit ($)	59,354	121,943	217,707	396,942
Dairy operating profit ($/cow)	582	652	889	952
% Milk from home grown feed	59	58	52	54

Milk from home grown feed

In QDAS opening and closing inventories together with all feed purchases are recorded both in monetary values and tonnages. This allows the calculation of the KPI shown below in Table 8.

As the proportion of home grown feed in the diet increases, feed related costs decrease and the margin over feed costs increases.

As a consequence the dairy operating profit per cow improves from a low $577 when less than 7.5 litres is produced to $1,222 per cow when more than 15 litres of milk is produced from home grown feed per day.

Table 8. KPI for farms in litres from home grown feed per cow per day groups (2008-09)

	<7.5	7.5 – 10.0	10.0 – 12.5	12.5 – 15.0	>15.0
Milk from home grown feed (%)	26.6	51.0	57.5	62.2	74.9
Feed related costs (c/L)	37.7	31.6	30.6	29.4	28.1
Margin over FRC (c/L)	20.4	24.0	25.2	26.8	28.2
Margin over FRC ($/cow)	1,207	1,249	1,475	1,748	1,984
Dairy operating profit ($/cow)	577	560	921	911	1,222

3. Production system analysis

This year 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 concentrate 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 concentrate 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 9 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 or not enough farms to give a true perspective of the system.

Table 9. The number of farms collected in each regional production system (2008-09)

Region	GRA	PMR	TMR
North Queensland	17	0	0
Darling Downs	5	7	11
South East Coastal	16	11	0

Table 10 presents a summary of the KPI for each regional production system. There are several points of interest.

- Milk receipts were 6 to 8 c/L higher in southern Queensland than in North Queensland.
- Production per cow increased as the feeding system become more intense from GRA to PMR to TMR. Total farm production also follows this trend. Conversely the adjusted feed related cost increased, by approximately 4 c/L as farms intensify feeding systems up to a TMR system.
- Herd numbers were smallest on the Darling Downs grazing farms. All other systems had similar numbers of milkers (203 to 232).
- In North Queensland where grazing is the dominant system, the lower return on assets was due to lower milk receipts. Feed costs were slightly higher at 29.8 c/L than on southern grazing farms, but were lower than other systems. Freight costs of $100 per tonne for grain and concentrates from central Queensland do impact on feeding costs in this region.

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 10. KPI for farming systems (2008-09)

	Sth East Coastal Grazing	Sth East Coastal PMR	Darling Downs Grazing	Darling Downs PMR	Darling Downs TMR	North Queensland Grazing
Cows (milkers + dry)	203	210	114	231	215	232
Farm production (L)	1,147,461	1,318,711	611,411	1,541,114	1,641,725	1,269,493
Production per cow (L)	5,651	6,269	5,354	6,684	7,649	5,478
Milk receipts (c/L)	58.5	56.8	58.2	58.1	58.8	50.9
Feed related costs (corrected c/L)	27.2	32.1	28.6	31.8	35.0	29.8
Total variable costs (c/L)	32.0	34.9	28.9	37.6	36.4	36.5
Margin over feed related costs (corrected c/L)	31.3	24.7	29.6	26.3	23.8	21.1
Dairy operating profit ($/cow)	865	806	851	935	1,253	425
Return on assets – operational (%)	5.0	4.6	4.0	5.2	9.1	2.3

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 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 $17,260 per cow in their operation, of which 79% is in the land value. They still managed to generate an operational return on assets of 5.0%.

They have a very high equity level at 88%.

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

Table 12 shows the data trends for farms with continuous participation over the last 4 years, 2005-06 to the present. The significant points are:

- A continuous increase in milk returns, up 20 c/L since 2005-06,
- Feed related and total variable costs have risen approximately 7-8 c/L over the period,
- The margin over feed costs has increased by 13.0 c/L or $1,275 per cow in this time. This change is also reflected in the bottom line operating profit per cow.

Table 11. Statistics for South East Coastal grazing farms (2008-09)

Resources	
Cows (milkers + dry)	203
Mated heifers	37
Other heifers	81
Total dairy herd	320
Milking cow area (ha)	84
Effective dairy area (ha)	151
Labour units	3.0
Assets and Liabilities	
Land & buildings ($)	2,885,967
Stock ($)	428,745
Plant ($)	187,064
Other ($)	157,462
TOTAL ($)	3,665,136
Liabilities ($)	471,194
Equity (%)	88
Investment per cow ($)	17,260
Debt per cow ($)	2,061
Productivity	
Milk production (L)	1,147,461
Production per cow (L)	5,651
Financial	
Milk receipts (c/L)	58.5
Feed related costs (cash c/L)	27.8
Feed related costs (corrected c/L)	27.2
Total variable costs (c/L)	32.0
Margin over feed related costs (corrected c/L)	31.3
Dairy operating profit ($/cow)	865
Return on assets – operational (%)	5.0

Table 12. Trends for South East Coastal grazing farms (2005-06 to 2008-09)

	2005-2006	2006-2007	2007-2008	2008-2009
Total milk income (c/L)	37.3	40.1	54.4	57.5
Average herd size	208	203	196	202
Production per cow (L)	5,899	5,469	5,504	5,805
Feed related costs (corrected c/L)	19.1	20.5	26.3	26.2
Total variable costs (c/L)	22.7	25.4	29.7	31.1
Margin over feed related costs (corrected c/L)	18.3	19.6	28.1	31.3
Dairy operating profit ($/cow)	370	281	1,662	910

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 grazing farms.

They have invested $17,405 per cow in their operation with 72% tied to the land. Production per cow is 6,269 litres, a 618 litre advantage over cows in the grazing production system.

Corrected feed costs were 5 c/L higher, this resulted in slightly lower operational profits.

Table 14 shows the data trends for farms with continuous participation over the last 4 years, 2005-06 to the present. The conclusions drawn from this table are similar to those of the South East Coastal grazing farms. Increased production per cow and income overrides the cost increases. The margin over feed related costs and operational profit both increased by $552 and $281 respectively.

Table 13. Statistics for South East Coastal PMR farms (2008-09)

Resources	
Cows (milkers + dry)	210
Mated heifers	34
Other heifers	93
Total dairy herd	338
Milking cow area (ha)	94
Effective dairy area (ha)	156
Labour units	2.9
Assets and Liabilities	
Land & buildings ($)	2,668,909
Stock ($)	505,393
Plant ($)	274,455
Other ($)	268,287
TOTAL ($)	3,720,523
Liabilities ($)	477,407
Equity (%)	87
Investment per cow ($)	17,405
Debt per cow ($)	2,358
Productivity	
Milk production (L)	1,318,711
Production per cow (L)	6,269
Financial	
Milk receipts (c/L)	56.8
Feed related costs (cash c/L)	31.5
Feed related costs (corrected c/L)	32.1
Total variable costs (c/L)	34.9
Margin over feed related costs (corrected c/L)	24.7
Dairy operating profit ($/cow)	806
Return on assets – operational (%)	4.6

Table 14. Trends for South East Coastal PMR farms (2005-06 to 2008-09)

	2005-2006	2006-2007	2007-2008	2008-2009
Milk receipts (c/L)	36.7	40.9	53	57.3
Average herd size	215	211	202	195
Production per cow (L)	5,630	5,469	5,607	5,874
Feed related costs (corrected c/L)	19.6	25.5	26.7	31.5
Total variable costs (c/L)	24.4	29.8	33.1	34.2
Margin over feed related costs (corrected c/L)	17.1	15.4	26.3	25.8
Dairy operating profit ($/cow)	482	242	1,579	763

6. Darling Downs - Grazing

Sections 6, 7 and 8 refer to Darling Downs farms and their three production systems. 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. The 2008-09 averages for towns across the region vary from 550 to 850 mm. Irrigation entitlements have been severely curtailed, both in volume and by restrictions on pumping hours.

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 114 milking cows, the lowest stocking rate, but the highest investment per cow at $21,495 of any regional production system. Land made up 72% of the asset value.

Per cow production was low at 5,354 litres, but with the lowest feed costs they were able to produce a dairy operating profit per cow of $851, similar to coastal farms.

Table 16 shows the data trends for farms with continuous participation over the last 4 years, 2005-06 to the present. The significant points are:

- A continuous increase in milk returns, up 21 c/L since 2005-06,
- Feed related and total variable costs have risen significantly over the period, but are the lowest of all regional production systems,
- The corrected margin over feed related costs per cow increased over the period by $837 to $1,584.

Table 15. Statistics for Darling Downs grazing farms (2008-09)

Resources	
Cows (milkers + dry)	114
Mated heifers	22
Other heifers	34
Total dairy herd	170
Milking cow area (ha)	133
Effective dairy area (ha)	174
Labour units	2.0
Assets and Liabilities	
Land & buildings ($)	1,877,000
Stock ($)	227,924
Plant ($)	232,657
Other ($)	286,561
TOTAL ($)	2,624,142
Liabilities ($)	397,269
Equity (%)	84
Investment per cow ($)	21,495
Debt per cow ($)	3,429
Productivity	
Milk production (L)	611,411
Production per cow (L)	5,354
Financial	
Milk receipts (c/L)	58.2
Feed related costs (cash c/L)	24.9
Feed related costs (corrected c/L)	28.6
Total variable costs (c/L)	28.9
Margin over feed related costs (corrected c/L)	29.6
Dairy operating profit ($/cow)	851
Return on assets – operational (%)	4.0

Table 16. Trends for Darling Downs grazing farms (2005-06 to 2008-09)

	2005-2006	2006-2007	2007-2008	2008-2009
Milk receipts (c/L)	37.5	39.8	54.3	58.2
Average herd size	99	102	104	114
Production per cow (L)	5,165	5,068	5,033	5,354
Feed related costs (corrected c/L)	16.3	25.5	24.2	28.6
Total variable costs (c/L)	21.4	31.1	36.0	28.9
Margin over feed related costs (corrected c/L)	21.3	14.3	30.1	29.6
Dairy operating profit ($/cow)	474	128	1,598	851

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 sourced from contract growers. Farms in this group are located across the Downs and include both dryland and irrigated operations.

The KPI for production, margins and profit for Downs farms increased as the level of feeding intensity increased. Table 17 shows the investment in cows also increased as a proportion of the total asset value as farms change from grazing to PMR and TMR.

Table 17. Comparative investment in cattle and production per cow for Darling Downs (2008-09)

Production system	Investment in cattle as a % of the total asset value	PPC (L)	Increase in PPC (L) over GRA system
TMR	17.4	7,649	+2,294
PMR	12.4	6,684	+1,330
GRA	8.7	5,354	-

Feed related costs are higher than for grazing farms, but the income profit drivers have lifted the average dairy operating profit to $935 per cow. The operational return on assets is 5.2%.

Table 19 shows the data trends for farms with continuous participation over the last 4 years, 2005-06 to the present. The trend in the margin over feed related costs and dairy operating profit shows an improvement of $773 and $300 per cow respectively over the period.

Building feed inventories plays a significant part in the cash and corrected feed costs with variations of 3 to 5 c/L.

Table 18. Statistics for Darling Downs PMR farms (2008-09)

Resources	
Cows (milkers + dry)	231
Mated heifers	64
Other heifers	153
Total dairy herd	448
Milking cow area (ha)	265
Effective dairy area (ha)	507
Labour units	3.4
Assets and Liabilities	
Land & buildings ($)	3,051,786
Stock ($)	547,261
Plant ($)	523,313
Other ($)	295,287
TOTAL ($)	4,420,219
Liabilities ($)	781,406
Equity (%)	80
Investment per cow ($)	18,059
Debt per cow ($)	3,574
Productivity	
Milk production (L)	1,541,114
Production per cow (L)	6,684
Financial	
Milk receipts (c/L)	58.1
Feed related costs (cash c/L)	33.8
Feed related costs (corrected c/L)	31.8
Total variable costs (c/L)	37.6
Margin over feed related costs (corrected c/L)	26.3
Dairy operating profit ($/cow)	935
Return on assets – operational (%)	5.2

Table 19. Trends for Darling Downs PMR farms (2005-06 to 2008-09)

	2005-2006	2006-2007	2007-2008	2008-2009
Milk receipts (c/L)	37.1	39.3	54.5	60.0
Average herd size	181	180	176	181
Production per cow (L)	5,901	5,538	5,825	6,430
Feed related costs (corrected c/L)	16.2	24.2	21.3	28.8
Total variable costs (c/L)	20.4	29.2	35.8	34.1
Margin over feed related costs (corrected c/L)	20.9	15.1	33.2	31.2
Dairy operating profit ($/cow)	858	285	1,980	1,158

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

The TMR group had the lowest investment per cow as shown in Table 20, but high operational margins and returns.

Table 20. Investment per cow and return on assets for Darling Downs production systems (2008-09)

Production system	Investment per cow ($)	DOP $/cow	RoA %
TMR	13,825	1,253	9.1
PMR	18,059	935	5.2
GRA	21,495	851	4.0

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 $3,497 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 22 clearly shows the improvement in KPI as these farms refine their feeding and management. In particular production per cow has risen by 926 litres over the period while farm production has increased by close to 500,000 litres, thereby improving their cashflow position.

Table 21. Statistics for Darling Downs TMR farms (2008-09)

Resources	
Cows (milkers + dry)	215
Mated heifers	40
Other heifers	83
Total dairy herd	337
Milking cow area (ha)	179
Effective dairy area (ha)	343
Labour units	3.1
Assets and Liabilities	
Land & buildings ($)	1,781,964
Stock ($)	549,889
Plant ($)	459,963
Other ($)	364,081
TOTAL ($)	3,157,410
Liabilities ($)	838,436
Equity (%)	75
Investment per cow ($)	13,825
Debt per cow ($)	3,497
Productivity	
Milk production (L)	1,641,725
Production per cow (L)	7,649
Financial	
Milk receipts (c/L)	58.8
Feed related costs (cash c/L)	33.9
Feed related costs (corrected c/L)	35.0
Total variable costs (c/L)	36.4
Margin over feed related costs (corrected c/L)	23.8
Dairy operating profit ($/cow)	1,253
Return on assets – operational (%)	9.1

Table 22. Trends for Darling Downs TMR farms (2005-06 to 2008-09)

	2005-2006	2006-2007	2007-2008	2008-2009
Milk receipts (c/L)	36.5	39.1	53.2	59.2
Average herd size	167	175	186	208
Production per cow (L)	6,119	7,638	7,330	7,278
Feed related costs (corrected c/L)	17.5	29.5	28.2	37.5
Total variable costs (c/L)	26.3	33.2	38.9	38.1
Margin over feed related costs (corrected c/L)	19.0	9.6	28.0	21.7
Dairy operating profit ($/cow)	652	306	2,286	985

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. Molasses is competitively priced at $130-140 per tonne.

Land is highly valued at $17,000 per hectare and accounts for 74% of the asset base. The investment per cow is $18,692.

As reported earlier regional milk pricing disadvantages North Queensland with milk returns at 50.9 c/L some 7 cents less than in southern Queensland.

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

Table 24 shows that farms with four continuous years of data slowly improving profits, but off a lower base than in southern Queensland. Dairy operating profit per cow and operational return on assets, while positive, are low. As in other dairying regions there was little capital appreciation in land values in 2008-09.

There was investment in plant in the year and 2008-09 saw the first repayments made on cyclone Larry loans.

Average production of the group was nearly 1.3 million litres and they have the largest herds.

Table 23. Statistics for North Queensland grazing farms (2008-09)

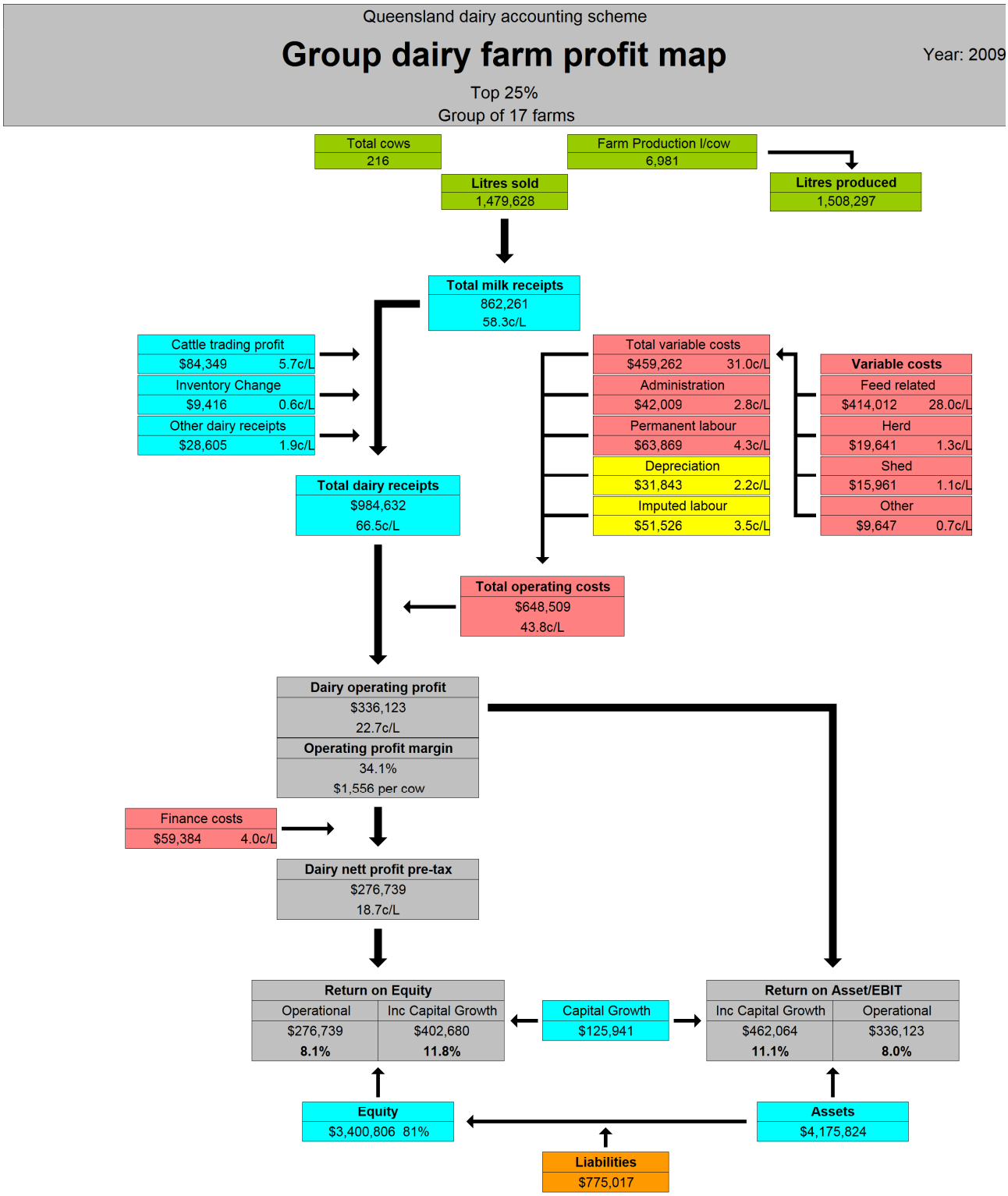
Resources	
Cows (milkers + dry)	232
Mated heifers	40
Other heifers	96
Total dairy herd	368
Milking cow area (ha)	97
Effective dairy area (ha)	196
Labour units	2.7
Assets and Liabilities	
Land & buildings ($)	3,349,412
Stock ($)	486,177
Plant ($)	233,793
Other ($)	445,001
TOTAL ($)	4,521,035
Liabilities ($)	662,312
Equity (%)	85
Investment per cow ($)	18,692
Debt per cow ($)	2,862
Productivity	
Milk production (L)	1,269,493
Production per cow (L)	5,478
Financial	
Milk receipts (c/L)	50.9
Feed related costs (cash c/L)	31.8
Feed related costs (corrected c/L)	29.8
Total variable costs (c/L)	36.5
Margin over feed related costs (corrected c/L)	21.1
Dairy operating profit ($/cow)	425
Return on assets – operational (%)	2.3

Table 24. Trends for North Queensland grazing farms (2005-06 to 2008-09)

	2005-2006	2006-2007	2007-2008	2008-2009
Milk receipts (c/L)	34.4	35.2	44.9	50.9
Average herd size	228	236	237	233
Production per cow (L)	6,135	5,791	5,945	5,793
Feed related costs (corrected c/L)	19.7	22.7	23.9	30.0
Total variable costs (c/L)	22.9	27.0	28.2	36.9
Margin over feed related costs (corrected c/L)	14.7	12.5	20.9	20.9
Dairy operating profit ($/cow)	134	357	1,305	465

10. Appendices

10.1 Map of farm performance – Top 25% of farms (2008–09)



10.2 Group cash gross margin – Top 25% of farms (2008–09)

Queensland dairy accounting scheme

Group cash gross margin

Period ending 6/2009

Top 25%

Receipts	Cents/litre	Dollars/cow		Total $ earned
Milk	47.7	3,269.81		706,472
Milk bonuses/incentives/rebates/other	10.5	721.05		155,789
Milk Receipts (1,479,628 l)	**58.3**	**3,990.86**		**862,261**
Stock sales - dairy	2.2	149.97		32,403
Stock sales - other	0.2	12.85		2,777
Produce sales	0.1	4.30		929
Other receipts	1.9	132.40		28,605
Non-milk receipts	**4.4**	**299.52**		**64,714**
Total farm receipts	**62.6**	**4,290.38**		**926,975**
Production costs	**Cents/litre**	**Dollars/cow**	**% Milk income**	**Total $ spent**
Purchased feeds	18.4	1,260.64	31.6	272,372
Fertiliser	2.5	173.74	4.4	37,539
Fuel & oil	1.6	110.25	2.8	23,820
Seed	0.6	41.98	1.1	9,070
Irrigation costs	0.4	30.46	0.8	6,581
Repairs & maintenance	1.8	120.53	3.0	26,042
Other feed costs	2.6	178.60	2.6	38,587
Feed related costs	**28.0**	**1,916.20**	**48.0**	**414,012**
Margin over feed related costs	**30.3**	**2,074.67**	**52.0**	**448,250**
Animal health	0.8	55.11	1.4	11,908
Herd improvement	0.5	35.79	0.9	7,733
Herd costs	**1.3**	**90.91**	**2.3**	**19,641**
Dairy shed costs - electricity	0.5	36.37	0.9	7,858
Dairy shed costs - chemicals	0.5	37.50	0.9	8,103
Shed costs	**1.1**	**73.87**	**1.9**	**15,961**
Cartage	0.1	5.75	0.1	1,241
Levies	0.3	21.84	0.5	4,719
Sundry variable costs	0.2	17.06	0.4	3,687
Other variable costs	**0.7**	**44.65**	**1.1**	**9,647**
Total variable costs	**31.0**	**2,125.63**	**53.3**	**459,262**
Gross margins - milk only	**27.2**	**1,865.23**	**46.7**	**403,000**
- whole farm	**31.6**	**2,164.75**	**54.2**	**467,714**
Permament wages	4.3	295.61	7.4	63,869
Personal drawings etc	1.3	86.64	2.2	18,719

Labour inputs		Areas (ha)		Stock		Production		
Permanent unpaid	1.7	Milking cow	149	Milking and Dry Cows	216	Fed to calves (L)	28,669	2%
Permanent paid	1.4	Effective dairy	323	Mated heifers	47	Protein total (kg)	48,351	3.27%
Casual paid	0.0	Irrigation	40	Other heifers	105	Butterfat total (kg)	57,781	3.91%
Imputed (38 hr/wk)	3.5			Adult equivalents	285	Milk solids (kg)	106,132	
						Litres / cow	6,981	
						Milk solids / cow (kg)	491	

Farms in report 17

Total Operating Costs	$648,509
Dairy Operating Surplus (EBIT)	$336,123
ROA (Operational)	8.0%
Asset value	$4,175,824
Equity	81%

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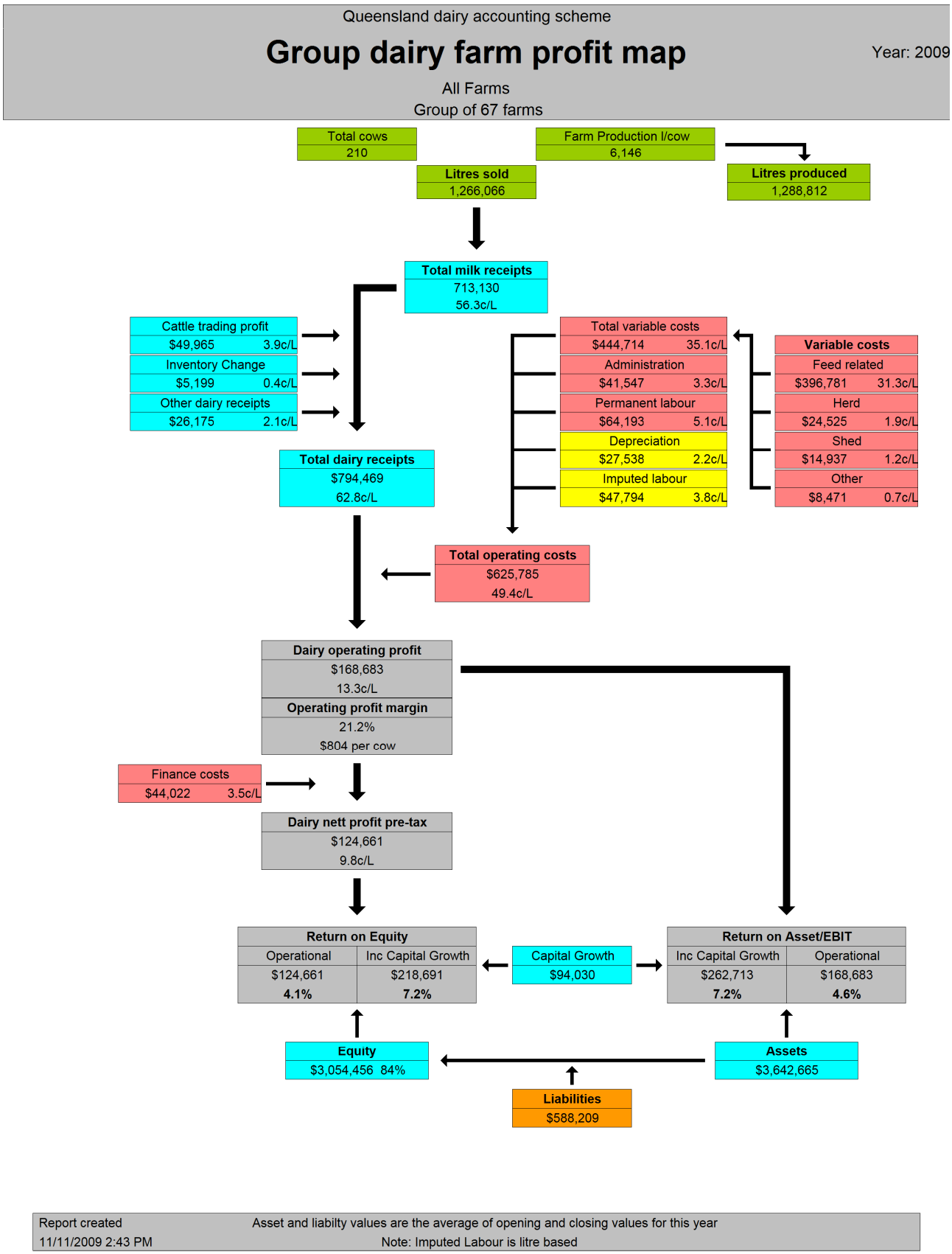
10.3 Map of farm performance – All 67 QDAS farms (2008–09)



Report created 11/11/2009 2:43 PM	Asset and liabilty values are the average of opening and closing values for this year Note: Imputed Labour is litre based

10.4 Group cash gross margin – All 67 QDAS farms (2008–09)

Queensland dairy accounting scheme

Group cash gross margin

Period ending 6/2009

All Farms

Receipts	Cents/litre	Dollars/cow		Total $ earned
Milk	48.5	2,928.98		614,169
Milk bonuses/incentives/rebates/other	7.8	471.95		98,962
Milk Receipts (1,266,066 l)	**56.3**	**3,400.93**		**713,130**
Stock sales - dairy	2.9	172.85		36,245
Stock sales - other	0.1	8.55		1,793
Produce sales	0.1	4.10		860
Other receipts	2.1	124.83		26,175
Non-milk receipts	**5.1**	**310.33**		**65,072**
Total farm receipts	**61.5**	**3,711.27**		**778,203**
Production costs	**Cents/litre**	**Dollars/cow**	**% Milk income**	**Total $ spent**
Purchased feeds	19.9	1,203.01	35.4	252,255
Fertiliser	3.7	225.48	6.6	47,281
Fuel & oil	1.5	91.84	2.7	19,258
Seed	0.8	48.94	1.4	10,261
Irrigation costs	0.6	33.52	1.0	7,029
Repairs & maintenance	2.1	129.77	3.8	27,211
Other feed costs	2.6	159.69	2.6	33,486
Feed related costs	**31.3**	**1,892.26**	**55.6**	**396,781**
Margin over feed related costs	**25.0**	**1,508.68**	**44.4**	**316,350**
Animal health	1.2	72.26	2.1	15,151
Herd improvement	0.7	44.71	1.3	9,374
Herd costs	**1.9**	**116.96**	**3.4**	**24,525**
Dairy shed costs - electricity	0.6	35.40	1.0	7,423
Dairy shed costs - chemicals	0.6	35.83	1.1	7,514
Shed costs	**1.2**	**71.23**	**2.1**	**14,937**
Cartage	0.1	7.14	0.2	1,497
Levies	0.3	19.31	0.6	4,050
Sundry variable costs	0.2	13.95	0.4	2,924
Other variable costs	**0.7**	**40.40**	**1.2**	**8,471**
Total variable costs	**35.1**	**2,120.85**	**62.4**	**444,714**
Gross margins - milk only	**21.2**	**1,280.08**	**37.6**	**268,417**
- whole farm	**26.3**	**1,590.42**	**46.8**	**333,489**
Permament wages	5.1	306.14	9.0	64,193
Personal drawings etc	2.6	157.53	4.6	33,032

Labour inputs		Areas (ha)		Stock		Production		
Permanent unpaid	1.5	Milking cow	127	Milking and Dry Cows	210	Fed to calves (L)	22,746	2%
Permanent paid	1.4	Effective dairy	234	Mated heifers	39	Protein total (kg)	41,303	3.26%
Casual paid	0.0	Irrigation	31	Other heifers	91	Butterfat total (kg)	54,085	4.27%
Imputed (38 hr/wk)	3.5			Adult equivalents	268	Milk solids (kg)	95,389	
						Litres / cow	6,146	
						Milk solids / cow (kg)	455	

Farms in report 67

Total Operating Costs	$625,785
Dairy Operating Surplus (EBIT)	$168,683
ROA (Operational)	4.6%
Asset value	$3,642,665
Equity	84%

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10.5 Group cash gross margin – South East Coastal – Grazing (2008–09)

Queensland dairy accounting scheme

Group cash gross margin

Period ending 6/2009

South East Coastal - Grazing

Receipts	Cents/litre	Dollars/cow		Total $ earned
Milk	50.5	2,809.16		570,436
Milk bonuses/incentives/rebates/other	8.0	444.54		90,269
Milk Receipts (1,130,007 l)	**58.5**	**3,253.70**		**660,705**
Stock sales - dairy	2.2	124.23		25,226
Stock sales - other	0.2	10.14		2,059
Produce sales	0.2	9.13		1,854
Other receipts	1.1	63.26		12,847
Non-milk receipts	**3.7**	**206.76**		**41,986**
Total farm receipts	**62.2**	**3,460.46**		**702,690**
Production costs	**Cents/litre**	**Dollars/cow**	**% Milk income**	**Total $ spent**
Purchased feeds	17.3	960.63	29.5	195,068
Fertiliser	4.9	273.57	8.4	55,552
Fuel & oil	1.1	59.78	1.8	12,139
Seed	0.9	48.03	1.5	9,753
Irrigation costs	0.8	46.18	1.4	9,377
Repairs & maintenance	1.7	96.02	3.0	19,497
Other feed costs	1.1	61.58	1.1	12,504
Feed related costs	**27.8**	**1,545.78**	**47.5**	**313,889**
Margin over feed related costs	**30.7**	**1,707.92**	**52.5**	**346,815**
Animal health	1.6	87.92	2.7	17,853
Herd improvement	0.8	44.96	1.4	9,130
Herd costs	**2.4**	**132.88**	**4.1**	**26,984**
Dairy shed costs - electricity	0.5	30.03	0.9	6,098
Dairy shed costs - chemicals	0.7	37.44	1.2	7,603
Shed costs	**1.2**	**67.47**	**2.1**	**13,701**
Cartage	0.1	3.92	0.1	796
Levies	0.3	19.00	0.6	3,858
Sundry variable costs	0.3	13.98	0.4	2,838
Other variable costs	**0.7**	**36.90**	**1.1**	**7,493**
Total variable costs	**32.0**	**1,783.03**	**54.8**	**362,067**
Gross margins - milk only	**26.4**	**1,470.67**	**45.2**	**298,638**
- whole farm	**30.1**	**1,677.43**	**51.6**	**340,623**
Permament wages	6.8	380.10	11.7	77,184
Personal drawings etc	0.0	0.00	0.0	0

Labour inputs		Areas (ha)		Stock		Production		
Permanent unpaid	1.4	Milking cow	84	Milking and Dry Cows	203	Fed to calves (L)	17,455	2%
Permanent paid	1.6	Effective dairy	151	Mated heifers	37	Protein total (kg)	37,227	3.29%
Casual paid	0.0	Irrigation	39	Other heifers	81	Butterfat total (kg)	45,151	4.00%
Imputed (38 hr/wk)	3.8			Adult equivalents	256	Milk solids (kg)	82,379	
						Litres / cow	5,651	
						Milk solids / cow (kg)	406	

Farms in report 16

Total Operating Costs	$540,596
Dairy Operating Surplus (EBIT)	$175,707
ROA (Operational)	5.0%
Asset value	$3,504,823
Equity	88%

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10.6 Group cash gross margin – South East Coastal – PMR (2008–09)

Queensland dairy accounting scheme

Group cash gross margin

Period ending 6/2009

South East Coastal - PMR

Receipts	Cents/litre	Dollars/cow		Total $ earned
Milk	48.7	3,007.03		632,569
Milk bonuses/incentives/rebates/other	8.1	498.58		104,884
Milk Receipts (1,298,298 l)	**56.8**	**3,505.61**		**737,453**
Stock sales - dairy	2.7	168.89		35,529
Stock sales - other	0.0	1.29		271
Produce sales	0.1	3.82		804
Other receipts	1.9	117.30		24,676
Non-milk receipts	**4.7**	**291.30**		**61,280**
Total farm receipts	**61.5**	**3,796.91**		**798,732**
Production costs	**Cents/litre**	**Dollars/cow**	**% Milk income**	**Total $ spent**
Purchased feeds	19.0	1,173.35	33.5	246,830
Fertiliser	2.7	165.79	4.7	34,877
Fuel & oil	1.8	112.53	3.2	23,673
Seed	1.2	73.71	2.1	15,506
Irrigation costs	1.0	64.58	1.8	13,585
Repairs & maintenance	2.4	145.13	4.1	30,530
Other feed costs	3.3	206.19	3.3	43,375
Feed related costs	**31.5**	**1,941.28**	**55.4**	**408,375**
Margin over feed related costs	**25.3**	**1,564.33**	**44.6**	**329,077**
Animal health	1.0	64.54	1.8	13,577
Herd improvement	0.6	34.71	1.0	7,303
Herd costs	**1.6**	**99.25**	**2.8**	**20,879**
Dairy shed costs - electricity	0.6	36.20	1.0	7,616
Dairy shed costs - chemicals	0.6	39.13	1.1	8,231
Shed costs	**1.2**	**75.33**	**2.1**	**15,846**
Cartage	0.1	4.09	0.1	861
Levies	0.3	20.27	0.6	4,263
Sundry variable costs	0.2	10.91	0.3	2,295
Other variable costs	**0.6**	**35.27**	**1.0**	**7,419**
Total variable costs	**34.9**	**2,151.13**	**61.4**	**452,519**
Gross margins - milk only	**21.9**	**1,354.48**	**38.6**	**284,933**
- whole farm	**26.7**	**1,645.78**	**46.9**	**346,213**
Permament wages	5.4	334.55	9.5	70,376
Personal drawings etc	1.2	71.49	2.0	15,040

Labour inputs		Areas (ha)		Stock		Production		
Permanent unpaid	1.2	Milking cow	94	Milking and Dry Cows	210	Fed to calves (L)	20,413	2%
Permanent paid	1.7	Effective dairy	156	Mated heifers	34	Protein total (kg)	42,614	3.28%
Casual paid	0.0	Irrigation	53	Other heifers	93	Butterfat total (kg)	51,201	3.94%
Imputed (38 hr/wk)	3.6			Adult equivalents	265	Milk solids (kg)	93,815	
						Litres / cow	6,269	
						Milk solids / cow (kg)	446	

Farms in report 11

Total Operating Costs	$633,045
Dairy Operating Surplus (EBIT)	$169,623
ROA (Operational)	4.6%
Asset value	$3,661,284
Equity	86%

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10.7 Group cash gross margin – Darling Downs – Grazing (2008–09)

Queensland dairy accounting scheme

Group cash gross margin

Period ending 6/2009

Darling Downs - Grazing

Receipts	Cents/litre	Dollars/cow		Total $ earned
Milk	49.8	2,613.88		298,505
Milk bonuses/incentives/rebates/other	8.4	442.17		50,495
Milk Receipts (599,951 l)	**58.2**	**3,056.05**		**349,001**
Stock sales - dairy	2.4	125.73		14,359
Stock sales - other	0.0	0.00		0
Produce sales	0.0	0.19		22
Other receipts	2.8	148.40		16,948
Non-milk receipts	**5.2**	**274.33**		**31,328**
Total farm receipts	**63.4**	**3,330.38**		**380,329**
Production costs	**Cents/litre**	**Dollars/cow**	**% Milk income**	**Total $ spent**
Purchased feeds	15.8	832.15	27.2	95,032
Fertiliser	2.1	112.60	3.7	12,859
Fuel & oil	1.9	98.57	3.2	11,256
Seed	1.1	57.49	1.9	6,566
Irrigation costs	0.6	31.67	1.0	3,617
Repairs & maintenance	1.7	87.15	2.9	9,953
Other feed costs	1.7	88.82	1.7	10,144
Feed related costs	**24.9**	**1,308.46**	**42.8**	**149,426**
Margin over feed related costs	**33.3**	**1,747.59**	**57.2**	**199,574**
Animal health	0.9	47.20	1.5	5,391
Herd improvement	1.0	52.52	1.7	5,998
Herd costs	**1.9**	**99.73**	**3.3**	**11,389**
Dairy shed costs - electricity	0.7	34.36	1.1	3,924
Dairy shed costs - chemicals	0.9	45.31	1.5	5,174
Shed costs	**1.5**	**79.67**	**2.6**	**9,098**
Cartage	0.2	7.97	0.3	910
Levies	0.3	17.20	0.6	1,964
Sundry variable costs	0.1	6.94	0.2	793
Other variable costs	**0.6**	**32.11**	**1.1**	**3,667**
Total variable costs	**28.9**	**1,519.96**	**49.7**	**173,580**
Gross margins - milk only	**29.2**	**1,536.09**	**50.3**	**175,421**
- whole farm	**34.5**	**1,810.41**	**59.2**	**206,749**
Permament wages	3.4	178.90	5.9	20,430
Personal drawings etc	1.9	98.40	3.2	11,237

Labour inputs		Areas (ha)		Stock		Production		
Permanent unpaid	1.5	Milking cow	133	Milking and Dry Cows	114	Fed to calves (L)	11,460	2%
Permanent paid	0.5	Effective dairy	174	Mated heifers	22	Protein total (kg)	20,471	3.41%
Casual paid	0.0	Irrigation	25	Other heifers	34	Butterfat total (kg)	24,389	4.07%
Imputed (38 hr/wk)	2.2			Adult equivalents	141	Milk solids (kg)	44,860	
						Litres / cow	5,354	
						Milk solids / cow (kg)	393	

Farms in report 5

Total Operating Costs	$274,200
Dairy Operating Surplus (EBIT)	$97,206
ROA (Operational)	4.0%
Asset value	$2,454,752
Equity	84%

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10.8 Group cash gross margin – Darling Downs – PMR (2008–09)

Queensland dairy accounting scheme

Group cash gross margin

Period ending 6/2009

Darling Downs - PMR

Receipts	Cents/litre	Dollars/cow		Total $ earned
Milk	46.7	3,058.58		705,220
Milk bonuses/incentives/rebates/other	11.4	748.42		172,563
Milk Receipts (1,510,528 l)	**58.1**	**3,806.99**		**877,784**
Stock sales - dairy	4.1	266.39		61,422
Stock sales - other	0.0	0.00		0
Produce sales	0.0	0.00		0
Other receipts	2.1	140.08		32,300
Non-milk receipts	**6.2**	**406.47**		**93,721**
Total farm receipts	**64.3**	**4,213.47**		**971,505**
Production costs	**Cents/litre**	**Dollars/cow**	**% Milk income**	**Total $ spent**
Purchased feeds	20.8	1,362.17	35.8	314,077
Fertiliser	2.3	152.53	4.0	35,170
Fuel & oil	2.2	145.67	3.8	33,588
Seed	0.7	44.46	1.2	10,252
Irrigation costs	0.6	36.06	0.9	8,315
Repairs & maintenance	1.9	125.99	3.3	29,049
Other feed costs	5.3	345.41	5.3	79,642
Feed related costs	**33.8**	**2,212.30**	**58.1**	**510,093**
Margin over feed related costs	**24.3**	**1,594.69**	**41.9**	**367,691**
Animal health	1.2	77.97	2.0	17,978
Herd improvement	1.0	63.45	1.7	14,630
Herd costs	**2.2**	**141.42**	**3.7**	**32,608**
Dairy shed costs - electricity	0.5	35.17	0.9	8,110
Dairy shed costs - chemicals	0.4	29.19	0.8	6,730
Shed costs	**1.0**	**64.36**	**1.7**	**14,840**
Cartage	0.1	8.45	0.2	1,948
Levies	0.3	20.89	0.5	4,816
Sundry variable costs	0.2	14.83	0.4	3,420
Other variable costs	**0.7**	**44.16**	**1.2**	**10,183**
Total variable costs	**37.6**	**2,462.25**	**64.7**	**567,724**
Gross margins - milk only	**20.5**	**1,344.75**	**35.3**	**310,060**
- whole farm	**26.7**	**1,751.22**	**46.0**	**403,781**
Permament wages	6.3	409.53	10.8	94,426
Personal drawings etc	4.1	267.71	7.0	61,727

Labour inputs		Areas (ha)		Stock		Production		
Permanent unpaid	1.7	Milking cow	265	Milking and Dry Cows	231	Fed to calves (L)	30,586	2%
Permanent paid	1.7	Effective dairy	507	Mated heifers	64	Protein total (kg)	50,221	3.32%
Casual paid	0.0	Irrigation	53	Other heifers	153	Butterfat total (kg)	60,069	3.98%
Imputed (38 hr/wk)	2.5			Adult equivalents	327	Milk solids (kg)	110,291	
						Litres / cow	6,684	
						Milk solids / cow (kg)	478	

Farms in report 7

Total Operating Costs	$805,390
Dairy Operating Surplus (EBIT)	$215,578
ROA (Operational)	5.2%
Asset value	$4,163,824
Equity	80%

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10.9 Group cash gross margin – Darling Downs – TMR (2008–09)

Queensland dairy accounting scheme

Group cash gross margin

Period ending 6/2009

Darling Downs - TMR

Receipts	Cents/litre	Dollars/cow		Total $ earned
Milk	48.7	3,678.68		789,579
Milk bonuses/incentives/rebates/other	10.1	759.19		162,951
Milk Receipts (1,620,189 l)	**58.8**	**4,437.88**		**952,530**
Stock sales - dairy	2.2	166.67		35,774
Stock sales - other	0.0	3.28		704
Produce sales	0.1	7.85		1,685
Other receipts	2.5	189.73		40,722
Non-milk receipts	**4.9**	**367.54**		**78,886**
Total farm receipts	**63.7**	**4,805.41**		**1,031,416**
Production costs	**Cents/litre**	**Dollars/cow**	**% Milk income**	**Total $ spent**
Purchased feeds	24.2	1,827.04	41.2	392,150
Fertiliser	1.7	127.21	2.9	27,303
Fuel & oil	2.0	147.81	3.3	31,725
Seed	0.7	49.42	1.1	10,607
Irrigation costs	0.0	2.35	0.1	504
Repairs & maintenance	2.2	163.75	3.7	35,147
Other feed costs	3.2	243.04	3.2	52,165
Feed related costs	**33.9**	**2,560.61**	**57.7**	**549,601**
Margin over feed related costs	**24.9**	**1,877.26**	**42.3**	**402,929**
Animal health	0.5	38.63	0.9	8,291
Herd improvement	0.3	22.42	0.5	4,812
Herd costs	**0.8**	**61.05**	**1.4**	**13,103**
Dairy shed costs - electricity	0.5	38.22	0.9	8,203
Dairy shed costs - chemicals	0.5	41.07	0.9	8,815
Shed costs	**1.1**	**79.29**	**1.8**	**17,019**
Cartage	0.1	7.57	0.2	1,625
Levies	0.3	23.97	0.5	5,145
Sundry variable costs	0.2	14.44	0.3	3,099
Other variable costs	**0.6**	**45.98**	**1.0**	**9,869**
Total variable costs	**36.4**	**2,746.93**	**61.9**	**589,592**
Gross margins - milk only	**22.4**	**1,690.94**	**38.1**	**362,938**
- whole farm	**27.3**	**2,058.48**	**46.4**	**441,824**
Permament wages	3.2	238.57	5.4	51,205
Personal drawings etc	0.7	49.43	1.1	10,610

Labour inputs		Areas (ha)		Stock		Production		
Permanent unpaid	1.7	Milking cow	179	Milking and Dry Cows	215	Fed to calves (L)	21,536	1%
Permanent paid	1.4	Effective dairy	343	Mated heifers	40	Protein total (kg)	52,698	3.25%
Casual paid	0.0	Irrigation	6	Other heifers	83	Butterfat total (kg)	90,423	5.58%
Imputed (38 hr/wk)	4.3			Adult equivalents	270	Milk solids (kg)	143,121	
						Litres / cow	7,649	
						Milk solids / cow (kg)	667	

Farms in report 11

Total Operating Costs	$765,758
Dairy Operating Surplus (EBIT)	$268,824
ROA (Operational)	9.1%
Asset value	$2,967,443
Equity	75%

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10.10 Group cash gross margin – North Queensland – Grazing (2008–09)

Queensland dairy accounting scheme

Group cash gross margin

Period ending 6/2009

North Queensland - Grazing

Receipts	Cents/litre	Dollars/cow		Total $ earned
Milk	47.2	2,525.29		585,272
Milk bonuses/incentives/rebates/other	3.7	197.85		45,855
Milk Receipts (1,239,381 l)	**50.9**	**2,723.14**		**631,127**
Stock sales - dairy	3.5	187.48		43,452
Stock sales - other	0.4	19.40		4,496
Produce sales	0.0	0.12		28
Other receipts	2.5	131.46		30,468
Non-milk receipts	**6.3**	**338.47**		**78,444**
Total farm receipts	**57.3**	**3,061.60**		**709,572**
Production costs	**Cents/litre**	**Dollars/cow**	**% Milk income**	**Total $ spent**
Purchased feeds	19.4	1,034.90	38.0	239,854
Fertiliser	6.1	326.02	12.0	75,560
Fuel & oil	0.9	49.57	1.8	11,489
Seed	0.7	35.44	1.3	8,213
Irrigation costs	0.4	22.75	0.8	5,272
Repairs & maintenance	2.5	135.94	5.0	31,507
Other feed costs	1.8	97.55	1.8	22,608
Feed related costs	**31.8**	**1,702.17**	**62.5**	**394,503**
Margin over feed related costs	**19.1**	**1,020.97**	**37.5**	**236,624**
Animal health	1.6	85.31	3.1	19,772
Herd improvement	1.0	54.90	2.0	12,725
Herd costs	**2.6**	**140.22**	**5.1**	**32,497**
Dairy shed costs - electricity	0.7	37.91	1.4	8,786
Dairy shed costs - chemicals	0.6	30.78	1.1	7,134
Shed costs	**1.3**	**68.69**	**2.5**	**15,920**
Cartage	0.2	10.67	0.4	2,474
Levies	0.3	15.89	0.6	3,682
Sundry variable costs	0.3	16.06	0.6	3,722
Other variable costs	**0.8**	**42.62**	**1.6**	**9,878**
Total variable costs	**36.5**	**1,953.70**	**71.7**	**452,798**
Gross margins - milk only	**14.4**	**769.44**	**28.3**	**178,329**
- whole farm	**20.7**	**1,107.91**	**40.7**	**256,774**
Permament wages	4.6	245.04	9.0	56,792
Personal drawings etc	6.8	366.16	13.4	84,864

Labour inputs		Areas (ha)		Stock		Production		
Permanent unpaid	1.5	Milking cow	97	Milking and Dry Cows	232	Fed to calves (L)	30,112	2%
Permanent paid	1.2	Effective dairy	196	Mated heifers	40	Protein total (kg)	39,373	3.18%
Casual paid	0.0	Irrigation	20	Other heifers	96	Butterfat total (kg)	47,118	3.80%
Imputed (38 hr/wk)	3.4			Adult equivalents	292	Milk solids (kg)	86,491	
						Litres / cow	5,478	
						Milk solids / cow (kg)	373	

Farms in report 17

Total Operating Costs	$640,147
Dairy Operating Surplus (EBIT)	$98,381
ROA (Operational)	2.3%
Asset value	$4,332,051
Equity	85%

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10.11 Business traits, key performance indicators and definitions

Sixteen key performance indicators (KPI) are used in QDAS to monitor farm performance. Table 22 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 25. 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 16 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.