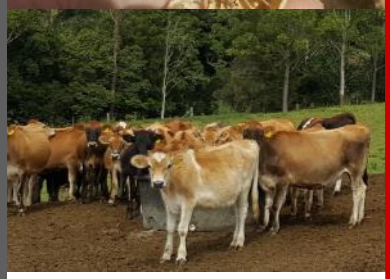
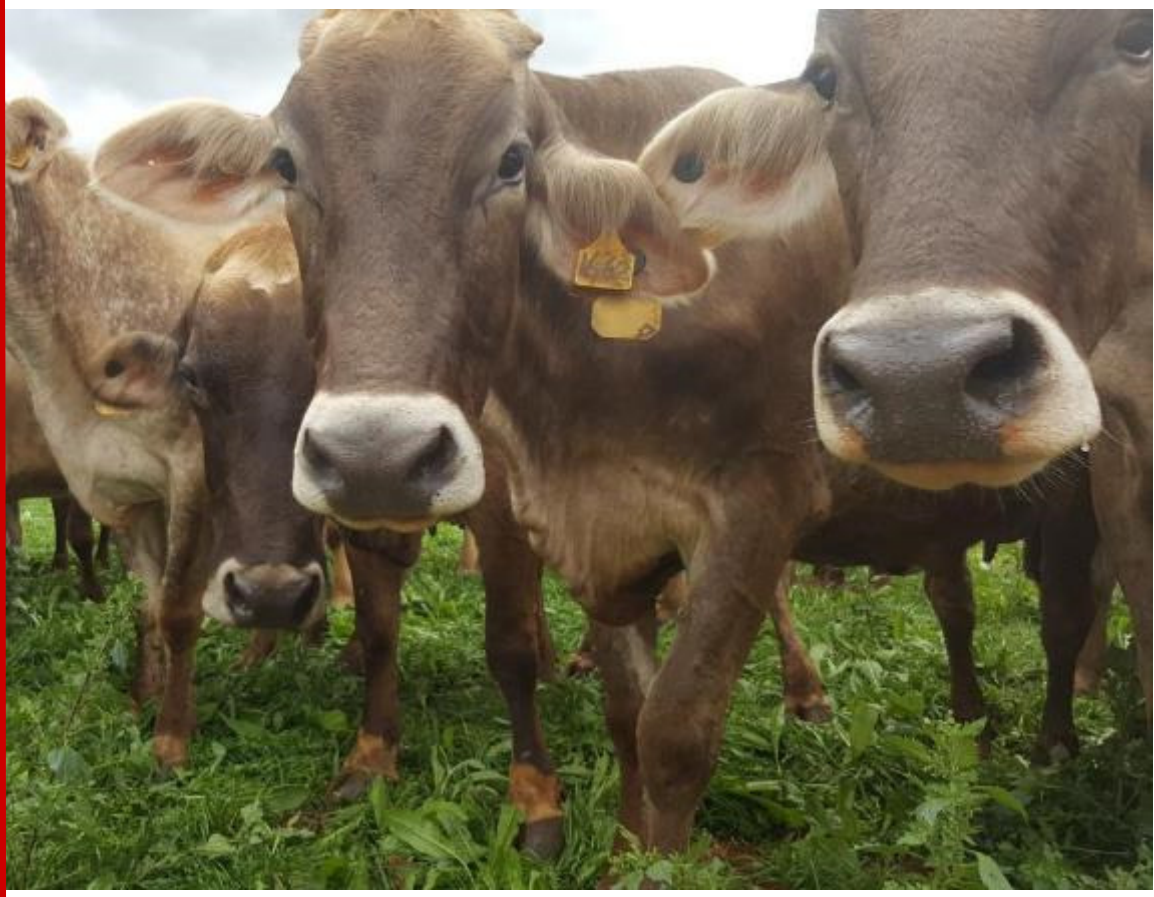
Balancing dairy production and profits in northern Australia





QDAS

Queensland Dairy Accounting Scheme - 2017

Dairy Australia
Your Levy at Work

Queensland Government

Balancing dairy production and profits in northern Australia

QDAS Financial and production trends – 2017

Compiled by

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Department of Agriculture and Fisheries 2017

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Introduction

This report contains physical and financial data from 52 farms and includes data from the South East Coastal, Darling Downs and North Queensland dairy regions (Figure 1).

Milk production in Queensland increased by 13 million litres from 405 million litres in 2015-16 to 418 million litres in 2016-17, see Table 1. This increase was due to improved seasonal conditions in a year where Australia's milk supply decreased dramatically due to low prices in southern Australia.

In 2016-17 Australian milk production was 9.0 billion litres with Queensland contributing 4.6% of this.

Figure 2 shows Queensland's monthly milk production for 2015-16 and 2016-17.

A thorough analysis of Queensland dairy businesses can be undertaken by reviewing performance using four business traits – liquidity, profitability, solvency and efficiency. These traits cover both the financial and physical aspects of the business.

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

Section 2 displays the distribution of the Queensland Dairy Accounting Scheme (QDAS) data for cow numbers, land area, labour, production, receipts, costs and profitability.

Section 3 details the characteristics of the most profitable farms in QDAS. Production per cow, the effect of herd size and milk from home grown feed are examined.

Section 4 details the amounts fed to milking cows in each of the regional production systems.

Regional production system statistics are summarised in Section 5 and are then examined individually in Sections 6 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.

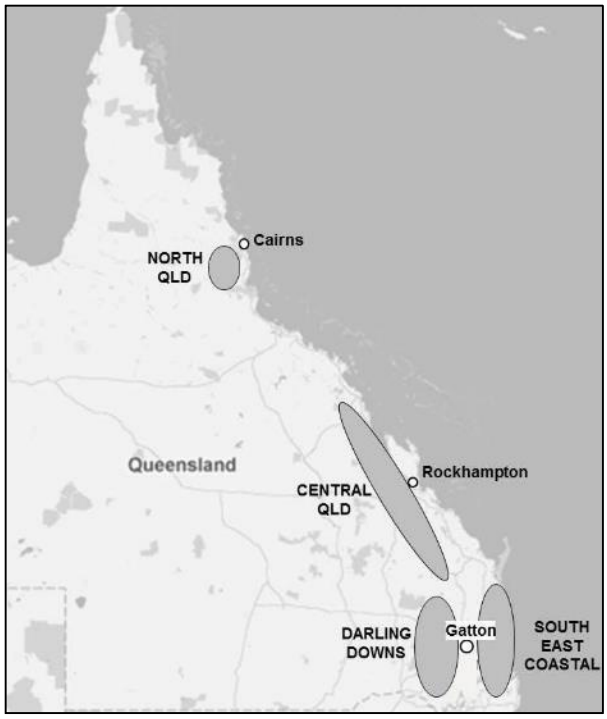

Figure 1. The location of dairy farms in Queensland

Table 1. Annual milk production for Queensland (2013-14 to 2016-17)

	Annual production
2013-14	433 m L
2014-15	411 m L
2015-16	405 m L
2016-17	418 m L

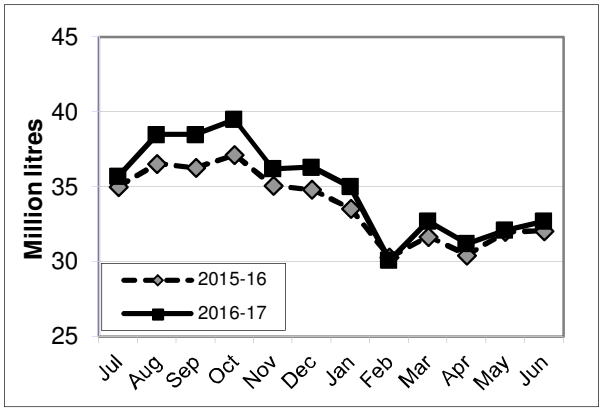

Figure 2. Queensland monthly milk production (2015-16 and 2016-17)

Objectives

The objectives of this book are to:

- Provide 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

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 were used to answer questions such as "Is the production of an extra unit of milk profitable?" QDAS has evolved to now examine the business traits of profitability, solvency and efficiency but still maintains a similar aim to help dairy farmers make informed decisions based on business information.

Officers of the Department of Agriculture and Fisheries (DAF) 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.

QDAS data is used by DairyBase, Dairy Australia's web based farm comparative analysis tool, as their verified farm data for Queensland. Using DairyBase, farmers can calculate their financial performance and compare this to averages for Queensland (QDAS data) or verified data from other states. For more information go to: www.dairybase.com.au.

Acknowledgements

The authors wish to thank all cooperating farmers who supplied data and provided valuable feedback in discussion groups held during late 2017.

The author also acknowledges the support and efforts of Howard Smith for his assistance with data collection.

QDAS is a project of the Department of Agriculture and Fisheries (DAF) and is co-funded by DAF and Dairy Australia.

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December 2017

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1. 2016–17 Key findings

Fifteen Key Performance Indicators (KPI) are used to highlight the results for profitability, solvency and efficiency. Table 2 shows these results for 2016-17 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 (2013-14 to 2016-17)

Business traits and indicators[1]	**Top 25%**	**QDAS average**	**Past QDAS averages**		
Profitability	**2016-17**	**2016-17**	**2015-16**	**2014-15**	**2013-14**
Return on assets managed (%)	8.1	4.4	4.4	3.4	1.2
Return on equity (%)	11.2	4.9	4.8	3.2	-0.3
Operating profit margin (%)	28.2	18.4	18.9	15.4	6.1
Dairy operating profit ($/cow)	1,386	758	770	606	212
Solvency					
Equity (%)	74	78	76	80	81
Debt to equity ratio	0.36	0.28	0.32	0.25	0.23
Efficiency – Capital/Finance					
Asset turnover ratio	0.35	0.31	0.30	0.29	0.23
Total liabilities per cow ($)	3,593	2,932	3,242	2,762	2,773
Interest paid/cow ($)	167	141	178	174	186
Efficiency – Productivity					
Feed related costs (c/L)	26.0	27.1	28.9	31.8	30.8
Margin over feed related costs (c/L)	33.2	31.1	30.2	26.1	23.5
Margin over feed related costs ($/cow)	2,307	1,951	1,848	1,591	1,391
Operating cash surplus (c/L)	24.5	20.0	18.5	16.0	13.0
Efficiency – Physical					
Production per cow (L)	6,946	6,266	6,121	6,088	5,927
Litres per labour unit					
- On farms <1.0 m L	384,500	329,004	358,425	354,504	335,874
- On farms >1.0 m L	519,940	494,488	493,543	500,861	470,132

[1] The definition of each indicator and how it is calculated can be found in Appendix 10.10

Profitability

The profitability of Queensland dairy farms has been relatively stable for the past three years. Table 2 shows that dairy operating profit per cow was $606 in 2014-15, $770 in 2015-16 and has decreased slightly to be $758 in 2016-17. Average return on assets managed on QDAS farms remained at the 2015-16 result of 4.4%.

This profit result was influenced by several contrasting factors. Firstly, the cost of purchased feed decreased by 1.4 c/L which flowed through to a decrease in feed related costs (which includes the home grown feed costs) of 1.8 c/L. Secondly a 0.9 c/L decrease in average milk receipts. Finally, the imputed cost for unpaid family labour increased by 0.7 c/L due to an increase in the cost QDAS allocates to each unpaid labour unit.

Cattle trading profit increased slightly from 6.2 c/L in 2015-16 to 6.4 c/L in 2016-17. However, the make-up of this profit has changed. In 2015-16, 2.7 c/L of the cattle trading profit was achieved through an increase in cattle inventory. In 2016-17 cattle inventory increased by only 1.4 c/L but cattle sales less purchases increased from 3.5 c/L to 5.0 c/L as farmers took advantage of high cattle prices.

Extreme weather

A hot dry February was followed by cyclone Debbie who damaged central Queensland and then flooded south east Queensland and northern NSW in March. Beaudesert's average rainfall for February is 117mm and March is 116mm. In 2017 Beaudesert received only 10mm of rain in February and that was followed by 541mm in March. The cyclone dumped 344mm of rain on Beaudesert in two days causing damaging flooding.

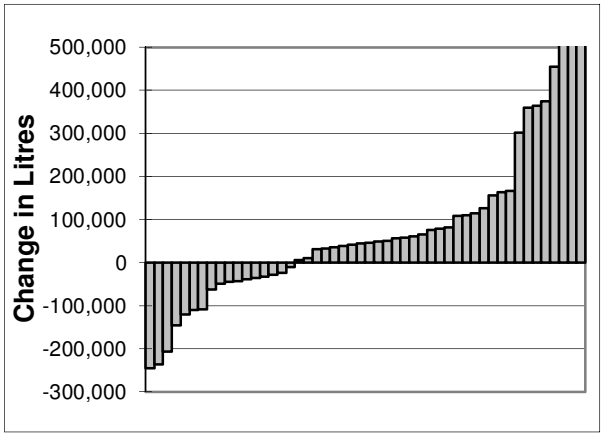


Figure 3. Change in milk production on individual farms between 2015-16 and 2016-17

Production and prices

The 13 million litre increase in Queensland's milk supply in 2016-17 was reflected on QDAS farms with the average milk supplied by QDAS farms increasing by 122,383 litres to 1,680,243 litres. This increase was a result of an increase in production per cow and the average number of milking and dry cows increasing from 255 to 268.

The milk production changes on individual farms are varied, with three QDAS farms increasing production by more than 500,000 litres and three farms decreasing production by 200,000 litres or more. Figure 3 shows the changes in milk production between 2015-16 and 2016-17 for individual QDAS farms.

QDAS average milk receipts (milk price) decreased by 0.9 c/L. This was caused by two factors. Firstly, protracted negotiations between farmers and a milk processor resulted a reduction in milk receipts. Secondly, an increase in spring milk production resulted in a slight drop in butterfat and protein percentages and a decrease in milk receipts on a cents per litre basis.

Figure 4 shows the changes in average milk receipts per litre between 2015-16 and 2016-17 for individual QDAS farms. The farm with the large increase in milk receipts was the result of overcoming milk quality issues that has decreased milk receipts in the previous year.

Production per cow

Table 2 shows that production per cow has increased consistently from 5,927 litres in 2013-14 to 6,266 litres in 2016-17. The top 25% farms achieved a production per cow 680 litres higher than the QDAS average in 2016-17.

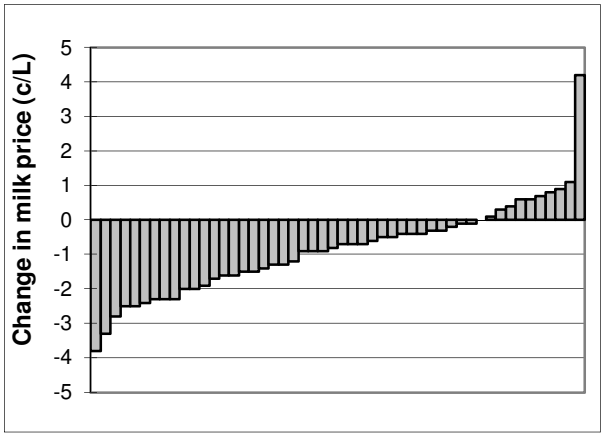


Figure 4. Change in average milk receipts on individual farms between 2015-16 and 2016-17

Production costs

Feed related costs decreased by 1.8 c/L, from 28.9 c/L in 2015-16 to 27.1 c/L in 2016-17. This change is primarily due to a decrease in the cost of purchased feeds, with the price of grain remaining low for most of the year. The spot price of grain did increase dramatically in the last few months of 2016-17 but most farmers were using grain at lower contracted prices. The higher grain prices will increase purchased feed costs in 2017-18. Table 3 shows the prices of major farm inputs. These prices are sourced in southern Queensland and vary depending on contractual arrangements.

The margin over feed related costs increased by 0.9 c/L, from 30.2 c/L to 31.1 c/L. The margin over feed related costs per cow increased from $1,848 to $1,951.

The top 25% group (sorted by dairy operating profit per cow) achieved feed related costs of 26.0 c/L. This is 1.1 c/L lower than the average of all farms. This underlines the importance of feed costs, which consume 46% of milk receipts.

The operating cash surplus for the top 25% group was 24.5 c/L, which is 4.5 c/L higher than the average of all farms. On individual farms in the top 25% group, the operating cash surplus ranged from 14.0 c/L to 33.8 c/L.

Table 4 shows the cash receipts and cash costs of production for QDAS farms for 2016-17. Full details of QDAS average cash receipts and cash costs can be found in Appendix 10.1.

Table 3. Indicative prices per tonne of major farm inputs (June 2014 to June 2017)

	June 2014	June 2015	June 2016	June 2017
Concentrates				
Sorghum	$300	$340	$235	$285
Barley	$340	$345	$260	$290
Wheat	$345	$350	$285	$300
Soybean meal	$720	$620	$660	$580
Canola meal	$550	$510	$480	$480
14% dairy pellet	$430	$410	$400	$420
Fertiliser				
Urea	$565	$535	$460	$650
Diesel				
Bowser price	$1.60	$1.39	$1.25	$1.26

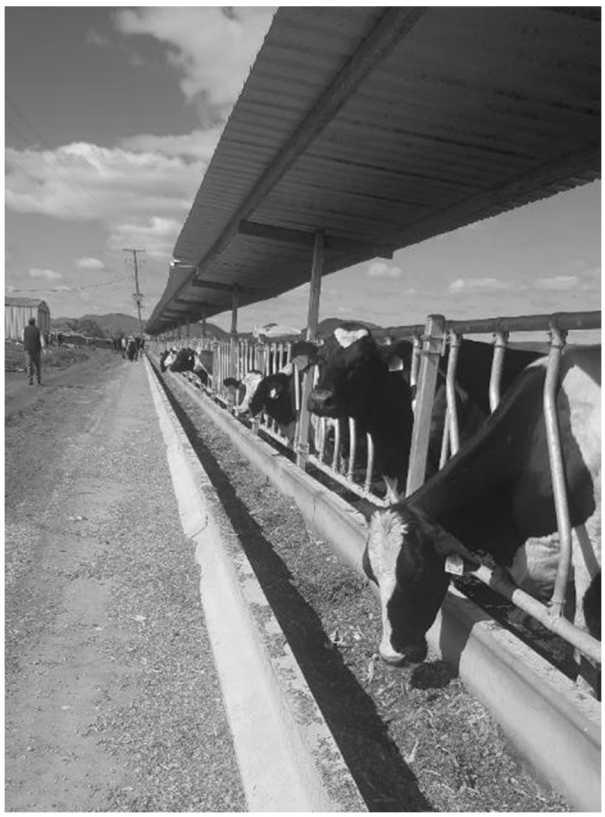


Table 4. Cash analysis of the costs of production (2016-17)

	c/L
Farm receipts	
Milk receipts (Net)	58.2
Other farm receipts	7.0
Total farm receipts	**65.2**
Production costs	
Purchased feed	19.5
Home grown feed	7.6
Total feed related costs	27.1
Herd costs	2.8
Shed costs	1.9
Employed labour	7.3
Repairs & maintenance	3.5
Other overheads	2.6
Farm working expenses	**45.2**
Interest, principal, lease	7.0
Owners labour	6.0
Total cash costs	**58.3**
Surplus / Deficit	6.9

Labour

Average paid labour costs are $122,914 for 2.0 labour units. This equates to 7.3 c/L, which is 0.9 c/L higher than in 2015-16. As farms milk more cows there are opportunities to utilise labour more effectively. Table 5 shows that farms producing less than 1.0 m L (131 cows) do so at 329,004 litres per labour unit, whereas farms producing more than 2.0 m L (449 cows) do so at 515,301 litres per labour unit.

Table 5 also shows the increase in labour used, both paid and unpaid (family), as production increases. It is not surprising that the greater than 2.0 m L group has the largest use of paid labour at 4.1 full time equivalents (FTE). This is more than double the paid labour use of the 1.5 m L to 2.0 m L group.

Repairs and other overhead

The QDAS average repairs and maintenance is $58,988 (3.5 c/L). Table 5 shows that repairs and maintenance is 4.5 c/L for the farms that produce less than 1.0 m L and 3.2 c/L for the farms that produce more than 2.0 m L of milk.

The QDAS average for other overhead costs is $43,789 (2.6 c/L). While overhead costs increase as production increases, the costs get proportionately lower per litre. Table 5 shows other overhead costs falling from 3.6 c/L to 2.2 c/L as production increases. Other overhead costs include rates, insurance, registration, office expenses, accounting, industry levies and telephone.

Table 5. Analysis of overhead costs (2016-17)

	<1.0 m L	1.0 – 1.5m L	1.5 – 2.0m L	>2.0m L
Milk production (L)	688,562	1,241,211	1,665,029	3,098,391
Cows (milkers + dry)	131	227	266	449
Overheads				
Repairs & Maintenance ($)	30,695	55,695	46,537	99,274
Repairs & Maintenance (c/L)	4.5	4.5	2.8	3.2
Other overheads ($)	25,131	35,774	45,417	69,009
Other overheads (c/L)	3.6	2.9	2.7	2.2
Labour				
Unpaid labour (FTE)	1.3	1.7	1.5	1.9
Paid labour (FTE)	0.8	1.2	1.8	4.1
Paid labour cost (c/L)	6.3	6.5	6.8	8.0
Litres per labour unit	329,004	434,750	500,343	515,301

2. The distribution of QDAS cooperating farms

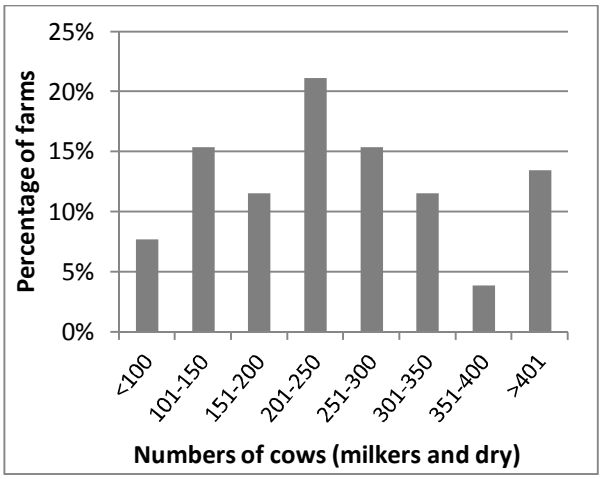


Figure 5. The distribution of QDAS farms by cow numbers

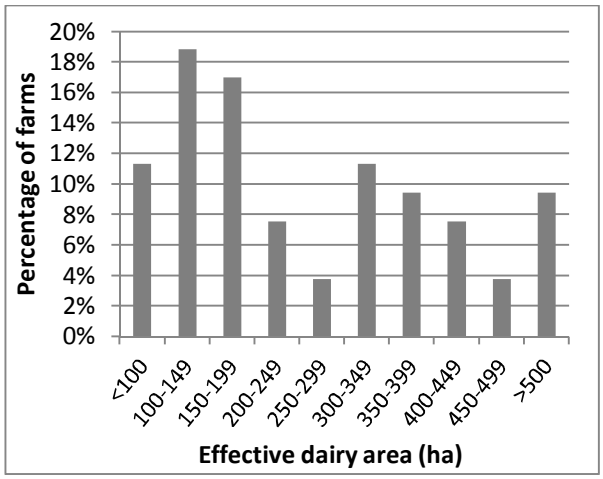


Figure 8. The distribution of QDAS farms by effective dairy area

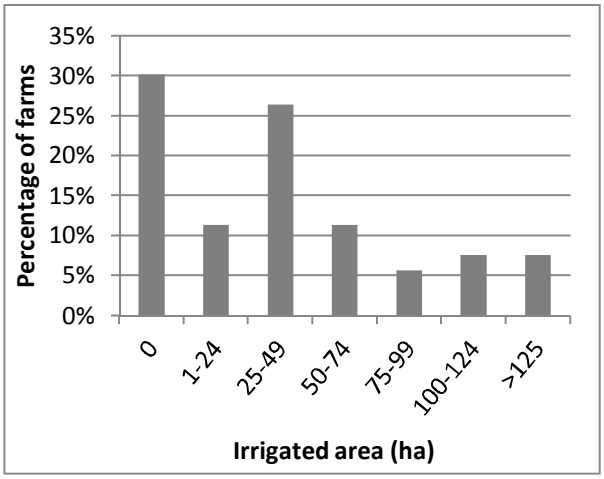


Figure 6. The distribution of QDAS farms by irrigated area

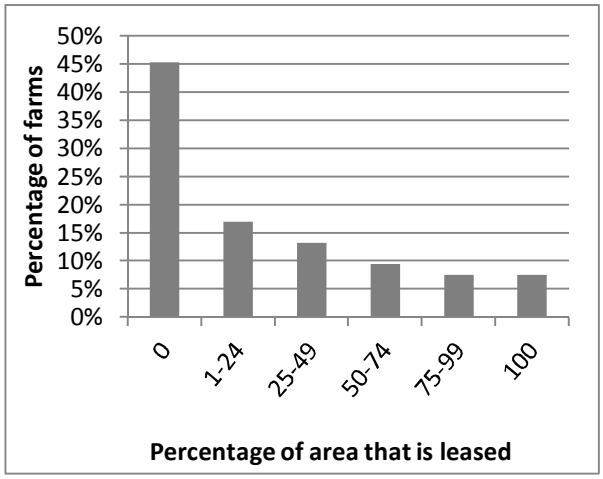


Figure 9. The distribution of QDAS farms by the percentage of effective area that is leased

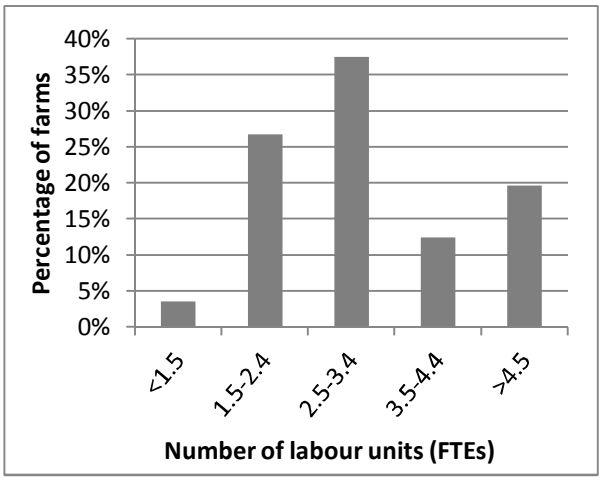


Figure 7. The distribution of QDAS farms by number of labour units

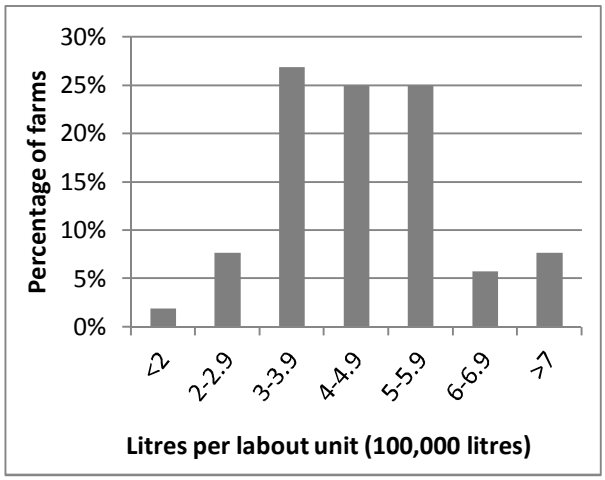


Figure 10. The distribution of QDAS farms by litres per labour unit

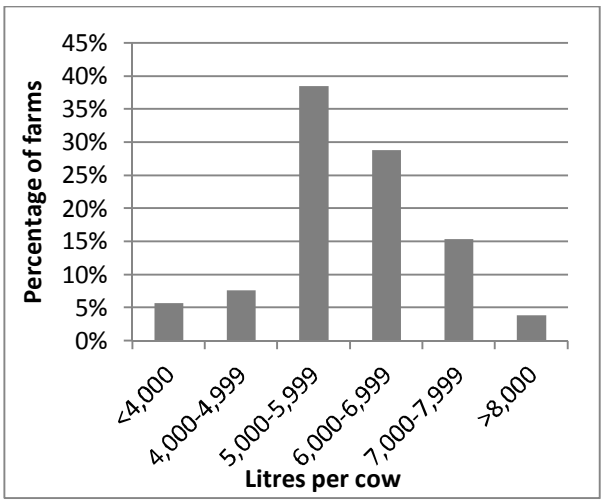


Figure 11. The distribution of QDAS farms by production per cow

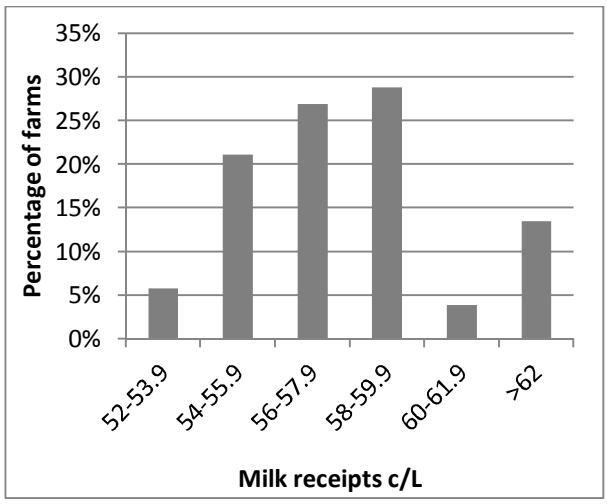


Figure 14. The distribution of QDAS farms by average milk receipts

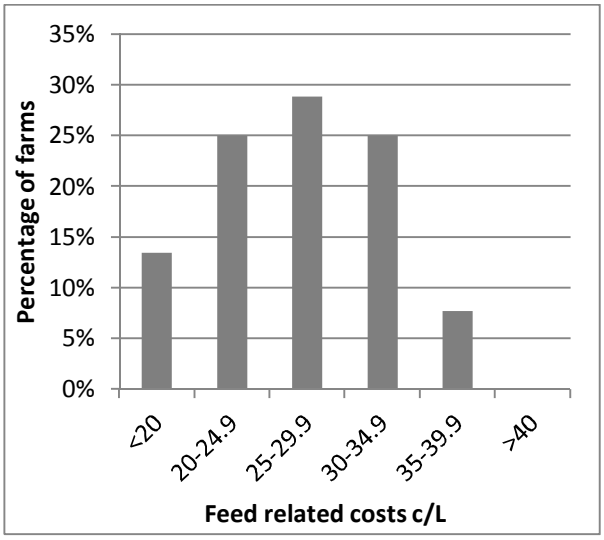


Figure 12. The distribution of QDAS farms by feed related costs

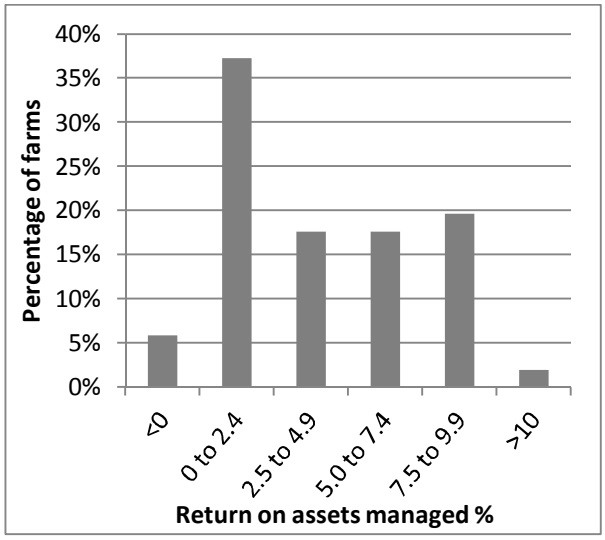


Figure 15. The distribution of QDAS farms by return on assets managed

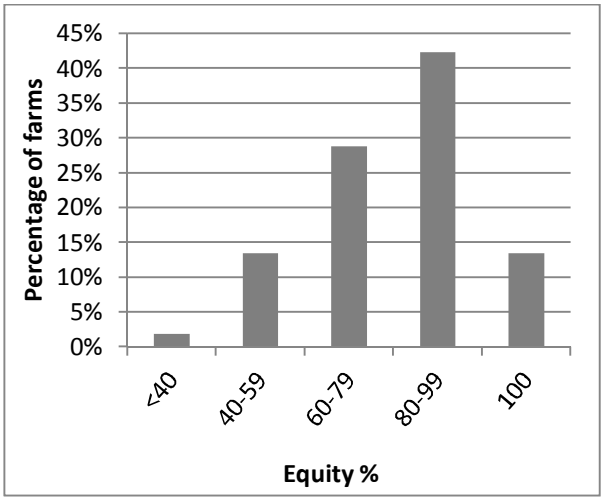


Figure 13. The distribution of QDAS farms by equity percentage

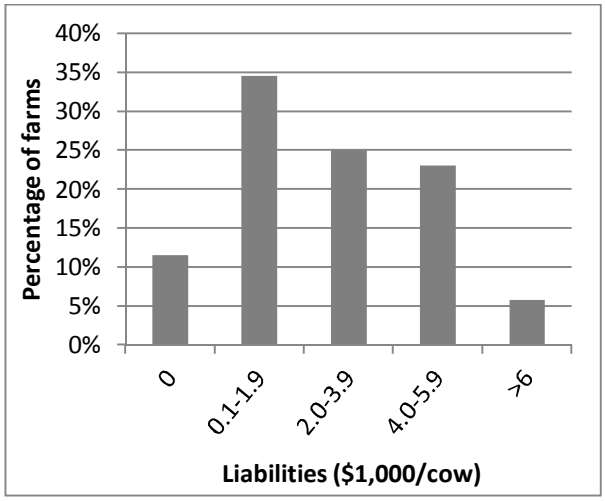


Figure 16. The distribution of QDAS farms by liabilities per cow

3. Factors affecting profitability

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

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

- Higher production per cow. The top 25% group produced 1,026 litres per cow more than the remaining 75% group.
- Selling more litres of milk. The top 25% group sold 1,103,063 more litres of milk than the remaining 75% group. This is driven by production per cow and by having 124 more cows (milkers and dry).
- Higher milk receipts. The top 25% group received 1.7 c/L more for their milk which was due to processor payment structures and rewards for quality and volume.
- Lower feed related costs. The top 25% group had feed related costs 1.7 c/L lower than the other group. The margin over feed related costs is 3.3 c/L higher.
- Better labour efficiency. The top 25% group achieved 75,243 more litres per labour unit.

Table 6. KPI for top 25% and the remaining 75% of farms (2016-17)

	Top 25%	Remaining 75%
Physical traits		
Cows (milkers + dry)	361	237
Farm production (L)	2,507,540	1,404,477
Efficiency - Physical		
Production per cow (L)	6,946	5,920
Milk from home grown feed (L/day)	11.6	10.1
Litres per labour unit	515,656	440,413
Profit Analysis		
Dairy operating profit ($/cow)	1,370	439
Average investment ($/cow)	13,605	13,144
Cash Analysis		
Milk receipts (c/L)	59.3	57.6
Feed related costs (c/L)	26.0	27.7
Total variable costs (c/L)	30.0	32.9
Margin over FRC (c/L)	33.2	29.9
Margin over FRC ($/cow)	2,307	1,770

Production per cow

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

Dairy operating profit per cow increased from $411 to $1,169 as production per cow increased.

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

Table 7. KPI for four production (L per cow) groups in Queensland (2016-17)

	<5,000	5,000 - 6,000	6,000 - 7,000	>7,000
Farm milk production (L)	837,103	1,410,653	1,689,187	2,796,206
Cows (milkers + dry)	197	252	259	365
Production per cow (L)	4,255	5,598	6,527	7,669
Milk receipts (c/L)	59.5	59.0	58.4	57.1
Margin over FRC (c/L)	36.6	30.8	32.4	29.2
Margin over FRC ($/cow)	1,555	1,723	2,116	2,238
Dairy operating profit ($/cow)	411	500	808	1,169

Herd size

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

Increasing the scale of a farm's operation can lead to efficiencies in overheads and the use of labour. The farms with more than 320 cows (milkers and dry) had the highest production per cow at 6,769 litres, whereas the farms with less than 150 cows produced 5,634 litres per cow.

The larger herds 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 was excellent in the larger herds with 507,308 litres produced per labour unit. Labour efficiency dropped to 332,784 litres per labour unit in the smaller herds.

With a dairy operating profit of $949 per cow, the farms with more than 320 cows had the highest dairy operating profit per cow. The group with less than 150 cows recorded the lowest dairy operating profit per cow.

Table 8. KPI for farms with increasing cow numbers (2016-17)

	< 150	150 - 240	240 - 320	> 320
Farm milk production (L)	659,629	1,069,002	1,658,947	3,142,412
Cows (milkers + dry)	117	200	264	464
Production per cow (L)	5,634	5,337	6,275	6,769
Margin over feed related costs ($/cow)	1,810	1,735	1,923	2,082
Litres per labour unit	332,784	426,093	481,749	507,308
Return on assets managed (%)	1.3	3.2	4.2	5.9
Dairy operating profit ($/cow)	259	578	713	949

4. Feed analysis

Feed related costs require significant attention by dairy farmers, especially in a subtropical environment. In 2016-17 feed related costs represented 46% of milk receipts on the QDAS average farm. On Darling Downs total mixed ration (TMR) farms it represents 55% of milk receipts. In 2013-14, a year affected by drought, feed related costs represented 69% of milk receipts on Darling Downs TMR farms.

QDAS allows farmers to investigate their feeding system and compare their feed inputs and milk responses with other farmers from the same regional production system. Table 9 shows the amount of various feeds, fed to milking cows over the 2016-17 year.

Milk responses are allocated to each concentrate and conserved forage fed to milking cows to determine the milk produced from these feed sources. The remaining milk produced is then assumed to be as a result of grazing and the tonnes of dry matter required to be grazed to produce this milk is calculated.

The calculation of total intake (kgDM/cow/day) and milk production (L/cow/day) in Table 9 assume a 300 day lactation.

Grain used on-farm is predominately wheat, barley and maize. Custom made pellets are popular on farms with no grain milling equipment.

Protein is fed mainly as canola meal and soybean meal on partial mixed ration (PMR) and TMR farms. Whole cottonseed is a popular protein supplement on north Queensland farms.

Molasses is a significant feed, especially in north Queensland. Distillers Syrup is used on several TMR farms on the Darling Downs.

The largest contribution to "other concentrates" is from brewer's grain. Bread and flour are also fed in significant amounts on some PMR and TMR farms.

Good quality silages include maize, cereals, legumes and ryegrass. Medium quality silages include forage sorghum and tropical grasses. No one should ever make poor quality silage.

Good quality hays are predominately lucerne or cereals. Medium quality hays are mainly forage sorghum, millet and tropical grasses. Straw is also an important fibre source on some farms.

Table 9. Amounts fed to milking cows in each of the regional production systems (2016-17)

	Sth East Coastal Grazing	Sth East Coastal PMR	Darling Downs TMR	North Qld Grazing	All Qld
Grazing (tDM/cow/year)	3.11	1.98	0.00	3.19	2.01
Grain and pellets (tDM/cow/year)	1.85	1.66	1.68	1.33	1.64
Protein (tDM/cow/year)	0.08	0.32	1.12	0.25	0.47
Molasses & syrup (tDM/cow/year)	0.03	0.02	0.05	0.57	0.11
Other concentrates (tDM/cow/year)	0.18	0.50	0.27	0.00	0.27
Silage good quality (tDM/cow/year)	0.00	1.23	1.56	0.12	0.91
Silage medium quality (tDM/cow/year)	0.01	0.21	1.24	0.01	0.38
Hay good quality (tDM/cow/year)	0.04	0.21	0.45	0.01	0.20
Hay medium quality & straw (tDM/cow/year)	0.01	0.09	0.10	0.02	0.05
Total intake (tDM/cow/year)	5.30	6.21	6.48	5.48	6.05
Total intake (kgDM/cow/day)	17.7	20.7	21.8	18.3	20.2
Production (L/cow/day)	18.7	21.2	22.5	19.0	20.9
Feed Conversion Efficiency (L/kgDM)	1.06	1.02	1.03	1.04	1.03
Forage to concentrate ratio	60:40	60:40	52:48	61:39	59:41

5. Production system analysis

QDAS data collection concentrates on gaining a "snap-shot" into different production systems in the regions. The three systems are:

Grazing (GRA) – Milk production principally from grazing, with grain and concentrates fed in the dairy. Less than 10% of dry matter intake is from hay or silage.

Partial Mixed Ration (PMR) – Milk production from a combination of grazing, grain, concentrates, hay and silage. More than 10% of dry matter intake is from hay or silage and at least 1% of dry matter intake is from grazing.

Total Mixed Ration (TMR) – Milk production principally from a silage based mixed ration fed on a pad. Less than 1% of dry matter intake is from grazing.

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

Table 10. The number of farms collected in each regional production system (2016-17)

Region	GRA	PMR	TMR	Total
North Queensland	10	1	0	11
Darling Downs	2	4	8	14
South East Coastal	12	15	0	27
Total	24	20	8	52

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

- Milk receipts vary from 56.8 c/L for Darling Downs TMR farms to 59.5 c/L for South East Coastal Grazing farms. The majority of the South East Coastal Grazing farms are paid on a milk solid basis and over time have increased their milk solids percentage and therefore milk receipts per litre.
- Production per cow increases as the feeding system intensifies. The grazing farms in South East Coastal and North Queensland achieved 5,612 L/cow and 5,706 L/cow. The South East Coastal PMR farms averaged 6,357 L/cow while the Darling Downs TMR farms achieved 6,737 L/cow.
- South East Coastal PMR farms achieved the highest dairy operating profit of $808/cow. The dairy operating profit of the North Queensland grazing farms was the lowest at $374/cow, driven by a 2.5 c/L increase in purchased feed costs.

This data should not be interpreted as a definitive guide for changing a farming system. It should be noted that even if a regional production system is shown here to be more profitable, the skills, infrastructure and resources required on alternative systems are quite different. Farmers contemplating a change should seek help with the phasing and sizing of that change.

Table 11. KPI for farming systems (2016-17)

	Sth East Coastal Grazing	Sth East Coastal PMR	Darling Downs TMR	North Qld Grazing
Cows (milkers + dry)	223	307	370	201
Farm production (L)	1,252,314	1,948,748	2,489,409	1,148,144
Production per cow (L)	5,612	6,357	6,737	5,706
Milk receipts (c/L)	59.5	58.4	56.8	59.2
Feed related costs (c/L)	25.2	25.9	31.4	28.6
Total variable costs (c/L)	30.8	30.1	35.0	36.4
Margin over feed related costs (c/L)	34.2	32.5	25.5	30.6
Dairy operating profit ($/cow)	741	808	643	374
Return on assets managed (%)	4.2	4.6	4.2	2.2

6. 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 with irrigation areas planted to ryegrass, clover and lucerne. Kikuyu pastures are also oversown to winter forages with grazing crops of forage sorghum and oats also grown. Grain and molasses are readily available as supplements, fed at milking time.

The farms in this group have invested $13,825 per cow in their operation, of which 73% is in the land value. Equity levels are high, averaging at 80%, and a return on assets managed of 4.2% was achieved.

Table 13 shows the data trends for farms with continuous participation in QDAS over the last four years (2013-14 to the present). This sample of farms is slightly smaller than the sample used in Table 12. There are several points of interest:

- Milk receipts have decreased from a high of 59.0 c/L in 2015-16 to 57.8 c/L in 2016-17.
- Cow numbers have stayed between 198 and 201 over these four years.
- Production per cow has stayed between 5,384 and 5,448 over these four years.
- Feed related costs were highest in 2014-15.
- Dairy operating profit increased each year to be $845 per cow in 2015-16 but decreased to $676 per cow in 2016-17.

Table 12. Statistics for South East Coastal grazing farms – 12 farms (2016-17)

Resources	
Cows (milkers + dry)	223
Heifers >1 year old	98
Heifers <1 year old	79
Total dairy herd	403
Milking cow area (ha)	77
Effective dairy area (ha)	213
Labour units	3.2
Assets and Liabilities	
Land & buildings ($)	2,261,000
Stock ($)	495,740
Plant ($)	233,889
Other ($)	94,546
TOTAL ($)	3,085,176
Liabilities ($)	622,046
Equity (%)	80
Investment per cow ($)	13,825
Debt per cow ($)	2,787
Productivity	
Milk production (L)	1,252,314
Production per cow (L)	5,612
Financial	
Milk receipts (c/L)	59.5
Feed related costs (c/L)	25.2
Total variable costs (c/L)	30.8
Margin over feed related costs (c/L)	34.2
Dairy operating profit ($/cow)	741
Return on assets managed (%)	4.2

Table 13. Trends for 10 South East Coastal grazing farms with continuous data (2013-14 to 2016-17)

	2013-14	2014-15	2015-16	2016-17
Milk receipts (c/L)	54.1	57.5	59.0	57.8
Cows (milkers and dry)	201	199	198	200
Production per cow (L)	5,448	5,391	5,440	5,384
Feed related costs (c/L)	27.9	28.1	25.5	24.6
Margin over feed related costs (c/L)	26.2	29.4	33.5	33.2
Total variable costs (c/L)	32.4	32.2	30.9	30.5
Dairy operating profit ($/cow)	310	591	845	676

7. South East Coastal - PMR

South East Coastal PMR farms are located alongside the grazing properties in this region. They have the ability to grow similar forages to the prior group, but supplement their milkers with silage made from maize, sorghum, lucerne and/or ryegrass.

These farms have a higher investment in stock and plant. This production system usually results in higher production per cow than that of grazing farms.

The farms in this group have invested $11,323 per cow in their operation with 63% tied to the land. Equity levels are high, averaging at 82% and a return on assets managed of 4.6% was achieved.

Table 15 shows the data trends for farms with continuous participation in QDAS over the last four years (2013-14 to the present). This sample of farms is slightly smaller than the sample used in Table 14. There are several points of interest:

- Milk receipts have increased each year to 59.2 c/L in 2015-16 but decreased to 58.6 c/L in 2016-17.
- Cow numbers were quite stable from 2013-14 to 2015-16, but have jumped to 286 in 2016-17.
- Production per cow was also stable from 2013-14 to 2015-16, but has jumped to 6,225 in 2016-17.
- Feed related costs are lowest in 2016-17 at 25.8 c/L.
- Dairy operating profit is highest in 2016-17 at $708 per cow.

Table 14. Statistics for South East Coastal PMR farms – 15 farms (2016-17)

Resources	
Cows (milkers + dry)	307
Heifers >1 year old	111
Heifers <1 year old	91
Total dairy herd	513
Milking cow area (ha)	103
Effective dairy area (ha)	236
Labour units	4.2
Assets and Liabilities	
Land & buildings ($)	2,217,226
Stock ($)	658,970
Plant ($)	401,541
Other ($)	192,999
TOTAL ($)	3,470,737
Liabilities ($)	638,054
Equity (%)	82
Investment per cow ($)	11,323
Debt per cow ($)	2,082
Productivity	
Milk production (L)	1,948,748
Production per cow (L)	6,357
Financial	
Milk receipts (c/L)	58.4
Feed related costs (c/L)	25.9
Total variable costs (c/L)	30.1
Margin over feed related costs (c/L)	32.5
Dairy operating profit ($/cow)	808
Return on assets managed (%)	4.6

Table 15. Trends for 13 South East Coastal PMR farms with continuous data (2013-14 to 2016-17)

	2013-14	2014-15	2015-16	2016-17
Milk receipts (c/L)	55.0	58.6	59.2	58.6
Cows (milkers and dry)	262	266	269	286
Production per cow (L)	5,933	5,977	5,895	6,225
Feed related costs (c/L)	29.6	30.1	28.6	25.8
Margin over feed related costs (c/L)	25.4	28.5	30.7	32.8
Total variable costs (c/L)	33.2	34.2	32.9	30.1
Dairy operating profit ($/cow)	277	561	556	708

8. Darling Downs - TMR

The majority of the TMR farms are located north of the Warrego Highway and are mostly dryland farms with large cropping areas. Most farmers concentrate on growing large volumes of summer forages for silage. Winter crops are opportunistic in years when sub-soil moisture is available. In years of average or above average rainfall they grow all their own forage requirements.

These farms have commodity sheds. Grain, by-products and protein meals are purchased in bulk and forward contracting is common. They are ideally situated in relation to the grain growing areas of Queensland which reduces freight costs on grain. It is common to feed up to 12 -14 kilograms of concentrate per cow per day.

They have invested $12,356 per cow in their operation with 58% tied to the land. With the large investment in infrastructure that is required, they have a high debt per cow of $4,441 and equity of 64%, the lowest equity of all groups. A return on assets managed of 4.2% was achieved.

Table 17 shows the data trends for farms with continuous participation in QDAS over the last four years (2013-14 to the present). This sample of farms is slightly smaller than the sample used in Table 16. There are several points of interest:

- Milk receipts have increased each year to be 58.4 c/L in 2015-16.
- Cow numbers have increased from 321 in 2013-14 to 368 in 2016-17.
- Production per cow was above 7,000 litres for two years and below 6,700 for the other years.
- Feed related costs were very high in 2013-14 and 2014-15.
- Dairy operating profit is highest in 2015-16.

Table 16. Statistics for Darling Downs TMR farms – 8 farms (2016-17)

Resources	
Cows (milkers + dry)	370
Heifers >1 year old	148
Heifers <1 year old	146
Total dairy herd	671
Milking cow area (ha)	0
Effective dairy area (ha)	612
Labour units	4.8
Assets and Liabilities	
Land & buildings ($)	2,625,200
Stock ($)	970,462
Plant ($)	699,275
Other ($)	270,585
TOTAL ($)	4,565,522
Liabilities ($)	1,641,115
Equity (%)	64
Investment per cow ($)	12,356
Debt per cow ($)	4,441
Productivity	
Milk production (L)	2,489,409
Production per cow (L)	6,737
Financial	
Milk receipts (c/L)	56.8
Feed related costs (c/L)	31.4
Total variable costs (c/L)	35.0
Margin over feed related costs (c/L)	25.5
Dairy operating profit ($/cow)	643
Return on assets managed (%)	4.2

Table 17. Trends for 7 Darling Downs TMR farms with continuous data (2013-14 to 2016-17)

	2013-14	2014-15	2015-16	2016-17
Milk receipts (c/L)	55.8	57.8	58.4	56.7
Cows (milkers and dry)	321	318	332	368
Production per cow (L)	6,624	7,131	7,020	6,675
Feed related costs (c/L)	39.9	40.9	32.7	31.5
Margin over feed related costs (c/L)	15.8	16.9	25.7	25.2
Total variable costs (c/L)	43.1	44.3	35.9	34.7
Dairy operating profit ($/cow)	82	411	969	673

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

The farms in this group have invested $15,117 per cow in their operation, of which 72% is in the land value. Equity levels are high, averaging 85%, and a return on assets managed of 2.2% was achieved.

Feed concentrates are more expensive (due to the freight component) than in the South East Coastal and Darling Downs systems.

Table 19 shows the data trends for farms with continuous participation in QDAS over the last four years (2013-14 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 increased each year to be 58.7 c/L in 2016-17.
- Cow numbers have stayed between 199 and 202 over the first three years and increased to 208 in 2016-17.
- Production per cow has been above 5,800 litres for the past two years.
- Feed related costs were the highest in 2014-15.
- Dairy operating profit per cow was highest in 2015-16.

Table 18. Statistics for North Queensland grazing farms – 10 farms (2016-17)

Resources	
Cows (milkers + dry)	201
Heifers >1 year old	85
Heifers <1 year old	67
Total dairy herd	355
Milking cow area (ha)	100
Effective dairy area (ha)	206
Labour units	2.5
Assets and Liabilities	
Land & buildings ($)	2,212,100
Stock ($)	570,605
Plant ($)	204,000
Other ($)	54,771
TOTAL ($)	3,041,476
Liabilities ($)	443,433
Equity (%)	85
Investment per cow ($)	15,117
Debt per cow ($)	2,204
Productivity	
Milk production (L)	1,148,144
Production per cow (L)	5,706
Financial	
Milk receipts (c/L)	59.2
Feed related costs (c/L)	28.6
Total variable costs (c/L)	36.4
Margin over feed related costs (c/L)	30.6
Dairy operating profit ($/cow)	374
Return on assets managed (%)	2.2

Table 19. Trends for 9 North Queensland grazing farms with continuous data (2013-14 to 2016-17)

	2013-14	2014-15	2015-16	2016-17
Milk receipts (c/L)	52.9	57.6	58.6	58.7
Cows (milkers and dry)	200	199	202	208
Production per cow (L)	5,391	5,407	5,884	5,840
Feed related costs (c/L)	27.1	30.4	27.4	28.9
Margin over feed related costs (c/L)	25.8	27.2	31.2	29.8
Total variable costs (c/L)	32.7	36.3	36.7	37.0
Dairy operating profit ($/cow)	348	313	676	365

10. Appendices

10.1 Group cash flow – All 52 QDAS farms (2016–17)

Queensland dairy accounting scheme

Group cashflow

All farms

Year: 2017

Cash receipts	Cents/litre	$/cow	$/kg MS		Total $ earned
Milk receipts (net)	**58.2**	**3,648.4**	**7.99**		**978,399**
Stock sales - dairy	6.3	394.5	0.86		105,790
Feed sales	0.1	6.2	0.01		1,670
Other farm receipts	0.6	37.9	0.08		10,156
Total farm receipts	**65.2**	**4,087.0**	**8.95**		**1,096,014**
Cash costs	**Cents/litre**	**$/cow**	**$/kg MS**	**% Milk receipts**	**Total $ spent**
Purchased grain & concentrates	16.0	1,001.0	2.19	27.4	268,454
Purchased fodder, silage, hay	1.8	115.7	0.25	3.2	31,031
Other purchased feed	1.6	102.3	0.22	2.8	27,430
Total purchased feeds	**19.5**	**1,219.0**	**2.67**	**33.4**	**326,915**
Fertiliser	2.2	136.0	0.30	3.7	36,469
Fuel & oil	1.2	73.9	0.16	2.0	19,827
Pasture & crop costs	1.5	97.0	0.21	2.7	26,004
Irrigation costs	1.0	65.4	0.14	1.8	17,549
Hay and silage making costs	1.6	98.9	0.22	2.7	26,516
Agistment costs	0.1	5.9	0.01	0.2	1,571
Other feed costs	0.0	1.6	0.00	0.0	432
Feed related costs	**27.1**	**1,697.7**	**3.72**	**46.5**	**455,283**
Animal health	1.5	96.0	0.21	2.6	25,733
Herd improvement	0.6	40.6	0.09	1.1	10,880
Calf rearing	0.5	34.1	0.07	0.9	9,141
Other herd costs	0.1	3.6	0.01	0.1	971
Herd costs	**2.8**	**174.2**	**0.38**	**4.8**	**46,724**
Dairy shed costs - power	1.1	68.7	0.15	1.9	18,427
Dairy shed costs - chemicals	0.8	51.8	0.11	1.4	13,891
Dairy shed costs - other	0.0	0.2	0.00	0.0	64
Shed costs	**1.9**	**120.7**	**0.26**	**3.3**	**32,382**
Total variable costs	**31.8**	**1,992.7**	**4.36**	**54.6**	**534,389**
Employed labour costs	7.3	458.3	1.00	12.6	122,914
Repairs & maintenance	3.5	220.0	0.48	6.0	58,988
Other overhead costs	2.6	163.3	0.36	4.5	43,789
Total overhead costs	**13.4**	**841.6**	**1.84**	**23.1**	**225,691**
Farm working expenses	**45.2**	**2,834.3**	**6.21**	**77.7**	**760,080**
Interest	2.2	140.9	0.31	3.9	37,791
Principal	3.1	195.6	0.43	5.4	52,457
Land lease costs	1.7	109.1	0.24	3.0	29,270
Owner's labour	6.0	375.6	0.82	10.3	100,719
Total cash costs	**58.3**	**3,655.5**	**8.01**	**100.2**	**980,317**
Net cashflow before tax	**6.9**	**431.4**	**0.94**	**11.8**	**115,697**
Margin over feed related costs	31.1	1,950.7	4.27	53.5	523,116
Gross margin - milk only	26.4	1,655.7	3.63	45.4	444,010
Operating cash surplus	20.0	1,252.7	2.74	34.3	335,934

Labour inputs		**Stock**		**Production**		
Unpaid labour	1.6	Cows (milking and dry)	268	Total litres sold		1,680,243
Paid labour	2.0	Total herd	476	Litres/cow		6,266
Total labour units	3.6	**Areas**		Protein (kg)	3.31%	55,582
Litres/labour unit	465,770	Usable area (ha)	290	Butterfat (kg)	3.98%	66,872
Cows/labour unit	74	Irrigation area (ha)	51	Milk solids/cow		457

Farms in report: 52

Report created: 3/12/2017 11:34 AM

10.2 Group cash flow – Top 25% of farms (2016–17)

Queensland dairy accounting scheme

Group cashflow

Year: 2017

Top 25%

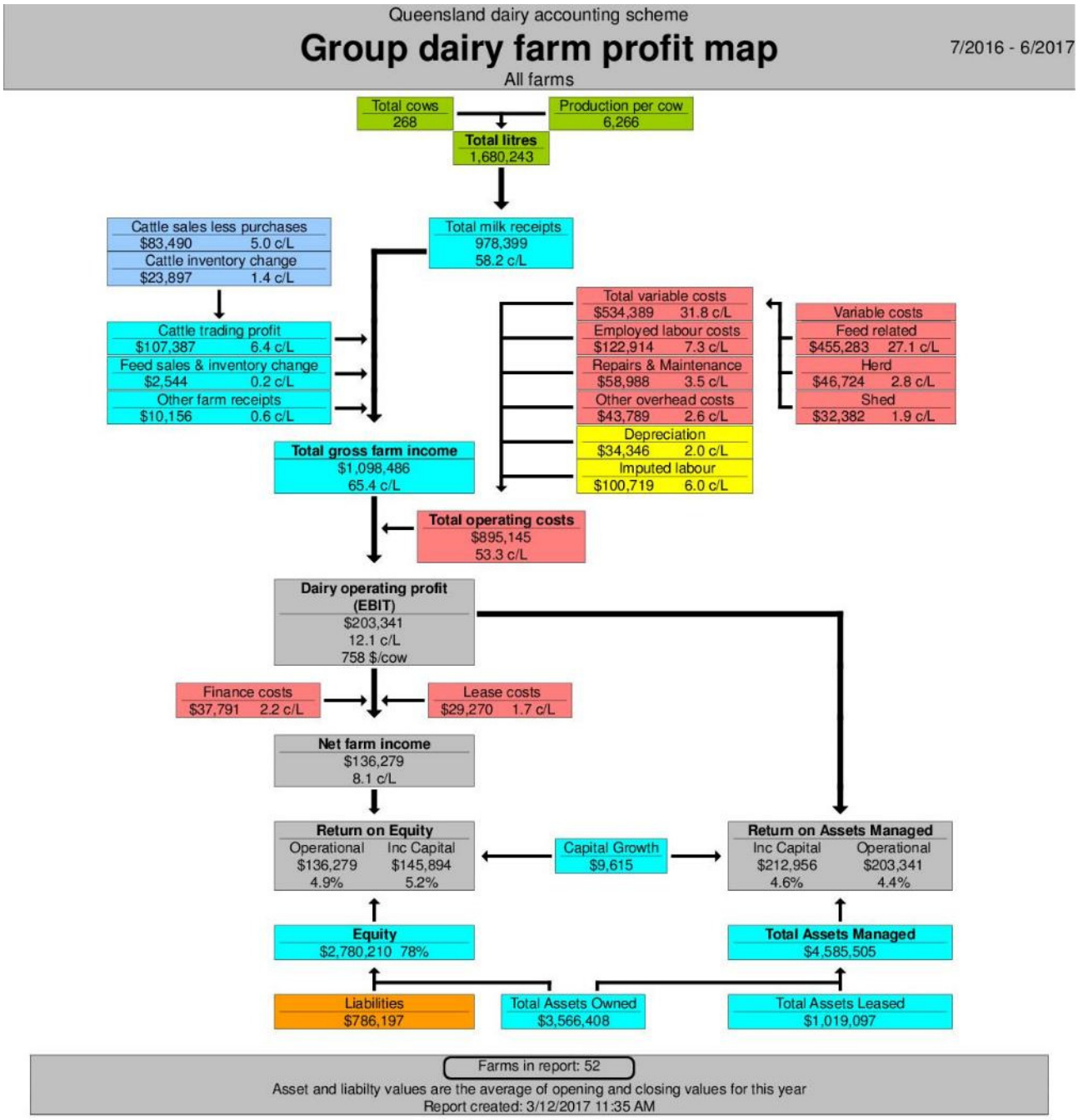
Cash receipts	Cents/litre	$/cow	$/kg MS		Total $ earned
Milk receipts (net)	**59.3**	**4,116.6**	**8.22**		**1,486,092**
Stock sales - dairy	6.5	451.0	0.90		162,827
Feed sales	0.2	16.1	0.03		5,814
Other farm receipts	0.7	50.9	0.10		18,372
Total farm receipts	**66.7**	**4,634.6**	**9.26**		**1,673,105**
Cash costs	**Cents/litre**	**$/cow**	**$/kg MS**	**% Milk receipts**	**Total $ spent**
Purchased grain & concentrates	14.9	1,034.1	2.06	25.1	373,302
Purchased fodder, silage, hay	1.5	104.4	0.21	2.5	37,677
Other purchased feed	2.1	144.4	0.29	3.5	52,138
Total purchased feeds	**18.5**	**1,282.9**	**2.56**	**31.2**	**463,117**
Fertiliser	1.8	128.1	0.26	3.1	46,242
Fuel & oil	1.1	78.5	0.16	1.9	28,335
Pasture & crop costs	1.7	114.9	0.23	2.8	41,471
Irrigation costs	1.0	72.6	0.14	1.8	26,205
Hay and silage making costs	1.9	131.1	0.26	3.2	47,333
Agistment costs	0.0	0.2	0.00	0.0	87
Other feed costs	0.0	0.9	0.00	0.0	310
Feed related costs	**26.0**	**1,809.1**	**3.61**	**43.9**	**653,099**
Animal health	1.4	98.9	0.20	2.4	35,690
Herd improvement	0.5	35.0	0.07	0.9	12,634
Calf rearing	0.3	21.5	0.04	0.5	7,754
Other herd costs	0.0	2.1	0.00	0.1	758
Herd costs	**2.3**	**157.4**	**0.31**	**3.8**	**56,836**
Dairy shed costs - power	1.0	66.7	0.13	1.6	24,081
Dairy shed costs - chemicals	0.8	52.6	0.11	1.3	18,989
Dairy shed costs - other	0.0	0.0	0.00	0.0	0
Shed costs	**1.7**	**119.3**	**0.24**	**2.9**	**43,070**
Total variable costs	**30.0**	**2,085.9**	**4.17**	**50.7**	**753,004**
Employed labour costs	7.1	490.8	0.98	11.9	177,183
Repairs & maintenance	3.0	211.3	0.42	5.1	76,264
Other overhead costs	2.1	145.2	0.29	3.5	52,403
Total overhead costs	**12.2**	**847.2**	**1.69**	**20.6**	**305,850**
Farm working expenses	**42.2**	**2,933.1**	**5.86**	**71.3**	**1,058,854**
Interest	2.4	167.2	0.33	4.1	60,360
Principal	2.9	204.8	0.41	5.0	73,936
Land lease costs	1.4	100.2	0.20	2.4	36,155
Owner's labour	5.2	363.5	0.73	8.8	131,227
Total cash costs	**54.3**	**3,768.8**	**7.53**	**91.6**	**1,360,533**
Net cashflow before tax	**12.5**	**865.9**	**1.73**	**21.0**	**312,572**
Margin over feed related costs	33.2	2,307.5	4.61	56.1	832,994
Gross margin - milk only	29.2	2,030.7	4.06	49.3	733,088
Operating cash surplus	24.5	1,701.5	3.40	41.3	614,251

Labour inputs		**Stock**		**Production**		
Unpaid labour	1.8	Cows (milking and dry)	361	Total litres sold		2,507,540
Paid labour	3.0	Total herd	679	Litres/cow		6,946
Total labour units	4.9	**Areas**		Protein (kg)	3.31%	82,930
Litres/labour unit	515,656	Usable area (ha)	399	Butterfat (kg)	3.90%	97,847
Cows/labour unit	74	Irrigation area (ha)	85	Milk solids/cow		501

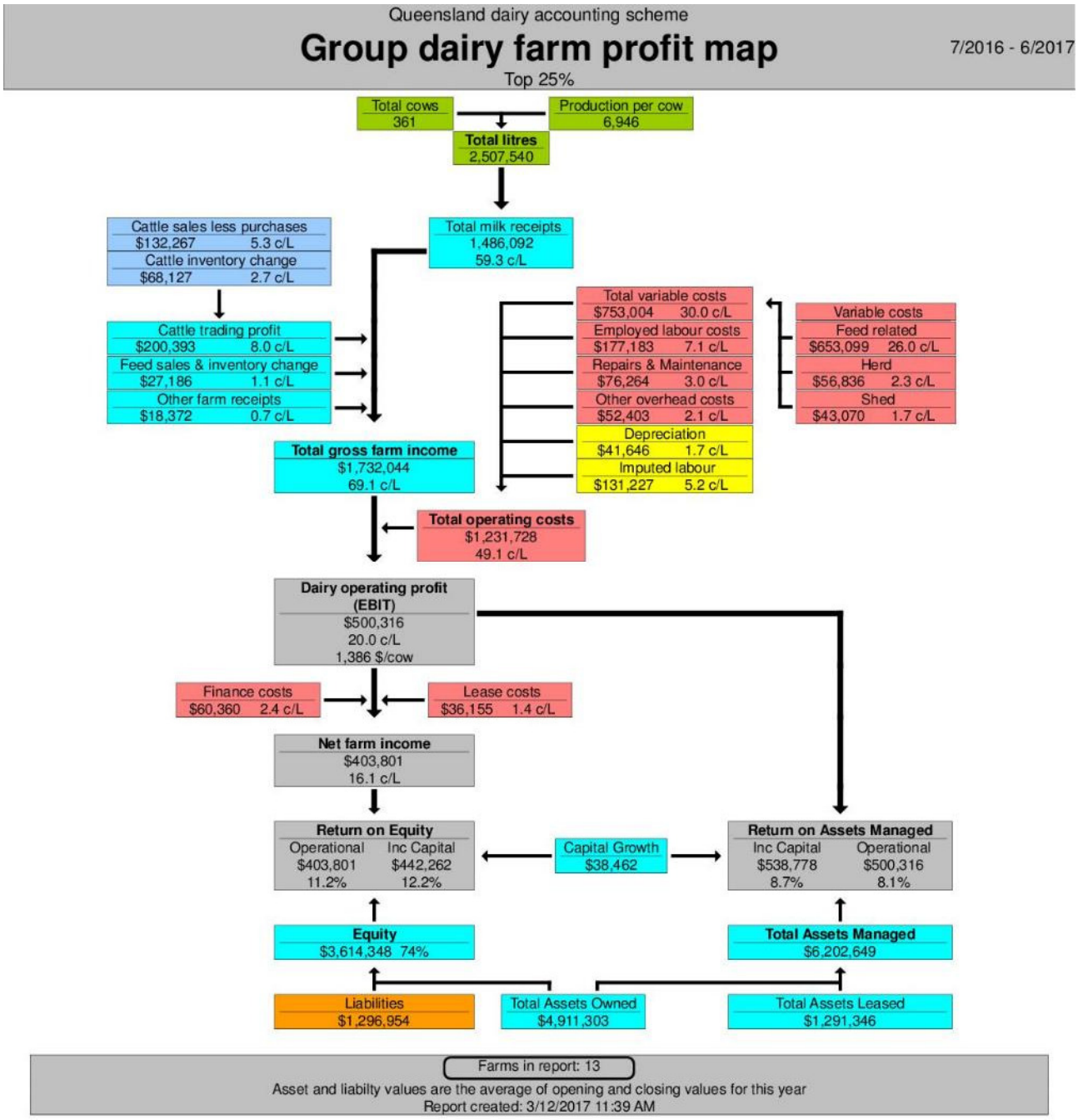
Farms in report: 13

Report created: 3/12/2017 11:38 AM

10.3 Group dairy farm profit map – All 52 QDAS farms (2016–17)



10.4 Group dairy farm profit map – Top 25% of farms (2016–17)



10.5 Group cash flow – South East Coastal Grazing (2016–17)

Queensland dairy accounting scheme

Group cashflow

Year: 2017

South East Coastal Grazing

Cash receipts	Cents/litre	$/cow	$/kg MS		Total $ earned
Milk receipts (net)	**59.5**	**3,338.0**	**8.19**		**744,939**
Stock sales - dairy	5.7	318.6	0.78		71,092
Feed sales	0.0	0.0	0.00		0
Other farm receipts	1.0	57.0	0.14		12,716
Total farm receipts	**66.2**	**3,713.6**	**9.11**		**828,747**
Cash costs	**Cents/litre**	**$/cow**	**$/kg MS**	**% Milk receipts**	**Total $ spent**
Purchased grain & concentrates	17.0	956.3	2.35	28.6	213,408
Purchased fodder, silage, hay	0.6	32.1	0.08	1.0	7,166
Other purchased feed	1.2	66.8	0.16	2.0	14,918
Total purchased feeds	**18.8**	**1,055.2**	**2.59**	**31.6**	**235,492**
Fertiliser	2.8	154.5	0.38	4.6	34,472
Fuel & oil	0.9	50.7	0.12	1.5	11,307
Pasture & crop costs	1.3	71.3	0.17	2.1	15,914
Irrigation costs	1.2	65.8	0.16	2.0	14,683
Hay and silage making costs	0.3	17.0	0.04	0.5	3,788
Agistment costs	0.0	1.0	0.00	0.0	212
Other feed costs	0.0	0.9	0.00	0.0	201
Feed related costs	**25.2**	**1,416.3**	**3.47**	**42.4**	**316,069**
Animal health	2.0	113.4	0.28	3.4	25,308
Herd improvement	0.8	45.0	0.11	1.3	10,034
Calf rearing	0.9	50.3	0.12	1.5	11,232
Other herd costs	0.1	4.2	0.01	0.1	941
Herd costs	**3.8**	**212.9**	**0.52**	**6.4**	**47,514**
Dairy shed costs - power	1.0	55.1	0.14	1.7	12,296
Dairy shed costs - chemicals	0.8	42.9	0.11	1.3	9,584
Dairy shed costs - other	0.0	0.5	0.00	0.0	104
Shed costs	**1.8**	**98.5**	**0.24**	**3.0**	**21,984**
Total variable costs	**30.8**	**1,727.7**	**4.24**	**51.8**	**385,568**
Employed labour costs	8.0	446.9	1.10	13.4	99,733
Repairs & maintenance	3.7	208.4	0.51	6.2	46,497
Other overhead costs	2.6	144.9	0.36	4.3	32,331
Total overhead costs	**14.3**	**800.1**	**1.96**	**24.0**	**178,561**
Farm working expenses	**45.0**	**2,527.8**	**6.20**	**75.7**	**564,129**
Interest	1.9	108.6	0.27	3.3	24,229
Principal	1.2	68.3	0.17	2.0	15,242
Land lease costs	2.1	115.7	0.28	3.5	25,812
Owner's labour	6.8	380.6	0.93	11.4	84,933
Total cash costs	**57.0**	**3,201.0**	**7.85**	**95.9**	**714,346**
Net cashflow before tax	**9.1**	**512.6**	**1.26**	**15.4**	**114,401**
Margin over feed related costs	34.2	1,921.7	4.71	57.6	428,869
Gross margin - milk only	28.7	1,610.3	3.95	48.2	359,371
Operating cash surplus	21.1	1,185.7	2.91	35.5	264,618

Labour inputs		**Stock**		**Production**		
Unpaid labour	1.5	Cows (milking and dry)	223	Total litres sold		1,252,314
Paid labour	1.7	Total herd	403	Litres/cow		5,612
Total labour units	3.2	**Areas**		Protein (kg)	3.27%	40,988
Litres/labour unit	396,511	Usable area (ha)	211	Butterfat (kg)	3.99%	49,980
Cows/labour unit	71	Irrigation area (ha)	42	Milk solids/cow		408

Farms in report: 12

Report created: 3/12/2017 11:40 AM

10.6 Group cash flow – South East Coastal PMR (2016–17)

Queensland dairy accounting scheme

Group cashflow

Year: 2017

South East Coastal PMR

Cash receipts	Cents/litre	$/cow	$/kg MS		Total $ earned
Milk receipts (net)	**58.4**	**3,712.2**	**7.96**		**1,137,902**
Stock sales - dairy	4.1	257.8	0.55		79,026
Feed sales	0.3	18.9	0.04		5,788
Other farm receipts	0.5	32.0	0.07		9,821
Total farm receipts	**63.2**	**4,020.9**	**8.62**		**1,232,538**
Cash costs	**Cents/litre**	**$/cow**	**$/kg MS**	**% Milk receipts**	**Total $ spent**
Purchased grain & concentrates	14.1	897.9	1.92	24.2	275,231
Purchased fodder, silage, hay	2.0	127.2	0.27	3.4	38,986
Other purchased feed	1.7	105.9	0.23	2.9	32,447
Total purchased feeds	**17.8**	**1,130.9**	**2.42**	**30.5**	**346,664**
Fertiliser	1.8	116.8	0.25	3.1	35,797
Fuel & oil	1.1	68.3	0.15	1.8	20,922
Pasture & crop costs	1.6	103.2	0.22	2.8	31,637
Irrigation costs	1.6	101.4	0.22	2.7	31,094
Hay and silage making costs	1.8	113.7	0.24	3.1	34,862
Agistment costs	0.2	10.1	0.02	0.3	3,095
Other feed costs	0.0	0.7	0.00	0.0	207
Feed related costs	**25.9**	**1,645.1**	**3.53**	**44.3**	**504,278**
Animal health	1.7	105.6	0.23	2.8	32,374
Herd improvement	0.6	38.9	0.08	1.0	11,938
Calf rearing	0.2	12.8	0.03	0.3	3,929
Other herd costs	0.1	4.3	0.01	0.1	1,310
Herd costs	**2.5**	**161.7**	**0.35**	**4.4**	**49,551**
Dairy shed costs - power	0.9	58.5	0.13	1.6	17,931
Dairy shed costs - chemicals	0.7	46.0	0.10	1.2	14,100
Dairy shed costs - other	0.0	0.1	0.00	0.0	43
Shed costs	**1.6**	**104.6**	**0.22**	**2.8**	**32,074**
Total variable costs	**30.1**	**1,911.4**	**4.10**	**51.5**	**585,903**
Employed labour costs	9.0	573.4	1.23	15.4	175,765
Repairs & maintenance	3.0	193.4	0.41	5.2	59,289
Other overhead costs	2.4	152.6	0.33	4.1	46,790
Total overhead costs	**14.5**	**919.5**	**1.97**	**24.8**	**281,845**
Farm working expenses	**44.5**	**2,830.8**	**6.07**	**76.3**	**867,748**
Interest	1.4	88.0	0.19	2.4	26,969
Principal	2.2	139.2	0.30	3.8	42,674
Land lease costs	2.1	133.3	0.29	3.6	40,855
Owner's labour	4.9	313.2	0.67	8.4	95,997
Total cash costs	**55.1**	**3,504.5**	**7.51**	**94.4**	**1,074,243**
Net cashflow before tax	**8.1**	**516.4**	**1.11**	**13.9**	**158,294**
Margin over feed related costs	32.5	2,067.1	4.43	55.7	633,625
Gross margin - milk only	28.3	1,800.8	3.86	48.5	551,999
Operating cash surplus	18.7	1,190.0	2.55	32.1	364,790

Labour inputs		**Stock**		**Production**		
Unpaid labour	1.4	Cows (milking and dry)	307	Total litres sold		1,948,748
Paid labour	2.8	Total herd	513	Litres/cow		6,357
Total labour units	4.2	**Areas**		Protein (kg)	3.35%	65,292
Litres/labour unit	466,952	Usable area (ha)	236	Butterfat (kg)	3.99%	77,693
Cows/labour unit	73	Irrigation area (ha)	85	Milk solids/cow		466

Farms in report: 15

Report created: 3/12/2017 11:42 AM

10.7 Group cash flow – Darling Downs TMR (2016–17)

Queensland dairy accounting scheme

Group cashflow

Year: 2017

Darling Downs TMR

Cash receipts	Cents/litre	$/cow	$/kg MS		Total $ earned
Milk receipts (net)	**56.8**	**3,829.7**	**7.77**		**1,415,078**
Stock sales - dairy	10.7	720.2	1.46		266,110
Feed sales	0.0	0.0	0.00		0
Other farm receipts	0.4	29.2	0.06		10,806
Total farm receipts	**68.0**	**4,579.1**	**9.29**		**1,691,994**
Cash costs	**Cents/litre**	**$/cow**	**$/kg MS**	**% Milk receipts**	**Total $ spent**
Purchased grain & concentrates	17.4	1,169.4	2.37	30.5	432,083
Purchased fodder, silage, hay	2.9	192.8	0.39	5.0	71,222
Other purchased feed	2.2	147.3	0.30	3.8	54,438
Total purchased feeds	**22.4**	**1,509.5**	**3.06**	**39.4**	**557,743**
Fertiliser	1.7	111.4	0.23	2.9	41,153
Fuel & oil	1.8	123.6	0.25	3.2	45,659
Pasture & crop costs	2.0	131.8	0.27	3.4	48,704
Irrigation costs	0.6	38.3	0.08	1.0	14,154
Hay and silage making costs	2.9	198.1	0.40	5.2	73,180
Agistment costs	0.0	0.0	0.00	0.0	0
Other feed costs	0.0	2.1	0.00	0.1	765
Feed related costs	**31.4**	**2,114.6**	**4.29**	**55.2**	**781,358**
Animal health	0.9	60.5	0.12	1.6	22,357
Herd improvement	0.2	15.0	0.03	0.4	5,532
Calf rearing	0.1	4.9	0.01	0.1	1,799
Other herd costs	0.1	4.9	0.01	0.1	1,815
Herd costs	**1.3**	**85.3**	**0.17**	**2.2**	**31,503**
Dairy shed costs - power	1.3	84.9	0.17	2.2	31,376
Dairy shed costs - chemicals	1.0	70.6	0.14	1.8	26,081
Dairy shed costs - other	0.0	0.0	0.00	0.0	0
Shed costs	**2.3**	**155.5**	**0.32**	**4.1**	**57,457**
Total variable costs	**35.0**	**2,355.4**	**4.78**	**61.5**	**870,318**
Employed labour costs	6.0	402.8	0.82	10.5	148,832
Repairs & maintenance	3.8	253.0	0.51	6.6	93,490
Other overhead costs	2.2	151.5	0.31	4.0	55,972
Total overhead costs	**12.0**	**807.3**	**1.64**	**21.1**	**298,293**
Farm working expenses	**46.9**	**3,162.7**	**6.42**	**82.6**	**1,168,611**
Interest	3.1	211.2	0.43	5.5	78,022
Principal	5.8	393.7	0.80	10.3	145,473
Land lease costs	1.8	120.9	0.25	3.2	44,670
Owner's labour	4.8	320.2	0.65	8.4	118,300
Total cash costs	**62.5**	**4,208.6**	**8.54**	**109.9**	**1,555,077**
Net cashflow before tax	**5.5**	**370.5**	**0.75**	**9.7**	**136,917**
Margin over feed related costs	25.5	1,715.1	3.48	44.8	633,720
Gross margin - milk only	21.9	1,474.3	2.99	38.5	544,760
Operating cash surplus	21.0	1,416.5	2.87	37.0	523,383

Labour inputs		**Stock**		**Production**		
Unpaid labour	2.2	Cows (milking and dry)	370	Total litres sold		2,489,409
Paid labour	2.7	Total herd	671	Litres/cow		6,737
Total labour units	4.8	**Areas**		Protein (kg)	3.33%	83,010
Litres/labour unit	513,987	Usable area (ha)	612	Butterfat (kg)	3.98%	99,123
Cows/labour unit	76	Irrigation area (ha)	40	Milk solids/cow		493

Farms in report: 8

Report created: 3/12/2017 12:44 PM

10.8 Group cash flow – North Queensland Grazing (2016–17)

Queensland dairy accounting scheme

Group cashflow

Year: 2017

North Queensland Grazing

Cash receipts	Cents/litre	$/cow	$/kg MS		Total $ earned
Milk receipts (net)	**59.2**	**3,375.7**	**8.18**		**679,187**
Stock sales - dairy	6.2	351.3	0.85		70,672
Feed sales	0.0	0.0	0.00		0
Other farm receipts	0.9	53.0	0.13		10,661
Total farm receipts	**66.2**	**3,779.9**	**9.16**		**760,520**
Cash costs	**Cents/litre**	**$/cow**	**$/kg MS**	**% Milk receipts**	**Total $ spent**
Purchased grain & concentrates	20.5	1,167.3	2.83	34.6	234,869
Purchased fodder, silage, hay	1.2	67.9	0.16	2.0	13,658
Other purchased feed	1.0	55.0	0.13	1.6	11,060
Total purchased feeds	**22.6**	**1,290.2**	**3.13**	**38.2**	**259,588**
Fertiliser	3.9	222.5	0.54	6.6	44,773
Fuel & oil	0.7	39.7	0.10	1.2	7,997
Pasture & crop costs	0.7	39.8	0.10	1.2	8,013
Irrigation costs	0.3	19.2	0.05	0.6	3,854
Hay and silage making costs	0.1	4.5	0.01	0.1	900
Agistment costs	0.2	9.8	0.02	0.3	1,973
Other feed costs	0.1	3.8	0.01	0.1	773
Feed related costs	**28.6**	**1,629.6**	**3.95**	**48.3**	**327,871**
Animal health	2.1	120.4	0.29	3.6	24,232
Herd improvement	1.4	78.1	0.19	2.3	15,722
Calf rearing	2.0	112.6	0.27	3.3	22,654
Other herd costs	0.0	0.1	0.00	0.0	27
Herd costs	**5.5**	**311.3**	**0.75**	**9.2**	**62,636**
Dairy shed costs - power	1.5	83.3	0.20	2.5	16,750
Dairy shed costs - chemicals	0.9	52.6	0.13	1.6	10,573
Dairy shed costs - other	0.0	0.0	0.00	0.0	0
Shed costs	**2.4**	**135.8**	**0.33**	**4.0**	**27,324**
Total variable costs	**36.4**	**2,076.7**	**5.03**	**61.5**	**417,830**
Employed labour costs	6.3	361.2	0.88	10.7	72,671
Repairs & maintenance	4.6	263.1	0.64	7.8	52,937
Other overhead costs	4.0	228.7	0.55	6.8	46,024
Total overhead costs	**14.9**	**853.0**	**2.07**	**25.3**	**171,631**
Farm working expenses	**51.3**	**2,929.7**	**7.10**	**86.8**	**589,461**
Interest	2.5	141.6	0.34	4.2	28,484
Principal	2.2	124.4	0.30	3.7	25,032
Land lease costs	1.3	71.8	0.17	2.1	14,444
Owner's labour	7.4	419.7	1.02	12.4	84,434
Total cash costs	**64.6**	**3,687.1**	**8.94**	**109.2**	**741,855**
Net cashflow before tax	**1.6**	**92.8**	**0.22**	**2.7**	**18,665**
Margin over feed related costs	30.6	1,746.1	4.23	51.7	351,316
Gross margin - milk only	22.8	1,299.0	3.15	38.5	261,357
Operating cash surplus	14.9	850.2	2.06	25.2	171,059

Labour inputs		**Stock**		**Production**		
Unpaid labour	1.4	Cows (milking and dry)	201	Total litres sold		1,148,144
Paid labour	1.1	Total herd	355	Litres/cow		5,706
Total labour units	2.5	**Areas**		Protein (kg)	3.19%	36,678
Litres/labour unit	454,936	Usable area (ha)	206	Butterfat (kg)	4.03%	46,314
Cows/labour unit	80	Irrigation area (ha)	8	Milk solids/cow		412

Farms in report: 10

Report created: 3/12/2017 12:46 PM

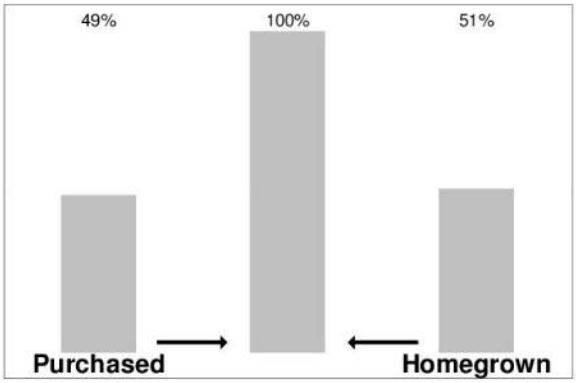
10.9 Milk from feed – All 52 QDAS farms (2016-17)

Queensland dairy accounting scheme

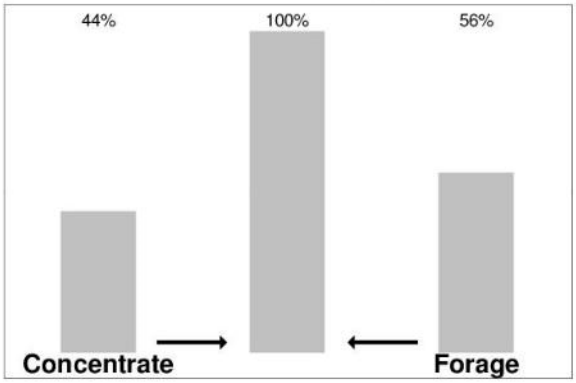
Milk from feed

All farms 7/2016 - 6/2017

Proportions attributed to purchased and homegrown feeds



Proportions attributed to concentrates and forages



	Homegrown	Purchased	Total
Forage Conserved	277,520 litres **16.5** % 3.4 l/cow	110,464 litres **6.6** % 1.4 l/cow	947,367 litres **56.4** % 11.8 l/cow
Grazed	559,383 litres **33.3** % 7.0 l/cow		
Concentrate	16,587 litres **1.0** % 0.2 l/cow	716,290 litres **42.6** % 8.9 l/cow	732,876 litres **43.6** % 9.1 l/cow
Total	853,489 litres **50.8** % 10.6 l/cow	826,754 litres **49.2** % 10.3 l/cow	1,680,243 litres **100.0** % 20.9 l/cow

	Amount fed to milkers		Milk from this feed
	Tonnes DM	kg DM/cow/day	L/cow/day
Grazing	538	6.7	7.0
Conserved forage	423	5.3	4.8
Concentrates	673	8.4	9.1
Total	1,633	20.3	20.9

Feed conversion efficiency	1.03 (L/kg DM)
Forage concentrate ratio	59:41

Farms in report: 52

Report created: 3/12/2017 11:35 AM

10.10 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 essential 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, a KPI is a calculation 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 managed – %
- Return on equity – %
- Operating profit margin – %
- Dairy operating profit –$/cow

Solvency
- Equity% – %
- Debt to equity ratio

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

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

Efficiency – Physical
- Litres of milk from home grown feed
- Production per cow – Litres
- Litres per labour unit

Profitability KPI used in QDAS

Profitability ratios measure the ability of the business manager to generate a satisfactory profit. These ratios are typically a good indicator of management's overall effectiveness in producing milk from the land and stock.

Return on asset managed - operational

This measures the profit generating capacity of the total assets managed by the business. It measures the farm's effectiveness in using the available total assets (owned, financed and leased). This does not include any capital (land and improvements) appreciation.

Calculation

(Dairy operating profit / Total assets managed) * 100

Return on asset managed – including capital appreciation

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

Calculation

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

Return on equity - operational

This KPI measures the return on the owner's investment in the business (not including any appreciation in the value of land or improvements). Interest costs, land lease and rent are deducted from the operating profit to make the calculation. It takes the investor's point of view and can be a good way to encourage further investment in a business; it also allows a comparison to be made with the returns available from external investments.

Calculation

(Net farm income / Equity) * 100

Return on equity (RoE) - including capital appreciation

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

Calculation

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

Operating profit margin

This calculation highlights the amount of profit retained after all expenses are paid except debt servicing and taxation payments. It is a measure of the effectiveness of operations to generate and retain profits from revenues. Depreciation and a management allowance are included as expenses in this profit KPI.

Calculation

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

Dairy operating profit per cow

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

Calculation

Dairy operating profit / Number of cows

Solvency KPI used in QDAS

Solvency ratios indicate how the business is financed, e.g. by owner's equity or by external debt. Lenders of long-term funds and equity investors have an interest in solvency ratios. They can highlight:

- Possible problems for the business in meeting its long-term obligations
- Show how much of the business' capital is provided by lenders versus owners
- The asset liability statement will indicate to the lenders the potential risks in the recovery of their money
- The potential amount of long-term funds that a business can borrow.

This KPI is often referred to as the 'sleep at night' factor – how comfortable do you feel with the current debt level?

Equity%

Lenders see an increased risk associated with borrowing as this percentage figure falls below a predetermined or agreed figure. To assess the risk potential it is important to look at both the debt and the business cash flow.

Calculation

((Assets – Liabilities) / Assets) *100

Debt to equity ratio

This is another way of expressing equity.

Calculation

Liabilities / (Assets – Liabilities)

Efficiency KPI used in QDAS

When examining a business these KPIs are often the starting point in an analysis; however, it is recommended that the emphasis should be on the first three business traits. Efficiency ratios show how well business resources are being used to achieve other KPI.

Efficiency - Capital

Asset turnover ratio (ATO)

This measures the amount of revenue generated per dollar of assets invested. It is a measure of the manager's effectiveness to generate revenues (capital efficiency). The calculation does not include any costs.

Calculation

Total gross farm income / Assets

Total liabilities per cow

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

Calculation

Liabilities / Number of cows

Interest per cow

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

Calculation

Total interest payments / Number of cows

Efficiency - Production

Feed related cost per litre

Feed related costs are variable cash costs and includes purchased as well as all home grown feed input costs.

Calculation

Total of all feed related costs / Milk sold

Margin over feed related costs per cow

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

Calculation

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

Total variable cost per litre

In QDAS total variable costs are compiled under three headings – feed related, herd and shed costs.

Calculation

(Feed related + shed + herd costs) / Milk sold

Gross margin – milk only per cow

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

Calculation

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

Efficiency - Physical

Litres of milk from home grown feed

Home grown feed includes grazed pasture, home produced hay and silage. QDAS uses milk conversion factors to calculate the milk from all feed sources including concentrates.

Calculation

The milk from home grown feed is expressed as litres per cow per day

Production per cow

In QDAS the milking cow numbers used in all calculations includes milkers plus dry cows. This implies each cow has a calf annually.

Calculation

Milk sold / Number of cows

Litres per labour unit

The inference is made that as margins have reduced, technology should be used to gain efficiency. The number of cows milked per labour unit will impact on profitability.

Calculation

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

General comments

Many of these 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 e.g. 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.