

Balancing dairy production and profits in northern Australia



Queensland Dairy Accounting Scheme – 2005



Subtropical Dairy



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The Department of Primary Industries and Fisheries (DPI&F) seeks to maximise the economic potential of Queensland's primary industries on a sustainable basis.

This publication provides a summary of physical and financial data from 157 dairy farms in Northern Australia that use the Queensland Dairy Accounting Scheme. It provides background information for farmers, agribusiness and advisers who have an interest in profitable and sustainable dairy production systems.

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QDAS Financial and production trends – 2005

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Objectives

The objectives of this book are to:

- Provide Queensland Dairy Accounting Scheme (QDAS) participants with a summary of physical and financial data from South-east Queensland (SEQ), Central Queensland (CQ), North Queensland (NQ) and Northern New South Wales (NNSW). This 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.

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Graeme. J. Busby

Project Leader

Queensland Dairy Accounting Scheme
Department of Primary Industries and Fisheries
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1. Introduction

This report contains physical and financial data from 157 farms and includes data from all dairy regions in Queensland and northern New South Wales. For the purpose of this report, the area is called the Northern Australia dairy region, and this area is serviced by the Subtropical Dairy group.

The farms in northern New South Wales have production systems similar to those of coastal dairy farms in South east Queensland. It is estimated that the region produced approximately 771 million litres of milk from 1120 farms in 2004–2005.

Participation in the Queensland dairy accounting scheme (QDAS) is voluntary; results and trends need to be interpreted carefully as QDAS farms have larger herds and produce more milk per farm.

Section 2 presents a summary of results. Four business traits – liquidity, solvency, profitability and efficiency are used to measure farm performance. The results for these traits are presented using 16 key performance indicators (KPI).

Section 3 details the trends from 85 farms that have contributed data over four continuous years. Analysis of their data gives a more accurate reflection of changes in the Northern Australian dairy industry since deregulation.

Section 4 and 5 present detailed financial analyses of all farms, examining trends and highlighting practices designed to improve both cashflow and profit. The cost of production is calculated in cash and on a profit basis.

The appendices contain summary reports from all regions.

2. Analysis of results (2002–2005)

QDAS averages for the last four years are shown below together with information from a group of farms with the highest dairy operating profit measured as dollars per cow (DOP \$/cow). This group is referred to throughout this report as the top 25 percent.

Table 1. Financial and performance ratios for the top 25% and the average QDAS farm (2002–2005)

Business traits and indicators ⁽¹⁾	Top 25%	QDAS average	Past QDAS averages		
	2004-05	2004-05	2003-2004	2002-2003	2001-2002
	Liquidity				
Additional debt repayment capacity (\$)	Individual farm calculation	Individual farm calculation	NA	NA	NA
	Solvency				
Equity (%)	82	82	80	83	83
Total liabilities per cow (\$)	2027	1798	1778	1437	1130
Interest paid/cow (\$)	153	131	129	101	83
	Profitability				
Return on Assets (RoA%)	5.2	2.3	1.1	1.6	2.4
Return on Equity (RoE%)	4.0	0.6	-1.1	-0.2	0.8
Operating Profit Margin (OPM%)	24.8	11.7	5.3	6.3	9.6
Dairy Operating Profit (DOP \$/cow)	602	246	NA	NA	NA
	Efficiency – Capital				
Asset Turn Over ratio (ATO c/\$)	21	20	22	25	24
	Efficiency – Financial				
Feed Related Costs (c/L FRC)	15.6	17.2	17.2	19.4	14.8
Margin over FRC (\$/cow)	1156	925	909	821	884
Total Variable Costs (c/L TVC)	20.4	22.6	22.3	24.4	21.6
Gross Margin (\$/cow)	879	638	596	536	593
	Efficiency – Physical				
Litres of milk from home grown feed (L)	11.7	9.9	9.8	9.8	10
Production per cow (L)	5796	5310	5345	5269	5157
Litres per labour unit – <i>On farms <750 000 L</i>	267 497	283 251	281 80	260 755	260 101
<i>On farms >750 000 L</i>	464 989	426 736	458 000	450 464	440 419

⁽¹⁾ The definition of each indicator and how it is calculated can be found in Appendix 6.7.

2.1 Major industry findings – Business traits (2004–2005)

Liquidity – Additional debt repayment capacity (ADC) is calculated for each individual farm. A negative result indicates that short-term debt is being financed from off-farm income, government payments, subsidies or transfers from other accounts. A positive result indicates a capacity to cover plant depreciation and the possibility of funds being available for reinvestment into the business. Interest rate rises could also be managed.

Solvency – Farm equity remains stable at 82 percent, but net worth increased due to the escalation in land and, in many cases stock values. This increased equity can only be realised through a sale of assets although borrowing capacity may have increased. Total liabilities and interest payments per cow are within acceptable limits in dollar terms. Increasing farm income either through additional production or diversification will

ensure the payments remain manageable. The top group of farms had higher debt per cow and interest costs per cow.

Profitability – Business profits as measured by RoA and RoE were unacceptably low at 2.3 and 0.6 percent. Asset valuations affect these results; in QDAS the average valuation using opening and closing details is used. It is more meaningful to calculate OPM, and on average this was 11.7 percent; the top group achieved a result for OPM of 24.8 percent, which would be attractive to investors interested in dairying. The percentage OPM is the amount of profit generated from each dollar of income.

Efficiency – Total variable costs increased by 0.3 cents per litre in 2005. The reduction in grain and concentrate prices were largely negated by rising fuel and fertiliser input costs. Inflationary pressures on inputs such as fertiliser, fuel and equipment repairs will continue to negate efficiency gains. However, better seasons and increases in water entitlements for irrigation farms will be positively reflected. By making improvements in feed utilisation and adopting new technology in feed production, animal and milking management gains can be made.

The average farm could increase per cow production by 500 to 1,000 litres economically given that the production per cow from home-grown feed is just below 10 litres per cow per day. The top farms produced approximately 500 litres more from home-grown feed. Increasing farm production and paying particular attention to optimising inputs will ensure a profitable dairying operation is achieved.

2.2 Major findings for farmers (2004–2005)

- Operating profit margin expressed per cow and as a percentage of income has been included on profit maps this year. These indicators show the profits generated irrespective of farm and herd size. The top 25 percent had an OPM per cow of \$602.
- The average cash cost of production was 38.0 cents per litre whereas top farms produced milk for 35.0 cents per litre. This cash cost included a living allowance of \$45,000. The major differences were in cattle sales, feed costs and production per cow.
- Across Northern Australia there are quite marked differences in milk returns and gross margins. Even so, there were very successful farmers in all regions.
- Eighty five farms have continuous data for four years; their results are included in Section 3. In Queensland herd size has stabilised but, in NNSW, these farms have continued to increase their herd numbers. In NQ and CQ, production per cow increased significantly.
- Major differences between farms can be identified in the following areas – production per cow, fertiliser use, size of operations, home-grown feed utilisation. The top 25 percent of farms had higher per cow production (+665 litres), their margin over feed related costs was higher (+\$455) even though the feed costs per cow were similar. They produced more milk from pasture (61 compared to 55 percent) than the remaining 75 percent of farms.
- Farms with cows producing 6000-7000 litres (6304 litres on average) had a high margin over feed costs per cow (\$1056), a high gross margin per farm (\$129 403) and the highest dairy operating profit at \$348 per cow.
- Farms producing in excess of 1.25 million litres recorded high production per cow (>5800 litres), the highest margins, and highest labour use efficiency milking almost 100 cows per labour unit.
- In all regions, farms with highest production from pastures had the highest dairy operating profit per cow.
- In high rainfall areas, farms in the high nitrogen fertiliser group (average 141 units of nitrogen per cow) had the highest gross margin and litres produced from low-cost pasture. Optimum fertiliser use combined with higher stocking rates has always proven to be economical.
- Land accounts for 72 percent of the total asset with livestock making up just 11 percent of the asset value. The high land prices contribute to net worth but impact negatively on the return on asset calculation. For this reason, a range of KPI should be used to monitor business performance.
- Only small savings in overhead costs per litre (0.5 to 1.0 cent) are evident as production increases.

3. Regional trends in farm financial performance (2004–2005)

Participation in QDAS is voluntary so the farm data collated is not a random sample of industry data. In fact, the average QDAS farm produces 263 000 litres of milk more annually than the average north Australian dairy farm. From the cooperating group in 2005, 85 farms have a minimum **four years past data**. To highlight the real trends on this group since deregulation their data is shown in tables below.

General comments:

- In 2005, total variable costs on these farms accounted for a large proportion of the gross milk income – 57 cents (CQ), 61 cents (SEQ), 71 cents (NNSW) and 68 cents in (NQ) of each dollar of milk income.
- The data would suggest that on average, farmers have reduced their total variable costs as much as possible. Twenty-two cents per litre may be the base variable cost. The general rise in input costs over time for fuel, fertiliser and repairs appears to negate the possible gains in efficiency.
- Land values increased in all areas. While the cash position, as measured by additional debt repayment capacity remains tight for many farmers, the higher land values will be reflected by an improvement in net worth on the balance sheet.

In SEQ:

- Farm production has increased to 947 867 litres (11 percent) over the period, as a result of an increase in herd size with 18 additional milkers; production per cow is relatively unchanged.
- Feed related and total variable costs show a small increase over the period.
- Dairy operating profit per cow was \$298 – a disappointing result with little change over the period.

Table 2. Regional trends in KPI over four years in SEQ, CQ, NQ and NNSW (2002 to 2005)

3.1 South east Queensland

	2001-2002	2002-2003	2003-2004	2004-2005
Total milk income (c/L)	32.8	34.5	34.1	34.9
Average herd size	155	167	170	173
PPC (L)	5525	5220	5396	5479
FRC (c/L)	14.7	18.0	15.4	16.4
TVC (c/L)	20.0	22.9	20.8	21.4
Gross margin (c/L)	12.7	11.6	13.3	13.6
Equity (%)	87	85	87	86
RoA (%)	3.2	3.0	3.9	2.5
OPM (%)	14.4	12.8	18.7	13.7
DOP (\$/cow)	285	266	340	298

In NQ:

- Milk production was 900 113 litres in 2005. The table shows a decline in cow numbers but a rise in production per cow of 625 litres.
- Feed and other variable costs were contained in 2005 at 15.2 and 21.5 cents per litre, while milk returns were similar per litre to those received in 2002. Milk income per cow was \$1780. Dairy operating profit margins were higher than those in the last two years.

3.2 North Queensland

	2001-2002	2002-2003	2003-2004	2004-2005
Total milk income (c/L)	32.0	33.4	31.0	31.8
Average herd size	181	179	166	157
PPC (L)	4973	4819	5133	5598
FRC (c/L)	15.3	17.9	17.7	15.2
TVC (c/L)	20.5	22.1	22.9	21.5
Gross margin (c/L)	11.5	11.3	8.0	10.3
Equity (%)	76	78	78	79
RoA (%)	5.5	2.2	0.5	2.7
OPM (%)	17.0	9.1	2.5	12.8
DOP (\$/cow)	315	155	44	267

In CQ:

- Farm production increased to 789 537 litres, an increase of 23 percent over the period.
- Herd size has increased from 130 to 147 milkers, and production per cow has increased in 2005 after falling in the period 2002 to 2004. The group currently averages 5371 litres per cow.
- Milk returns continue to improve and this is reflected in the higher milk gross margin and dairy operating profit per cow.

3.3 Central Queensland

	2001-2002	2002-2003	2003-2004	2004-2005
Total milk income (c/L)	37.5	40.5	42.1	42.6
Average herd size	130	142	150	147
PPC (L)	4901	4983	4724	5371
FRC (c/L)	17.4	18.9	16.9	17.0
TVC (c/L)	23.9	26.3	25.3	24.4
Gross margin (c/L)	13.6	14.2	16.8	18.2
Equity (%)	75	75	78	72
RoA (%)	3.3	4.6	4.4	4.5
OPM (%)	12.0	16.1	15.7	17.7
DOP (\$/cow)	253	374	342	441

In NNSW:

- Annual farm production over the period increased by 24 percent to 1 277 256 litres.
- The additional production was achieved by a herd increase of 33 milkers and per cow production rose by 325 litres to 5602 litres.
- Total variable costs increased by 2.8 cents per litre resulting in reduced operating profits.

3.4 Northern New South Wales

	2001-2002	2002-2003	2003-2004	2004-2005
Total milk income (c/L)	35.1	36.4	35.3	35.2
Average herd size	195	222	214	228
PPC (L)	5277	5352	5650	5602
FRC (c/L)	17.7	21.0	16.6	19.2
TVC (c/L)	22.2	25.4	22.7	25.0
Gross margin (c/L)	12.9	10.9	12.6	10.1
Equity (%)	78	75	79	75
RoA (%)	6.5	3.8	3.3	1.2
OPM (%)	19.5	12.1	11.2	5.4
DOP(\$/cow)	461	282	255	120

4. Drivers of farm production and profitability (2004–2005)

4.1 Characteristics of the farms with the highest operating profit per cow

Dairy operating profit highlights the amount of profit retained after paying all expenses except finance costs and taxes. These expenses include non-cash items, depreciation and an allowance for the manager's time and skill. This latter expense is termed management allowance and is an opportunity cost. Cattle trading profit and inventory adjustments are also included.

Operating profit when expressed as a percentage is referred to as operating profit margin (OPM). It is a measure of the efficiency of the farming operation and effectiveness of management to generate and retain a profit from the revenue earned.

As profit calculations, both OPM per cow and OPM% include trading stock profits rather than stock sales.

Farms with the highest dairy operating profit per cow (top 25 percent) were compared to the rest of the QDAS farms. Table 3 shows some of the features of this group.

Table 3. KPI for top 25 percent of farms (2004-2005)

	Top 25 percent	Remaining 75 percent
Average herd size	186	178
Production per cow (L)	5796	5131
Total dairy income (c/L) ⁽¹⁾	41.8	38.5
FRC (c/L)	15.6	17.8
FRC (\$/cow)	909	916
Milk from HGF (%)	61	55

⁽¹⁾ Includes milk income, cattle trading profit and HGF inventory adjustment

In summary, this group performed a number of small management operations slightly better than the average farm. Using a profit analysis this group had: higher returns -3.3 cents per litre, largely derived from trading stock profits, lower operating costs with the major difference being in feed and paid labour. All regional dairying districts were represented in the group.

To raise production and increase margins, QDAS results indicate consideration should be given to the following:

- increasing production per cow
- increasing the utilisation of home grown feed
- nitrogen fertiliser use
- stocking rates
- expanding the size of the farming operation
- Quality and use of farm assets.

4.2 Increasing production per cow

The detailed operational costs obtained from farmers has provided information that consistently shows that as you improve a cow's diet, thereby utilising her genetic potential, you increase the margin over feed costs, the gross margin per cow and per farm. This was certainly true as per cow production increased to 6300 litres. There may be a limit however to increasing production using high cost supplements. The comment has been made in the past that when returns are based on international export milk prices, high input dairy systems may be unprofitable. There is also evidence that production costs in the tropics are higher than in temperate areas of Australia. If changing to a high input system it is essential to maximise home-grown feed utilisation and produce large volumes of milk, in an industry with low margins. In Table 4, data for 2004-2005 is presented which highlights the effects of increasing per cow production. In QDAS the number of milking cows plus the dry cows is totalled to determine the milking herd size. This calculation assumes a twelve-month inter-calving interval. Herds with inter-calving intervals of 13 or 14 months will find that their average production in QDAS reports is lower than that reported in herd recording reports. This difference could be as high as 600 litres per cow in some herds; the QDAS calculation method will have more impact in high per cow producing herds with long inter-calving intervals. Points to note in this table:

- Milk income in cents per litre does not have a significant impact on the differences in margins between the groups.
- Large herds can achieve high production per cow.
- While the margin over feed related costs per litre fluctuated on a per litre basis, the margin per cow increased from \$565 to \$1179. The gross margin per farm followed a similar trend. There were only a limited number of herds producing in excess of 7000 litres; the data tends to indicate that efficiency is lost in this high production group. However, the QDAS calculation of cow numbers as described above may have an impact.
- Dairy operating profit per cow and per farm increased steadily as production per cow increased to 6300 litres.

Table 4. KPI for 5 per cow production groups (2004-2005)

Production group	<4000 L	4-5000 L	5-6000 L	6-7000 L	>7000 L
No of farms	22	40	53	29	13
Litres (L)	490 490	8747787	957 255	1 144 568	1 633 061
Average herd size	148	188	174	181	222
Production/cow (L)	3312	4504	5471	6304	7330
Total milk income (c/L)	33.7	34.3	35.7	34.3	33.7
Margin over FRC (c/L)	17.0	16.9	18.8	16.7	16.0
Margin over FRC/cow (\$)	565	761	1029	1056	1179
Gross margin/cow (\$)	362	503	718	749	840
Gross margin/farm (\$)	53 530	96 125	125 806	129 403	178 704
DOP (EBIT -\$/farm)	13 898	45 000	47 431	63 120	37 945
DOP (\$/cow)	94	239	273	348	171

At production levels of 6000-7000 litres, at least two tonnes of concentrate per cow will be required. It has been shown that optimising milk production from paddock feed is essential as a first step in achieving a high gross margin for milk produced. The relative proportion of nutrients going to cow maintenance versus milk production for a range of daily production levels is shown in Table 5.

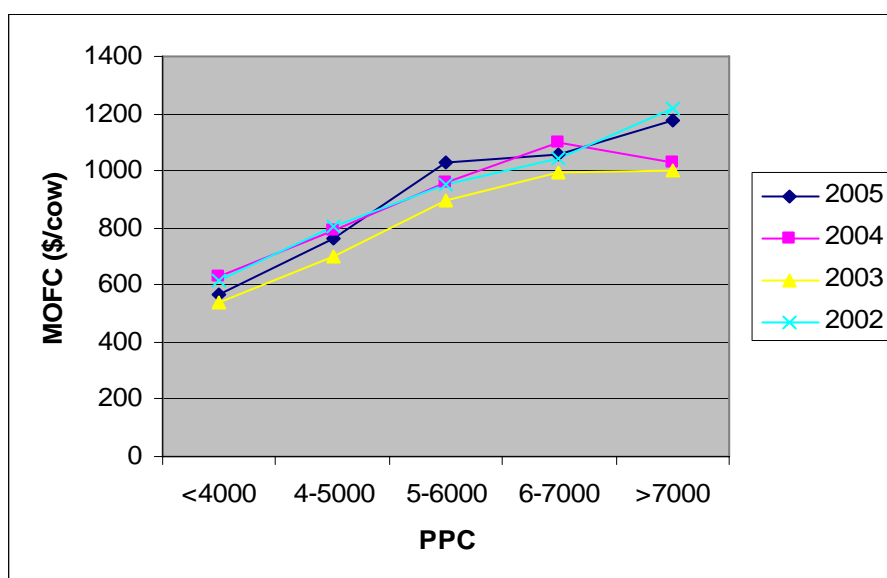
As the daily production increases the proportion of nutrients partitioned for milk increases.

Table 5. Proportion of energy intake partitioned for maintenance and milk production

Milk yield (litres/day)	%Percent of intake to maintenance	Percent of intake to production
10	50	50
20	38	62
30	32	68

Figure 1 shows the consistent increase in margin over feed costs for the last four years.

Figure 1. The relationship between production per cow and the margin over feed costs (2002–2005)



4.3 Increasing herd size

Table 6 shows how large farms compare on a range of important KPI. For example:

- As farm production increases from 520 000 to 2.45 million litres, herd size increases from 117 to 386 cows while production per cow increases from 4451 litres to 6341 litres.
- The margin over feed costs per cow tapers off on the largest farms but gross margin per farm continued to increase to a high of \$265 096. As the variable costs account for at least 60-70% of every milk dollar a high gross margin is important.
- Key profitability ratios— return on assets and dairy operating profit per cow and per farm—were highest on the farms in the groups producing more than 1.25 million litres.

Table 6. KPI for farms in 5 production groups (2004-2005)

	<750 000 L	750 000 – 1.25m L	1.25 – 2.0m L	>2.0m L
Production (L)	520 843	944 919	1 606 160	2 453 212
Herd Size	117	180	273	386
PPC (L)	4451	5244	5878	6341
Margin over FRC (\$/cow)	770	947	1004	1055
GM/cow (\$)	510	652	716	728
GM/farm (\$)	58 114	117699	195 494	265 096
LLU	283 251	364 449	492 239	507 124
RoA (%)	1.8	2.4	2.6	3.3
OPM (%)	12.0	11.3	10.7	14.3
DOP (EBIT - \$/farm)	25 418	41 977	68 317	135 876
OPM (\$/cow)	217	232	250	351
% Milk from HGF	56	58	53	64

4.4 Milk production from home-grown feed

Past reports and research has shown that optimising utilisation of home-grown feed can control feed-related costs and improve gross margins. Farms with high paddock feed utilisation can also maintain acceptable individual cow production.

Table 7 shows the production from home-grown feeds for farms with-below and above-average variable costs (22.6 cents per litre). Points to note are:

- Farms could improve production from home-grown feeds.
- In all regions, the low variable cost farms produced the most milk from home feed, and they also obtained the highest dairy operating profit per cow.

Table 7. Production per cow from home-grown feed (2004-2005)

Region	TVC < 22.2 c/L		TVC >22.2 c/L	
	Litres per cow	DOP (\$/cow)	Litres per cow	DOP (\$/cow)
SEQ	10.9	405	77	157
CQ ⁽¹⁾	NA	NA	NA	NA
NQ	10.3	228	8.9	161
NNSW	11.4	252	10.6	75

⁽¹⁾Not enough farms in this region for a meaningful comparison

This production per cow is well below the potential 13–17 litres achieved from forage in research trials; the result achieved on NNSW farms is closer to the milk production potential from tropical pastures.

Table 8. Target milk yields from forage

Pasture system	Potential yield from pasture (L)	Production target L/ cow	% Required from forage	Daily milk from forage (L)
Tropical	3500 – 4000	6500	55 – 60	11.5 – 13.5
Temperate	4500 – 5200	7500	60 – 65	15.0 – 17.0

4.5 Strategic nitrogen fertiliser application

Fertiliser use has been collated on 95 high–rainfall or irrigation farms in 2004-2005. To analyse the effect of nitrogen fertiliser use the farms were segregated into three equal sub groups– low, medium or high based on the level of nitrogen usage.

The average nitrogen levels in the three sub groups were 32, 70 and 141 kilograms per milker respectively. The dry conditions reduced fertiliser usage when compared to levels used in the late 1990s. Insufficient data was available to calculate responses in the low rainfall areas.

The effects on farm production and gross margins are shown in Table 9. As nitrogen fertiliser use per cow increases the result is:

- higher production per cow
- higher gross margins per farm
- more milk produced from home grown feed.

Table 9. The effect of nitrogen fertiliser use on production (2004-2005)

Nitrogen usage	High rainfall		
	Low	Medium	High
Units of N/cow (kg)	32	84	141
PPC (L)	4574	5,305	6041
Prod'n/ farm (L)	818 271	947 641	1 340 816
GM/farm (\$)	97 807	121 546	138 704
Litres from HGF	397 454	504 286	772 003

4.6 Increasing the stocking rate

QDAS data indicates producing larger volumes of milk per hectare by utilising higher stocking rates on the milking cow areas will improve farm gross margins significantly. This statement remained true whether the farm is in a–low or high–rainfall area.

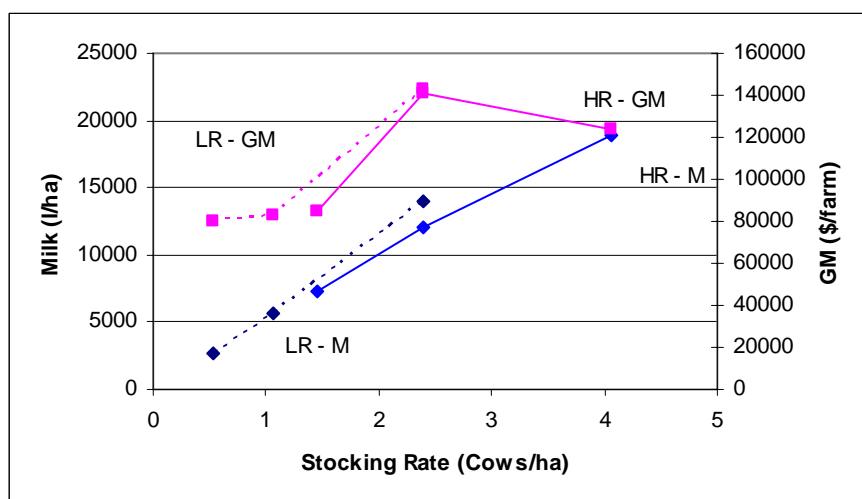
Figure 2 shows the data for 2004-2005. The solid lines represent high–rainfall areas while the dotted line represents low–rainfall areas.

Milk production per hectare increased as stocking rates improved, but, when the gross margins are calculated the most economical stocking rate was approximately 2.4 cows per hectare. This is a guide only and each farm will have different feed options. A full evaluation including the calculation of other KPI is recommended.

In the high–rainfall area as stocking rate increases from 1.5 to 4.1 cows per hectare, the milk produced increases from 6984 litres to 20 803 litres per hectare. Farm gross margin rose from \$85 191 at 1.46 cows to \$140 716 at 2.4 cows per hectare. However, on farms where stocking increased to 4.1 cows the gross margin was lower at \$123 402.

In the low–rainfall areas, as stocking rate increases from 0.5 to 2.4 cows per hectare the milk produced increases from 2748 litres to 13 931 litres per hectare. Farm gross margin rose from \$79 670 to \$142 600.

Figure 2. The relationship between stocking rate, milk yield and margins (2004 –2005)



5. Other results from 2004–2005

5.1 Calculating total production costs

The calculation of profit includes the following non-cash items — adjustments to the purchased feed stocks, plant depreciation and management allowance; while on the income side, adjustments are made for the use and or increase in the home-grown feed inventory. Consideration is given to the opening and closing cattle inventory, sales and purchases to arrive at the cattle trading profit.

A profit map showing the QDAS result for the top 25 percent of farms in 2005 is included as Appendix 1. The map shows how QDAS calculates profit; this format follows **national benchmarking guidelines**.

If the return on asset is below the benchmark or target set for your farm, it is simply a matter of tracing back up the map to isolate the areas where your result differs from your predetermined target and formulating a plan to correct the problem area. The calculations in the map are in total dollars but by dividing by the annual production (litres), or by the number of milkers or labour units a value per litre, per cow or per labour unit is possible. Tables 10 and 11 show the cash cost and the cost as determined in a profit analyses for 2004-2005.

Table 10. Production costs on QDAS farms – profit analysis (2004–2005)

	Average	Top 25% farms
Average return (c/L) ⁽¹⁾	39.5	41.8
Total variable cost (c/L) ⁽²⁾	22.6	20.4
Administration costs (c/L)	2.4	2.0
Paid labour costs (c/L)	3.0	2.4
Imputed labour (c/L) ⁽³⁾	4.5	4.1
Depreciation costs (c/L)	2.3	2.2
Finance costs (c/L)	3.6	3.8
Total production costs (c/L)	38.6	35.2

⁽¹⁾ Average return in a profit analysis includes – milk income, cattle trading profit and HGF changes

⁽²⁾ Purchased feed inventory changes are included in these figures

⁽³⁾ Imputed labour is calculated using the formula shown in Table 14

Table 11. Production costs for QDAS farms – cash analysis (2004–2005)

	Average	Top 25% farms
Average return (c/L) ⁽¹⁾	40.0	41.2
Total variable cost (c/L) ⁽²⁾	22.7	20.8
Administration costs (c/L)	2.4	2.0
Paid labour costs (c/L)	3.0	2.4
Principal + interest payments (c/L)	5.3	5.4
Living expenses (c/L) ⁽³⁾	4.7	4.2
Total production costs (c/L) ⁽⁴⁾	38.2	35.0

⁽¹⁾ Average return includes milk income and cattle sales

⁽²⁾ Variable costs are cash costs only

⁽³⁾ \$45,000 was used as the living expense

⁽⁴⁾ No capital expenditure is shown in this analysis.

5.2 Capital efficiency

Asset turnover ratio (ATO) is the measure of capital efficiency used in QDAS. It measures the income generated per dollar invested. The formula used in the analysis is:

$ATO = \text{Total dairy income (milk income + cattle trading profit + inventory changes)} \div \text{asset value}$

The average value for cooperating farms in 2004-2005 was 20 cents for each dollar invested.

Research at Mutdapilly in SEQ (M5 project) has confirmed that a high asset turnover ratio is feasible on irrigated farmlets with high stocking rates and supplement levels.

Asset valuation plays a critical part in the above formula. In QDAS, farmers are asked to place a ‘walk in-walk out’ value on their asset after considering current land sales, cattle prices and plant auctions. Advisers have sought valuations from stock agents and valuers to assist in this process. The average dairy farm last year was valued at \$1 897 213- increase of nearly \$280 000 on the previous year. The increase in asset value will impact positively on net worth but negatively on the RoA calculation.

Table 12. Land, plant and stock valuations for QDAS dairy farms (2004–2005)

	2003-04	%	2004-05	%
Land & bdgs (\$)	1,115,260	69.0	1 369 788	72.2
Stock (\$)	200,424	12.4	208 693	11.0
Plant (\$)	163,248	10.1	176 441	9.3
Other (\$) ⁽¹⁾	<u>137,387</u>	8.5	<u>142 291</u>	7.5
TOTAL (\$)	1,616,319		1 897 213	

⁽¹⁾ Other includes value of quota, shares, feed inventories and cash.

Critical questions to address when reviewing capital efficiency are:

- How can revenue be increased economically as the KPI to measure asset turnover does not consider the cost structure?
- Would relocation be an option for QDAS farms located in areas where land valuations are high? Farmers have been reluctant to relocate.
- What would be the impact of leasing additional land versus ownership, contracting land preparation versus ownership of plant? Contract rearing of stock is not popular at present. It is not traditional in Queensland to lease large areas of productive land.
- How would feed-lotting change the asset turnover ratio? The value of the productive asset–cows, increases markedly in proportion to the other assets in feedlot operations.

- What benchmark is appropriate for Queensland and NNSW? Is asset turnover a worthwhile key performance indicator?

5.3 Administration costs

Administration includes the following costs: accountancy, rates, registration of farm vehicles, insurance, telephone and associated office expenses, repairs to permanent improvements and membership of professional organisations. The average administration cost across all 157 farms in QDAS was \$23 009 or 2.4 c/L. Administration is a fixed expense and hence gets proportionately lower per litre as farms expand production.(Table 13).

Table 13. Administration costs for farms with increasing annual production (2004-2005)

Annual production	<750,000 L	750 –1.25 m L	1.25-2.0 m L	>2.0 m L
Administration (c/L)	3.0	2.4	2.1	1.9
Administration (\$)	16 935	22 817	33 752	47 325

5.4 Labour resources

The number of labour units contributing to the milk production was recorded under two headings in 2005:

- unpaid permanent labour – the farm owners
- paid labour – casual and permanent.

Paid labour costs include superannuation contributions, taxation and workers compensation payments. Average regional labour information, paid labour plus the opportunity cost of the owners/managers labour is summarised in Table 15.

Table 14. Imputed labour / management allowance calculation (2004-2005)

Farm production	Management allowance
Where production is less than 300 000 L	\$20 000
Where production is between 300 000 & 900 000 L	6 c/L
Where production exceeds 900 000 L	\$54 000

Large farms would now have to pay more than \$54 000 for a competent manager.

Table 15. Regional labour statistics (2004-2005)

Region	No of units paid + unpaid	Cost paid + imputed	Average litres produced per labour unit
SEQ	0.9 + 1.6	\$28 399 + \$43 467 = \$71 866	376 179
CQ	0.8 + 1.6	\$22 339 + \$43 380 = \$65 719	345 883
NQ	0.9 + 1.6	\$27 818 + \$ 43 163 = \$70 981	400 780
NNSW	1.2 + 1.4	\$32 538 + \$44 333= \$76 871	389 131

In Northern Australia the number of milking cows and the litres of milk produced per labour unit were calculated. At 74 milkers and 397 571 litres per unit the calculation revealed numbers below an acceptable benchmark.

Being able to make the best use of labour is essential—this is a matter of trying to work smarter, combined with knowing the value of each labour unit and equating any capital expenditure against potential labour savings. The question —how best should labour be utilised—is one of the areas which needs constant attention as production increases.

The following points need to be considered when addressing labour issues:

- the number of employees
- milk per labour unit
- cows per labour unit
- award rates and conditions
- job skills and training programs
- shed design and farm layout
- unpaid family labour
- other labour-saving technology

Labour costs are the second biggest production cost after feed costs. Labour, lifestyle and succession are important issues for families and the industry in general to debate.

Appendices

- 1 Map of farm performance – top 25% of farms (2004-2005)
- 2 Group cash gross margin – 157 QDAS farms (2004-2005)
- 3 Group cash gross margin – SEQ farms (2004-2005)
- 4 Group cash gross margin – CQ farms (2004-2005)
- 5 Group cash gross margin – NQ farms (2004-2005)
- 6 Group cash gross margin – NNSW farms (2004-2005)
- 7 Business traits, KPI and definitions used in (2004-2005)

1 Map of farm performance – top 25% of farms (2004–2005)

2 Group cash gross margin – 157 QDAS farms (2004–2005)

3 Group cash gross margin – South-east Queensland (2004–2005)

4 Group cash gross margin – Central Queensland (2004–2005)

5 Group cash gross margin – North Queensland (2004–2005)

6 Group cash gross margin – Northern New South Wales (2004–2005)

7 Business traits, key performance indicators and definitions

Sixteen key performance indicators (KPI) were used to monitor farm performance. Table 16 shows these indicators grouped under the four key business trait headings:

- liquidity
- solvency
- profitability
- efficiency 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 16. Business traits and key performance indicators (2004-2005)

Business trait	Key performance indicators
Liquidity	1. Additional debt repayment capacity – \$
Solvency	1. Equity percent – % 2. Total liabilities per cow – \$ 3. Interest per cow – \$/cow
Profitability	1. Return on asset (RoA) – % 2. Return on equity (RoE) – % 3. Operating profit margin (OPM) – % 4. Dairy operating profit (DOP) –\$/cow
Efficiency	
a) Capital efficiency	1. Asset turnover ratio (ATO) – c/\$ invested
b) Financial efficiency	2. Feed related cost (FRC) – c/L 3. Margin over feed related costs (MOFRC) – \$/cow 4. Total variable cost (TVC) – c/L 5. Gross margin (GM) – \$/cow
c) Physical efficiency	1. Litres of milk from home grown feed (L/HGF) – L 2. Production per cow (PPC) – L 3. Litres per labour unit (LLU) – L

The liquidity KPI used in QDAS

The liquidity KPI measures the capacity of the business to meet its short-term debts (cash flow ability), either by using cash or by converting current assets into cash. This calculation:

- focuses on the businesses ability to generate cash
- and is related to short-term activities of the business.

Additional term debt repayment capacity (ADC)

ADC indicates how much cash a business has available after meeting all existing commitments. It measures the ability of the business to contribute to additional debt servicing. A negative number indicates that current debts may not be able to be serviced from dairy income alone.

The cash shortfall can be balanced by the use of, off-farm income, interest subsidies, transfers from other accounts and/or the use of overdraft facilities. A positive number indicates that some cash is available for additional repayments and as a buffer against a rise in interest payments.

Calculation

(Milk income + cattle sales + other dairy related income) – (variable costs + fixed expenses + paid labour costs + drawings + leases, principal and interest payments).

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 percent

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 cashflow.

Calculation

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

Total liabilities (debt) per milkers

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

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)

The KPI, RoA 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.

Calculation

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

Return on equity (RoE)

This KPI measures the return on the owner's investment in the business. Interest costs are deducted from the operating profit to make the calculation. It takes the investor's point of view and can be a good way to

encourage further investment in a business; it also allows a comparison to be made with the returns available from external investments.

Calculation

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

Operating profit margin

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

Calculation

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

Dairy operating profit

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

Calculation

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

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.

Asset turnover ratio (ATO)

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

Calculation

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

Feed related cost (FRC)

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

Calculation

$\text{Total of all feed related costs} \div \text{Total production}.$

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

$(\text{Gross milk income} - \text{FRC}) \div \text{Number of milkers}.$

Total variable cost (TVC)

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

Calculation

$\text{TVC} \div \text{Total production}.$

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 should not be confused with the profit KPI.

Calculation

$(\text{Milk income} - \text{TVC}) \div \text{Number of milkers}$.

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

$\text{Total milk production} \div \text{Number of milkers}$.

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

$\text{Total litres of milk} \div \text{Number of labour units (paid + unpaid)}$.

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 may be important when examining an individual plan eg. cash surplus per farm family and environmental and other sustainability considerations.

The change in net worth is also an important indicator for every farm owner, and should be calculated regularly.

Group cash gross margin

Period ending 6/2005

NQ Farms

Income	Cents/litre	Dollars/cow	Total \$ earned
Milk	30.1	1,544.3	307,964
Milk bonuses/incentives/rebates/other	1.2	64.1	12,788
Milk income (1022733 l)	31.3	1,608.5	320,752
Stock sales - dairy	2.6	134.8	26,880
Stock sales - other	0.5	29.0	5,786
Produce sales	0.0	0.0	0
Other income	1.4	72.3	14,436
Non-milk income	4.6	236.2	47,103
Total farm income	35.9	1,844.7	367,855

Production costs	Cents/litre	Dollars/cow	% Milk income	Total \$ spent
Purchased feeds	10.0	515.8	32.0	102,857
Fertiliser	2.9	149.6	9.3	29,845
Fuel & oil	0.7	39.3	2.4	7,849
Seed	0.4	22.8	1.4	4,556
Irrigation costs	0.4	20.9	1.3	4,187
Other feed costs	0.7	39.1	2.4	7,806
Feed related costs	15.3	787.8	48.9	157,102
Margin over feed related costs	16.0	820.6	51.0	163,649
Heifer feeds	0.9	46.5	2.8	9,279
Animal health	1.1	57.7	3.5	11,523
Herd improvement	0.6	32.0	1.9	6,387
Herd costs	2.6	136.3	8.4	27,190
Dairy shed costs - electricity	0.5	30.3	1.8	6,047
Dairy shed costs - chemicals	0.4	23.0	1.4	4,591
Shed costs	1.0	53.3	3.3	10,638
Cartage	0.2	11.9	0.7	2,385
Levies	0.3	15.7	0.9	3,143
Repairs & maintenance	1.3	67.2	4.1	13,413
Sundry variable costs	0.1	7.4	0.4	1,484
Other variable costs	1.9	102.4	6.3	20,427
Total variable costs	21.0	1,079.9	67.1	215,358
Gross margins: milk only	10.3	528.5	32.8	105,393
whole farm	14.9	764.7	47.5	152,497
Permanent wages	2.7	139.5	8.6	27,818
Personal drawings etc	4.4	228.9	14.2	45,645

Labour inputs		Areas (ha)		Stock		Production		
Permanent unpaid	1.6	Milking cow	99	Milking cows	166	Fed to calves (l)	24109	2%
Permanent paid	0.6	Effective dairy	160	Dry cows	32	Protein total (kg)	32382	3.18%
Casual paid	0.3	Agistment	10.5	Heifers 15+	51	Butterfat total (kg)	38922	3.83%
		Winter irrigation	17	Heifers <15	58	Total solids (kg)	71305	
		Summer irrigation	0	Adult equivalents	258	Litres / cow	5128	
						Total solids / cow (kg)	357	

Farms in report 27

Total Operating Costs	\$329,925
Dairy Operating Surplus (EBIT)	\$41,615
ROA	2.1%
Asset value	\$2,012,042
Equity	81%

Group cash gross margin

Period ending 6/2005

CQ Farms

Income	Cents/litre	Dollars/cow	Total \$ earned
Milk	40.3	2,195.0	338,976
Milk bonuses/incentives/rebates/other	2.1	117.1	18,088
Milk income (840002 I)	42.5	2,312.1	357,064
Stock sales - dairy	2.6	142.2	21,969
Stock sales - other	0.0	0.0	0
Produce sales	0.0	0.0	0
Other income	1.5	82.3	12,723
Non-milk income	4.1	224.6	34,693
Total farm income	46.6	2,536.8	391,758

Production costs	Cents/litre	Dollars/cow	% Milk income	Total \$ spent
Purchased feeds	10.0	547.5	23.6	84,558
Fertiliser	1.5	84.8	3.6	13,108
Fuel & oil	1.4	78.8	3.4	12,184
Seed	0.6	32.7	1.4	5,050
Irrigation costs	1.3	74.9	3.2	11,576
Other feed costs	0.8	44.2	1.9	6,831
Feed related costs	15.8	863.2	37.3	133,309
Margin over feed related costs	26.6	1,448.9	62.6	223,755
Heifer feeds	0.0	2.0	0.0	310
Animal health	0.7	40.0	1.7	6,189
Herd improvement	0.4	24.1	1.0	3,723
Herd costs	1.2	66.1	2.8	10,222
Dairy shed costs - electricity	0.4	24.8	1.0	3,831
Dairy shed costs - chemicals	0.5	27.4	1.1	4,232
Shed costs	0.9	52.2	2.2	8,064
Cartage	1.9	108.2	4.6	16,715
Levies	0.4	21.7	0.9	3,362
Repairs & maintenance	2.2	120.9	5.2	18,671
Sundry variable costs	0.1	5.9	0.2	919
Other variable costs	4.7	256.8	11.1	39,669
Total variable costs	22.7	1,238.5	53.5	191,265
Gross margins: milk only	19.7	1,073.6	46.4	165,799
whole farm	23.8	1,298.2	56.1	200,493
Permanent wages	2.6	144.6	6.2	22,339
Personal drawings etc	3.3	182.8	7.9	28,242

Labour inputs		Areas (ha)		Stock		Production		
Permanent unpaid	1.6	Milking cow	75	Milking cows	130	Fed to calves (l)	10649	1%
Permanent paid	0.6	Effective dairy	177	Dry cows	24	Protein total (kg)	26928	3.18%
Casual paid	0.1	Agistment	0.0	Heifers 15+	50	Butterfat total (kg)	33279	3.92%
		Winter irrigation	25	Heifers <15	46	Total solids (kg)	60207	
		Summer irrigation	30	Adult equivalents	209	Litres / cow	5439	
						Total solids / cow (kg)	389	

Farms in report 7

Total Operating Costs	\$303,901
Dairy Operating Surplus (EBIT)	\$82,044
ROA	6.2%
Asset value	\$1,328,634
Equity	77%

Group cash gross margin

Period ending 6/2005

SEQ Farms

Income	Cents/litre	Dollars/cow	Total \$ earned
Milk	33.3	1,812.3	308,119
Milk bonuses/incentives/rebates/other	1.8	99.4	16,899
Milk income (924800 l)	35.1	1,911.7	325,018
Stock sales - dairy	3.7	201.3	34,236
Stock sales - other	0.2	14.2	2,420
Produce sales	0.1	10.2	1,746
Other income	1.4	78.2	13,309
Non-milk income	5.5	304.1	51,712
Total farm income	40.7	2,215.9	376,731

Production costs	Cents/litre	Dollars/cow	% Milk income	Total \$ spent
Purchased feeds	11.0	602.8	31.5	102,489
Fertiliser	1.7	93.6	4.8	15,919
Fuel & oil	1.4	76.1	3.9	12,948
Seed	0.6	33.2	1.7	5,658
Irrigation costs	0.8	48.8	2.5	8,302
Other feed costs	1.2	70.5	3.6	11,998
Feed related costs	17.0	925.3	48.4	157,317
Margin over feed related costs	18.1	986.4	51.5	167,701
Heifer feeds	0.3	19.1	1.0	3,254
Animal health	0.7	43.2	2.2	7,355
Herd improvement	0.4	23.4	1.2	3,991
Herd costs	1.5	85.8	4.4	14,601
Dairy shed costs - electricity	0.4	27.1	1.4	4,612
Dairy shed costs - chemicals	0.5	28.6	1.4	4,865
Shed costs	1.0	55.7	2.9	9,478
Cartage	0.2	15.3	0.8	2,613
Levies	0.3	17.2	0.9	2,933
Repairs & maintenance	1.7	97.8	5.1	16,636
Sundry variable costs	0.2	13.9	0.7	2,363
Other variable costs	2.6	144.3	7.5	24,546
Total variable costs	22.2	1,211.3	63.3	205,942
Gross margins: milk only	12.8	700.3	36.6	119,075
whole farm	18.4	1,004.5	52.5	170,788
Permanent wages	3.0	165.2	8.6	28,090
Personal drawings etc	2.1	116.8	6.1	19,864

Labour inputs		Areas (ha)		Stock		Production		
Permanent unpaid	1.5	Milking cow	108	Milking cows	140	Fed to calves (l)	9439	1%
Permanent paid	0.7	Effective dairy	202	Dry cows	29	Protein total (kg)	29892	3.23%
Casual paid	0.1	Agistment	11.9	Heifers 15+	40	Butterfat total (kg)	36828	3.99%
		Winter irrigation	33	Heifers <15	61	Total solids (kg)	66720	
		Summer irrigation	32	Adult equivalents	221	Litres / cow	5439	
						Total solids / cow (kg)	392	

Farms in report 88

Total Operating Costs	\$316,785
Dairy Operating Surplus (EBIT)	\$51,302
ROA	2.6%
Asset value	\$1,962,970
Equity	85%

Group cash gross margin

Period ending 6/2005

All Farms

Income	Cents/litre	Dollars/cow	Total \$ earned
Milk	33.2	1,768.2	317,843
Milk bonuses/incentives/rebates/other	1.3	70.4	12,671
Milk income (954517 l)	34.6	1,838.7	330,515
Stock sales - dairy	3.4	182.8	32,872
Stock sales - other	0.2	13.0	2,351
Produce sales	0.1	7.4	1,337
Other income	1.5	83.4	14,999
Non-milk income	5.4	286.8	51,561
Total farm income	40.0	2,125.5	382,076

Production costs	Cents/litre	Dollars/cow	% Milk income	Total \$ spent
Purchased feeds	11.0	588.4	32.0	105,766
Fertiliser	2.1	112.4	6.1	20,206
Fuel & oil	1.2	67.9	3.6	12,211
Seed	0.7	40.8	2.2	7,339
Irrigation costs	0.6	35.7	1.9	6,431
Other feed costs	1.2	68.3	3.7	12,278
Feed related costs	17.2	913.6	49.6	164,235
Margin over feed related costs	17.4	925.0	50.3	166,280
Heifer feeds	0.4	24.5	1.3	4,414
Animal health	0.7	42.2	2.3	7,601
Herd improvement	0.4	25.8	1.4	4,648
Herd costs	1.7	92.7	5.0	16,665
Dairy shed costs - electricity	0.5	30.2	1.6	5,433
Dairy shed costs - chemicals	0.5	29.9	1.6	5,374
Shed costs	1.1	60.1	3.2	10,808
Cartage	0.3	20.3	1.1	3,659
Levies	0.3	17.0	0.9	3,066
Repairs & maintenance	1.7	92.5	5.0	16,637
Sundry variable costs	0.2	12.6	0.6	2,281
Other variable costs	2.6	142.6	7.7	25,645
Total variable costs	22.7	1,209.1	65.7	217,354
Gross margins: milk only	11.8	629.5	34.2	113,161
whole farm	17.2	916.3	49.8	164,722
Permanent wages	3.0	160.1	8.7	28,778
Personal drawings etc	2.8	150.9	8.2	27,125

Labour inputs		Areas (ha)		Stock		Production	
Permanent unpaid	1.5	Milking cow	101	Milking cows	153	Fed to calves (l)	14692 2%
Permanent paid	0.8	Effective dairy	188	Dry cows	25	Protein total (kg)	30772 3.21%
Casual paid	0.1	Agistment	8.5	Heifers 15+	46	Butterfat total (kg)	37594 3.93%
		Winter irrigation	28	Heifers <15	64	Total solids (kg)	68366
		Summer irrigation	24	Adult equivalents	236	Litres / cow	5310
						Total solids / cow (kg)	380

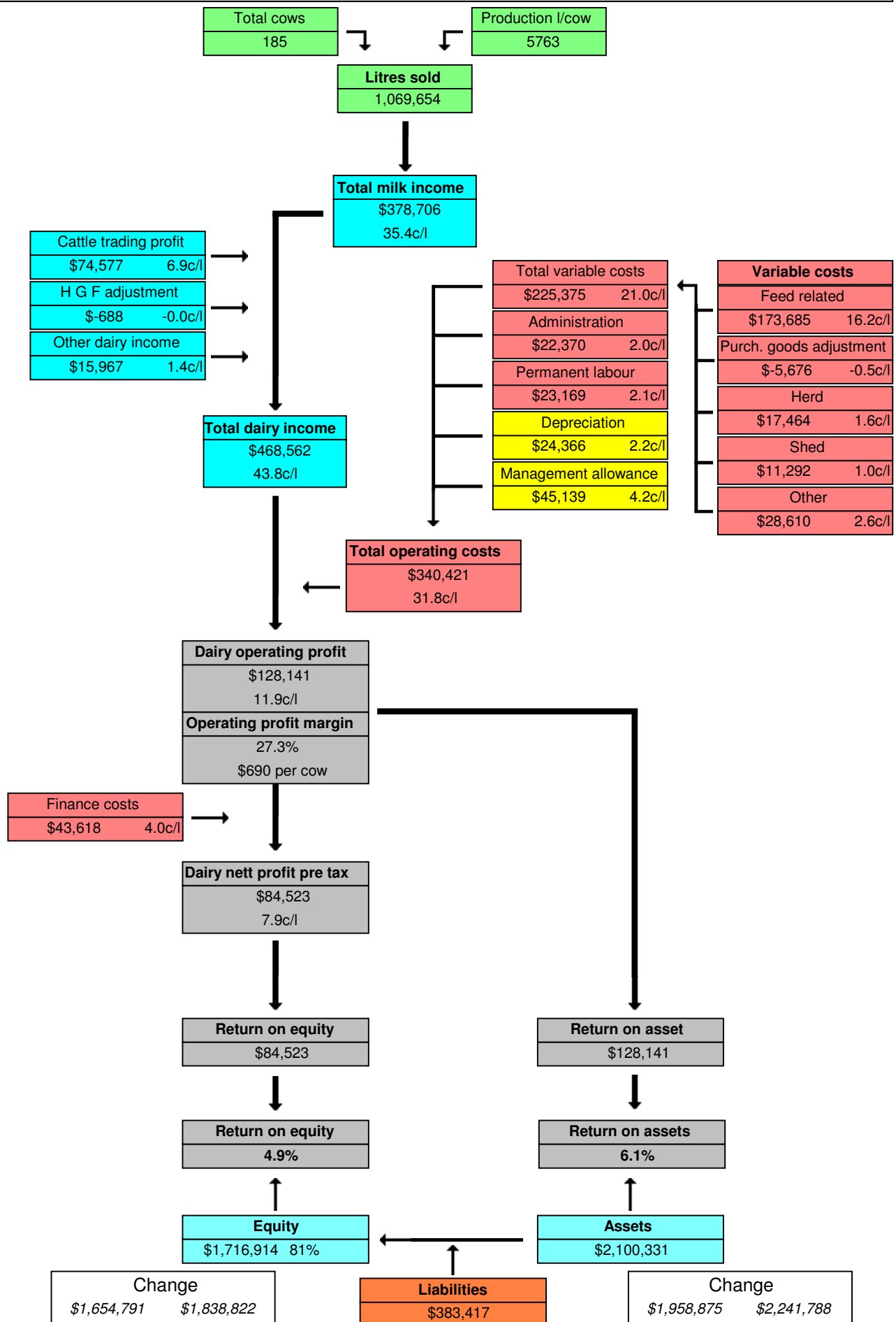
Farms in report 157

Total Operating Costs	\$333,255
Dairy Operating Surplus (EBIT)	\$44,225
ROA	2.3%
Asset value	\$1,897,213
Equity	82%

Group dairy farm profit map

Top 25% OPM/Cow

Group of 42 farms



Group cash gross margin

Period ending 6/2005

NNSW Farms

Income	Cents/litre	Dollars/cow	Total \$ earned
Milk	34.5	1,780.5	345,685
Milk bonuses/incentives/rebates/other	0.0	4.4	870
Milk income (999513 l)	34.6	1,785.0	346,556
Stock sales - dairy	3.6	186.7	36,246
Stock sales - other	0.0	0.0	0
Produce sales	0.1	8.2	1,608
Other income	2.0	103.7	20,137
Non-milk income	5.8	298.7	57,993
Total farm income	40.4	2,083.7	404,549

Production costs	Cents/litre	Dollars/cow	% Milk income	Total \$ spent
Purchased feeds	12.0	620.6	34.7	120,492
Fertiliser	2.4	128.6	7.2	24,969
Fuel & oil	1.3	70.7	3.9	13,730
Seed	1.4	72.9	4.0	14,169
Irrigation costs	0.2	12.5	0.7	2,429
Other feed costs	1.7	90.2	5.0	17,523
Feed related costs	19.3	995.7	55.7	193,315
Margin over feed related costs	15.3	789.3	44.2	153,240
Heifer feeds	0.4	22.6	1.2	4,401
Animal health	0.5	28.2	1.5	5,479
Herd improvement	0.5	26.4	1.4	5,142
Herd costs	1.5	77.3	4.3	15,023
Dairy shed costs - electricity	0.7	37.8	2.1	7,344
Dairy shed costs - chemicals	0.7	38.5	2.1	7,487
Shed costs	1.4	76.3	4.2	14,832
Cartage	0.4	24.0	1.3	4,662
Levies	0.3	16.9	0.9	3,282
Repairs & maintenance	1.8	96.4	5.4	18,721
Sundry variable costs	0.2	15.2	0.8	2,963
Other variable costs	2.9	152.6	8.5	29,630
Total variable costs	25.2	1,302.1	72.9	252,801
Gross margins: milk only	9.3	482.9	27.0	93,754
whole farm	15.1	781.6	43.7	151,747
Permanent wages	3.2	167.5	9.3	32,537
Personal drawings etc	3.0	159.0	8.9	30,874

Labour inputs		Areas (ha)		Stock		Production		
Permanent unpaid	1.3	Milking cow	93	Milking cows	182	Fed to calves (l)	21445	2%
Permanent paid	1.1	Effective dairy	174	Dry cows	11	Protein total (kg)	32510	3.22%
Casual paid	0.0	Agistment	0.3	Heifers 15+	57	Butterfat total (kg)	39357	3.85%
		Winter irrigation	24	Heifers <15	79	Total solids (kg)	71868	
		Summer irrigation	21	Adult equivalents	264	Litres / cow	5148	
						Total solids / cow (kg)	370	

Farms in report 35

Total Operating Costs	\$383,104
Dairy Operating Surplus (EBIT)	\$20,880
ROA	1.2%
Asset value	\$1,757,013
Equity	78%