DEPARTMENT OF
PRIMARY INDUSTRIES

Dairy Industry Farm Monitor Project

Summary of Results 06/07

Victoria
The Place To Be

DAIRY AUSTRALIA
Delivering for the dairy industry

ACKNOWLEDGMENTS

The cooperation, patience and goodwill of the farmers who willingly supplied their farm information this year is gratefully acknowledged. The diligent work of the DPI Dairy extension team who gathered the final performance data deserve particular thanks, especially John Moran, David Shambrook and Michele Ryan who continued to be actively involved in the report through to its publication. Thank you to DPI Kyabram for supplying the most current and comprehensive information on the energetics method of calculating feed consumption. Thank you to Tony Cuzner for creating the map used in this publication.
A special thank you goes to Joseph Gaffy who managed the project for twelve months including the development of the model and collation of data.

And finally, thank you to all who have been so patient in waiting for this report to be made available.

This report has been produced in conjunction with Dairy Australia.

October 2007

ISSN 1440-1207

Further information regarding the Dairy Industry Farm Monitor Project may be obtained from:

Will English

Department of Primary Industries, Victoria
1301 Hazeldean Road
Ellinbank, Victoria, 3821
Telephone: 03 5624 2293
Facsimile: 03 5624 2200
Will.English@dpi.vic.gov.au

Find out more information about DPI on the internet at http://www.dpi.vic.gov.au

DEPARTMENT OF
PRIMARY INDUSTRIES

Dairy Industry Farm Monitor Project

Summary of Results 06/07

EXECUTIVE SUMMARY

This is the first year of the Dairy Industry Farm Monitor Project in Victoria. The project aims to provide the Victorian dairy industry with valuable farm level data relating to productivity gains and profitability, as well as identify the key drivers of productivity and profitability growth.

Data was collected from 56 farms from across three regions of Victoria; Northern Victoria, South West Victoria and Gippsland. Participants have been selected with the objective of representing a distribution of farm sizes, herd sizes and geographical locations within each region. The results published in this report should not be taken to represent population averages as the participant farms were not selected via random population sampling.

The results from the 2006/07 year reflected the exceptional seasonal conditions across the state. The drought had a severe impact on all participant farms with all farms located in areas declared exceptional circumstances. Lack of rainfall during the year was compounded for many who also had reduced allocations of irrigation water.

The results show that the average profitability across the participant farms was $0.06 per kilogram of milk solids sold or $36 per hectare. This equated to an average return on assets across the state of 0.1%.

The majority of participants expect there to be an improvement in farm business returns over the next 12 months. There is a high expectation that milk prices will increase, but also that the cost of most inputs will rise.

A greenhouse gas emission audit was conducted using the Australian National Greenhouse Gas Inventory method. The average level of greenhouse gases emitted was 10.3 tonnes per tonne of milk solids produced.

NOTES ON THE PRESENTATION OF DATA IN THIS REPORT

This report is presented in 7 parts;

- **Statewide overview**
- **North region overview**
- **South West region overview**
- **Gippsland region overview**
- **Business con[a] dence survey**
- **Greenhouse report**
- **Appendices**

The appendices include detailed data tables, a list of abbreviations and a glossary of terms.

The report presents visual descriptions of the data for the 2006/07 year. Data is presented for individual farms, regional averages and regional top 25% of farms ranked on operating profit per hectare. Reported averages are calculated as the mean. The top 25% of farms are presented as striped bars in the regional overview graphs. Operating profit has been used as the determinate of the top producers due to the subjective nature of asset valuation resulting in return on assets being a less certain figure. The Q1 - Q3 data range for key indicators is also presented in the tables to give an indication of the variation in the data. The Q1 value is the quartile 1 value. That is, the value of which one quarter of data in that range is than. The Q3 value is the quartile 3 value. That is, the value of which one quarter of data in that range is than. This means that the middle 50% of data sits in the Q1-Q3 data range. Given the differences in variation in the regional data, caution is highly recommended when comparing one region to another.

Detailed data can be found in the appendix tables.

Milk production data is presented in kilograms of milk solids as farms are paid according to milk solids.

To reduce wordiness, this report will often refer to the group of participating farms in each region by their regional name;

- The 18 participating farms in the Northern Victoria region are referred to as ‘the North’.
- The 20 participating farms in the South Western Victoria region are referred to as ‘the South West’.
- The 18 participating farms in the Gippsland region are referred to as‘Gippsland’.

Percentage differences are calculated as [original – different value]/[original] e.g.‘costs went from $80/ha to $120/ha, a 50% increase’; [(80-120)/80] = [40/80] = 0.50, unless otherwise stated.

The methodology used is a combination of that used in the South West Farm Monitor Project, Taking Stock and various other referenced sources. Attention should be paid to methodology when directly comparing figures from this report with those generated via other means.

TABLE OF CONTENTS

LIST OF FIGURES

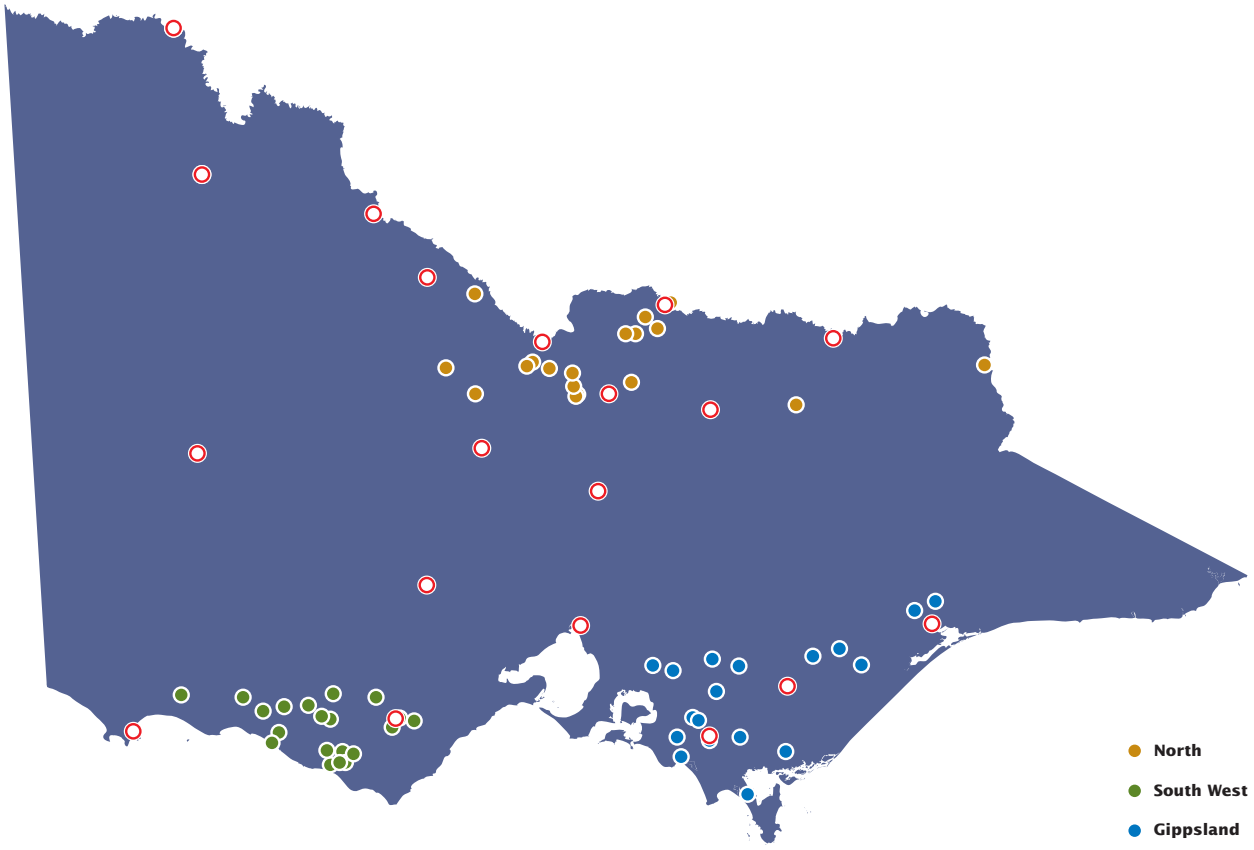
LIST OF TABLES

PART ONE:
STATEWIDE OVERVIEW

This section of the report compares the average performance in a range of physical and financial indicators for all participant farms across Victoria, with the averages from the North, South West and Gippsland regions reported.

The approximate location of the participating farms is shown in Figure 1.

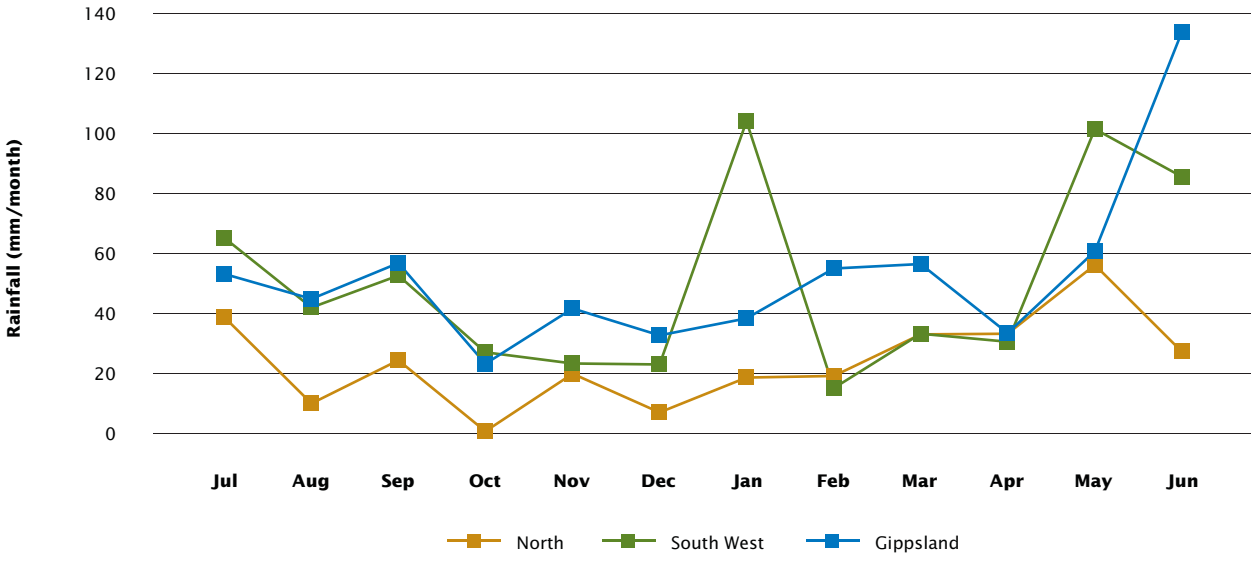
FIGURE 1: DISTRIBUTION OF FARMS ACROSS VICTORIA



2006/07 SEASONAL CONDITIONS

The average rainfall across the farms in each region was well below normal. The North received 288mm over the year, approximately 61% of the long term average for these farms of 475mm. Farms in the South West received on average 601mm, or 73% of their long term average rainfall of 824mm. Gippsland received an average of 630mm, which is equivalent to 69% of their long term average rainfall of 910mm. Figure 2 shows the rainfall pattern during the year and the peak rainfalls that occurred in January, May and June in the South West and the heavy rainfall in June in Gippsland.

FIGURE 2: 2006/07 MONTHLY RAINFALL



WHOLE FARM ANALYSIS

Participants in the North had on average larger farms than, but similar stocking rates to, participants in the other two regions. Farms in the North also had the highest number of cows per labour unit, but the higher per cow production in the South West resulted in those farms having the highest labour efficiency in terms of kilograms of milk solids per labour unit. Farms in the South West also sold the greatest amount of milk solids per hectare. Gippsland farms had the smallest herd size, farm size and lowest labour efficiency.

Table 1 presents the average of some farm characteristics for each region.

TABLE 1: FARM PHYSICAL DATA

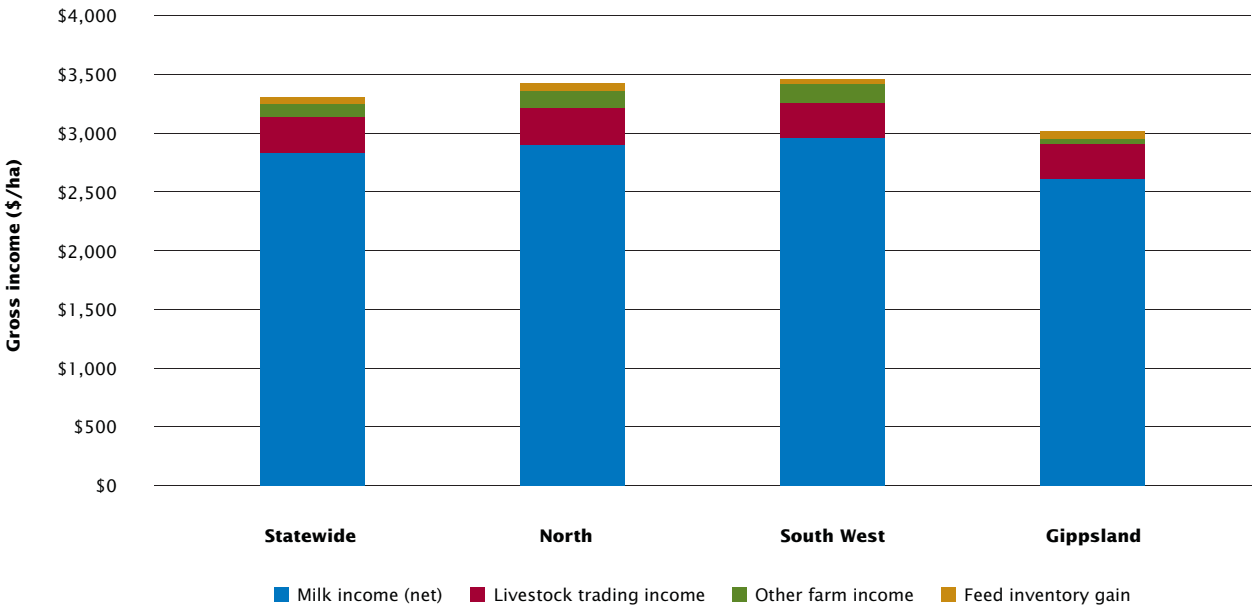
Farm physical parameters	Statewide	North	South West	Gippsland
Number of farms in sample	56	18	20	18
Herd size (max no. milker for at least 3 months)	373	365	386	282
Annual rainfall 06/07	510	288	603	630
Water used (irrigation + rainfall) (mm/ha)	610	539	622	668
Total useable area (hectares)	271	336	286	191
Stocking rate (milking cows per useable hectares)	1.4	1.4	1.4	1.4
Milk sold (kg MS /ha)	636	636	688	579
Milk sold (kg MS /cow)	447	430	500	405
Milk price received ($/kg MS)	$4.46	$4.64	$4.31	$4.46
Labour efficiency (milking cows / labour unit)	74	80	73	68
Labour efficiency (kg MS / labour unit)	33,170	35,058	36,702	27,359

GROSS FARM INCOME

Gross farm income includes all farm income, whether that is income from milk sales, an increase in inventories of stock or feed or cash income from livestock trading. Although the farms in Gippsland and the North produced less milk solids per hectare than those in the South West, their higher milk prices resulted in similar milk income per hectare. Livestock trading income per hectare was very similar for all regions, at about $300/ha.

Figure 3 shows the gross income per hectare in the three regions.

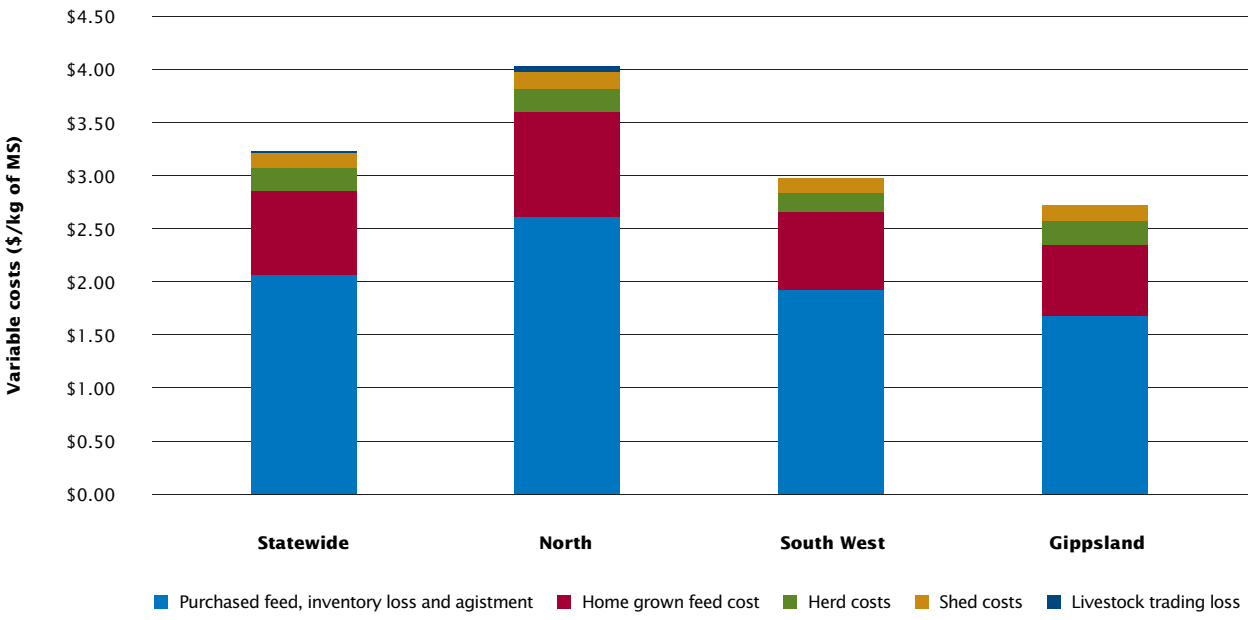
FIGURE 3: AVERAGE GROSS INCOME PER HECTARE



VARIABLE COSTS

Variable costs are costs directly associated with production. Examples include animal health, contract services, supplementary feeding, agistment and pasture costs. Figure 4 shows variable costs per kilogram of milk solids sold. The cost of feed, both purchased and home grown, was much higher for participants in the North. They averaged $3.55/kg MS compared to $2.58/kg MS in the South West and $2.28/kg MS in Gippsland.

FIGURE 4: AVERAGE VARIABLE COSTS PER KILOGRAM OF MILK SOLIDS SOLD

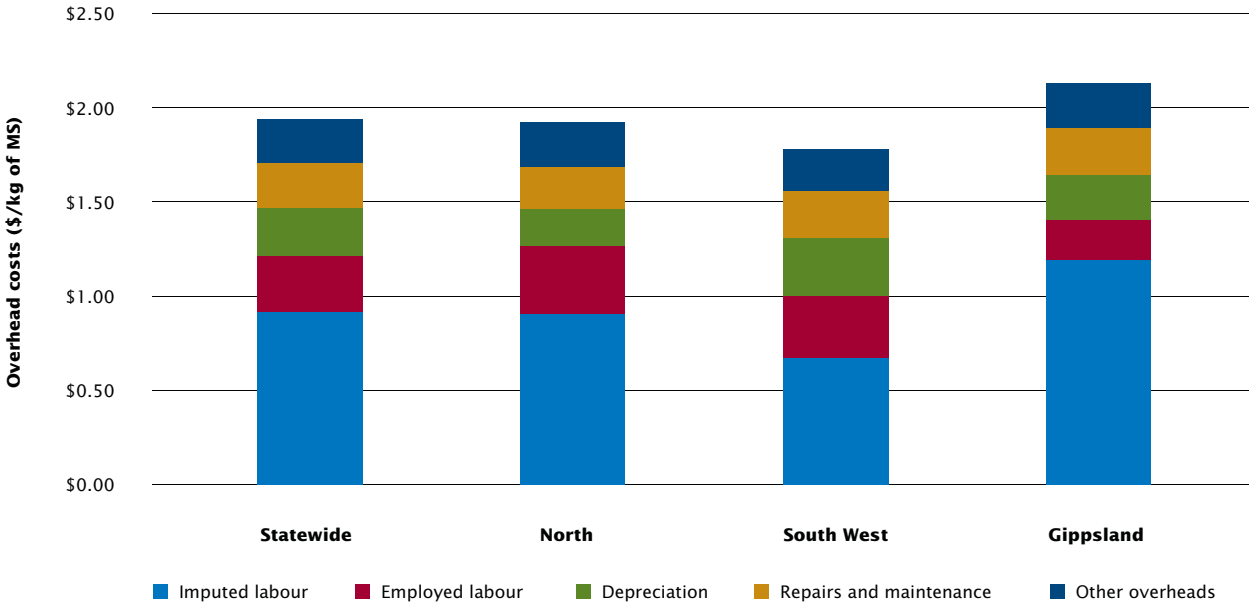


OVERHEAD COSTS

Overhead costs or 'fixed costs' are relatively unresponsive to small changes in the scale of operation of a business. Examples include depreciation, administration, repairs and maintenance and labour. Imputed labour is an estimate of the cost of the labour provided by people with a share in the business such as the owner, the owner's family or a sharefarmer that owns assets in the business. The imputed labour cost is calculated as the greater of $400 per cow less paid labour (the method used in Taking Stock) or $15 per hour of imputed labour.

Figure 5 shows that participants in Gippsland had higher imputed labour costs per kilogram of milk solids sold than those in the other two regions. This was largely due to their lower labour efficiency in terms of kg MS/labour unit. Gippsland only had two thirds of the employed labour cost of the other two regions. The North incurred lower depreciation costs than the other two regions.

FIGURE 5: AVERAGE OVERHEAD COSTS PER KILOGRAM OF MILK SOLIDS SOLD

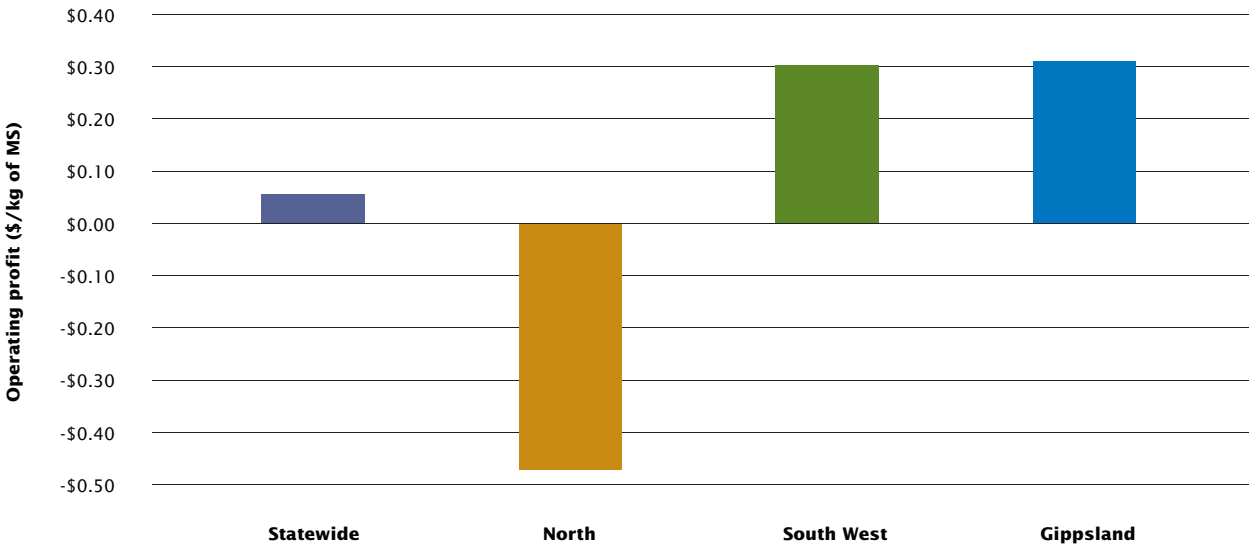


OPERATING PROFIT

Operating profit is the gross income, less variable costs and overhead costs including imputed labour. Operating profit is before tax and excludes interest and lease costs, so it can be used to compare the operational efficiency of the whole farm business.

The operating profit varied substantially between regions, as shown in Figure 6 below. The average for the North was -$0.47/kg of MS, while both the South West and Gippsland achieved an average of about $0.30/kg of MS. Some key factors for this result in the North were their low rainfall, very limited irrigation water supply and high feed costs. The statewide average was 0.06/kg MS, which equates to $36/ha.

FIGURE 6: AVERAGE OPERATING PROFIT PER KILOGRAM OF MILK SOLIDS SOLD

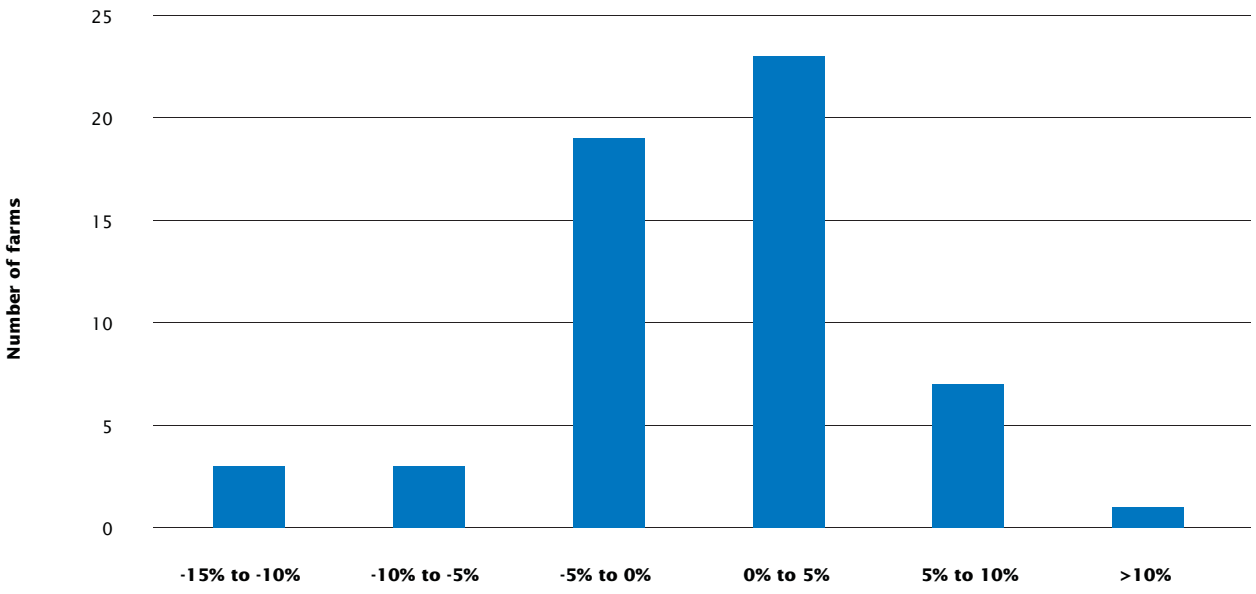


RETURN ON ASSETS AND ON EQUITY

The return on assets is the operating profit expressed as a percentage of total farm assets, hence is an indicator of the overall earning power of total assets, irrespective of capital structure.

The average return on assets for participants across the state was 0.1%. Three quarters of the participant farms had a return on assets between -5% and 5%. The greatest range in return on assets was in the North where values went from -13.5% to 13.2%.

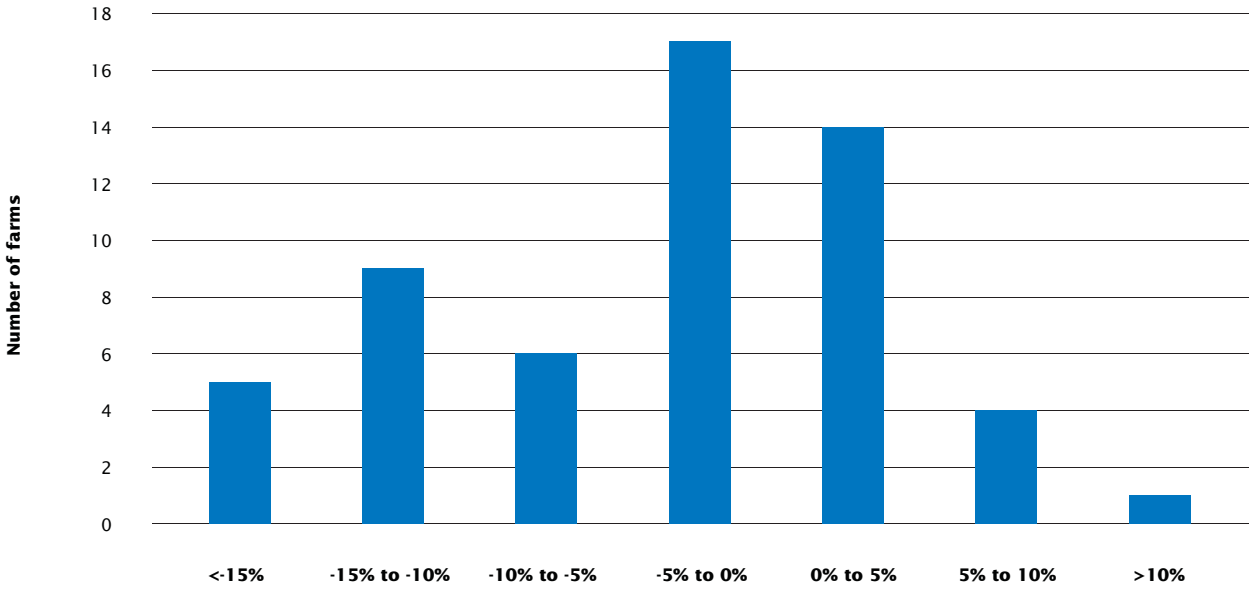
FIGURE 7: DISTRIBUTION OF FARMS BY RETURN ON ASSETS



Return on equity is the business return (operating profit less interest and lease charges) expressed as a percentage of owner equity. Items not accounted for in business return are loan principle repayments and tax. Return on equity is a measure of the owner's rate of return on investment.

The average return on equity was -4.1%. Figure 8 shows that one third of participants had a positive return to equity. Further explanation of return on assets and return on equity are provided later in the regional chapters.

FIGURE 8: DISTRIBUTION OF FARMS BY RETURN ON EQUITY



PHYSICAL MEASURES

FEED CONSUMPTION

Figure 9 presents the contribution of different feed sources to the total metabolisable energy (ME) consumed on the farm. This includes feed consumed by dry cows and young stock.

Grazed pasture constituted a lower proportion of the total ME consumed by herds in the North compared to the other two regions. The proportion of the ME consumed from grazed pasture was highest in Gippsland, which also had the lowest proportion of ME from concentrate. Gippsland participants also had the lowest agistment costs, suggesting that more pasture was consumed by young and dry stock than in the other two regions.

FIGURE 9: SOURCES OF WHOLE FARM METABOLISABLE ENERGY

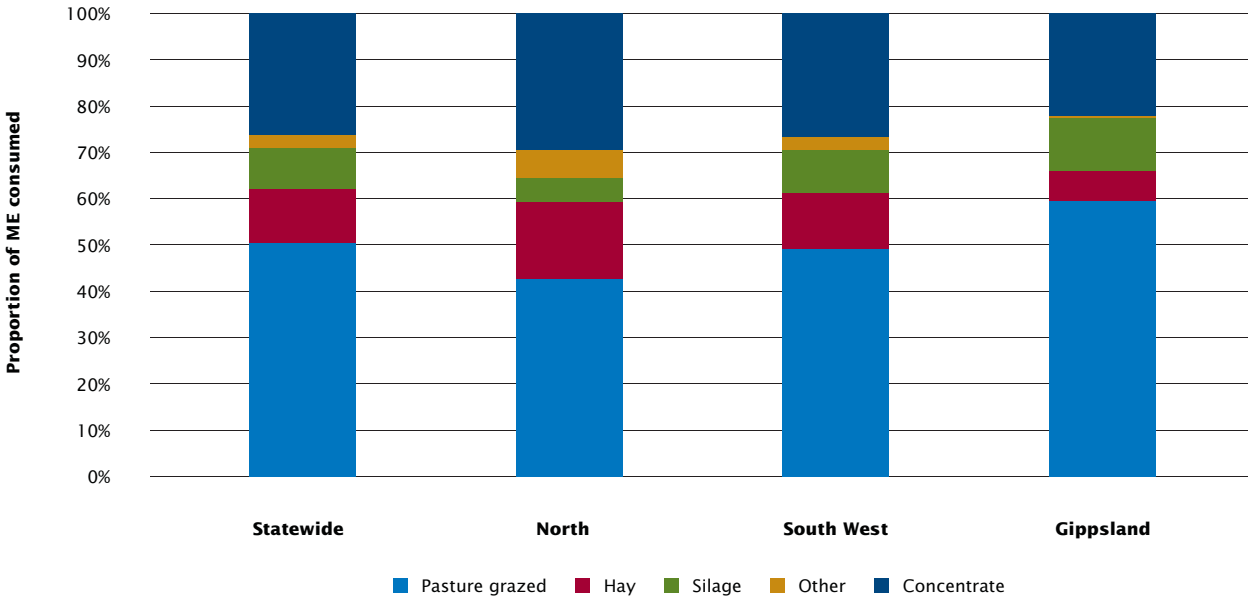
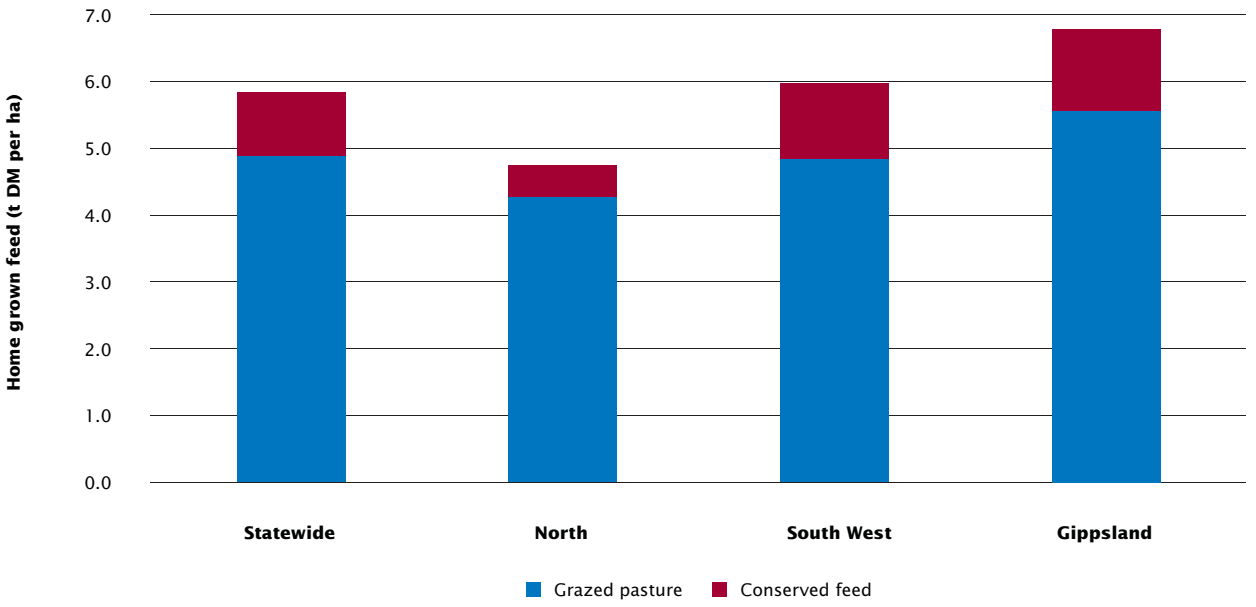


Figure 10 shows the average estimated home grown feed production per hectare. The differences between the regions reflect a similar pattern to the total water available between the regions for the year. The lack of total water available in the North has had a marked affect on the group average.

The similar stocking rate in the regions explains the similar pattern of estimated pasture grazed in Figures 9 and 10.

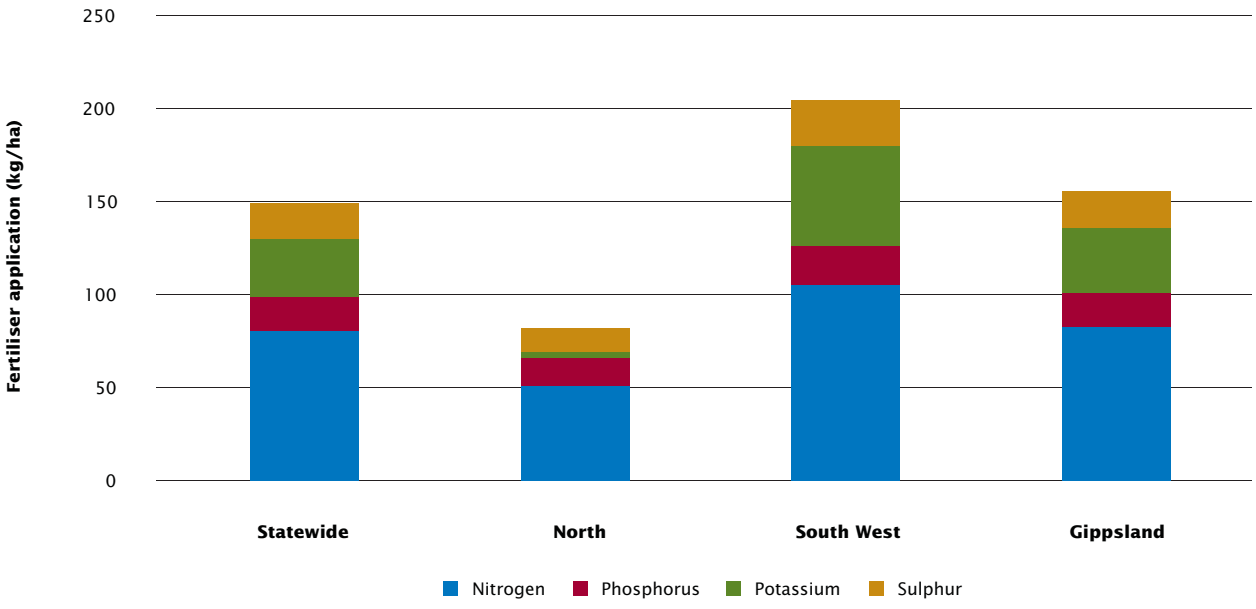
FIGURE 10: ESTIMATED TONNES OF HOME GROWN FEED PRODUCED PER HECTARE



FERTILISER APPLICATION

Figures 11 and 12 do not show as strong a relationship between estimated home grown feed produced and fertiliser applied as what may be expected. These differences will be the result of many factors. Timing of application, where higher levels of fertiliser were applied to promote growth at times of the year with lower response rates is one possible explanation. Another possibility is that these results do not reflect a long-term application rate pattern and the pasture growth was a result of residual nutrients in the soil.

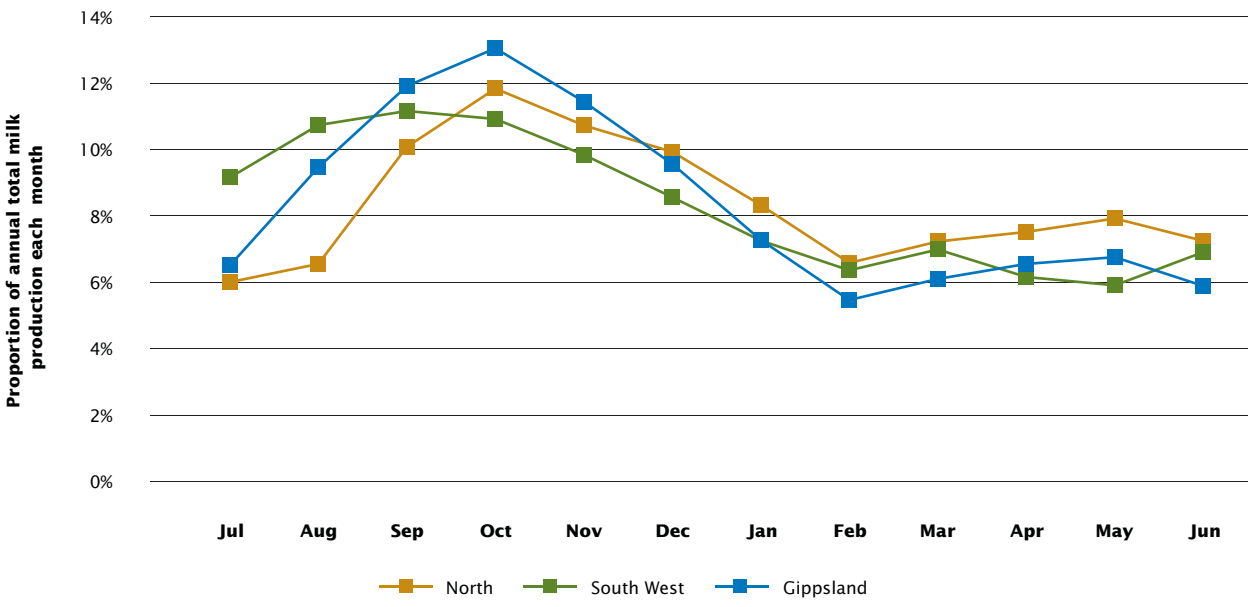
FIGURE 11: FERTILISER APPLICATION PER HECTARE



MILK PRODUCTION

Average milk production in all regions followed a similar pattern of a spring peak with another small peak in autumn, mimicking closely expected pasture production. Gippsland participants averaged the most concentrated production, with a peak of 13% of total production in October. The South West had a much smoother average peak production across the spring.

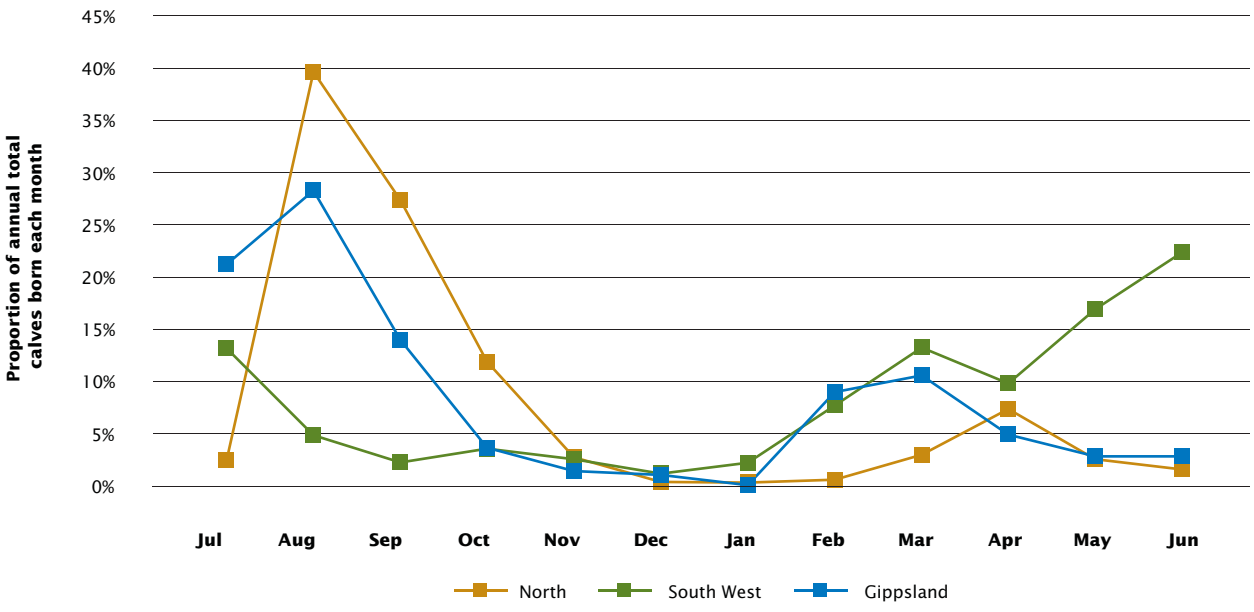
FIGURE 12: MONTHLY DISTRIBUTION OF MILK PRODUCTION



CALVING PATTERN

The milk production seen in Figure 12 approximately follows the calving pattern shown in Figure 13 below, with a two to three month delay. This can be seen best in the peak production and peak calving times. The North achieved a very concentrated calving pattern, with 39% of calves born in August and 79% between August and October. For each region, the smaller peak in autumn was most likely a reflection of management strategies pursuing off-peak production price premiums.

FIGURE 13: MONTHLY DISTRIBUTION OF CALVES BORN



PART TWO: NORTH

Farms ranked in the top 25% by operating profit per hectare are shown as the striped bars in all graphs.
Please refer to page 2 for notes on the presentation of data.

2006/07 SEASONAL CONDITIONS

FIGURE 14: 2006/07 ANNUAL RAINFALL AND LONG TERM AVERAGE RAINFALL – NORTH

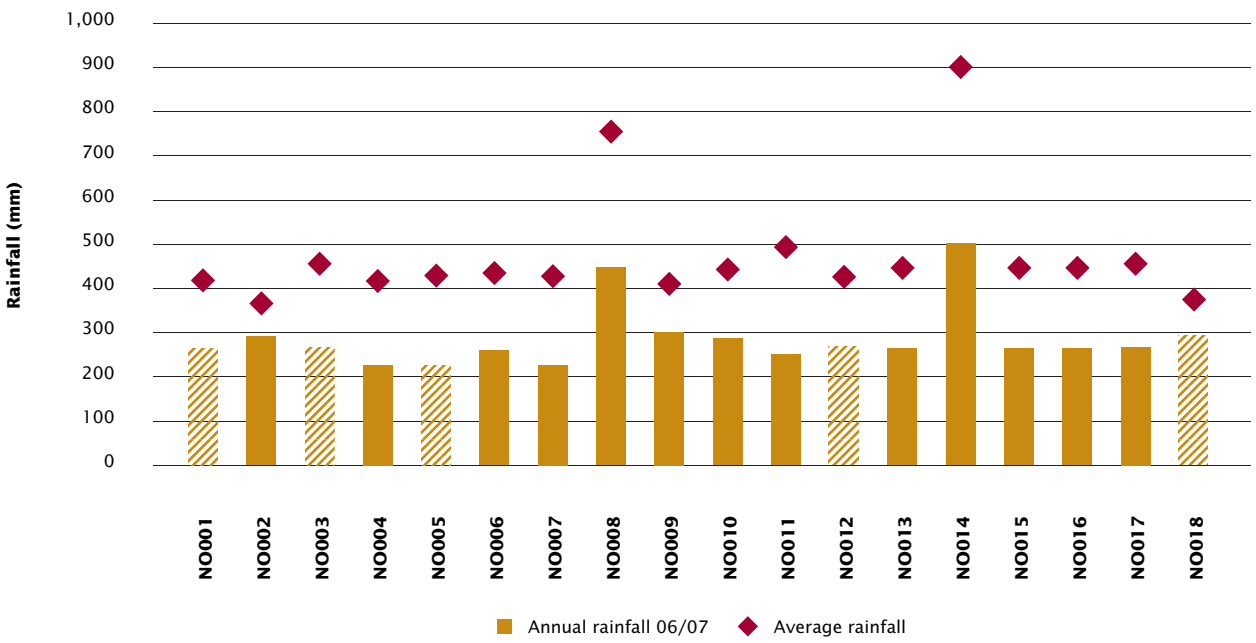


Figure 14 shows the difficult climatic conditions participants across the North faced during the 2006/07 year. For many of these businesses, this was compounded by a reduced irrigation right.

WHOLE FARM ANALYSIS

Table 2 below presents the key whole farm physical parameters for the North. The Q1 – Q3 range shows the band in which the middle 50% of farms for each parameter sit.

The top 25% of farms ranked on operating profit per hectare were, on average, of similar size to the average but had stocking rates, milk sales per hectare, water use per hectare and labour efficiency at levels above the Q3 value. The average proportion of metabolisable energy (ME) consumed coming from home grown feed was 56% for the top 25% of farms. This was higher than the average for the Northern group of 48% but still within the Q1 to Q3 range.

The 18 farms in the North have a much wider variability in many of their physical, and hence financial, performance indicators than in the other two regions. For example with milk solids sold per hectare (kg MS/ha); the North varied from 140 to 1400kg kg MS/ha, whereas the South West and Gippsland varied from about 410 to 960 kg MS/ha and 270 to 840 kg MS/ha respectively. For this reason, caution is highly recommended when comparing one region with another.

TABLE 2: FARM PHYSICAL DATA – NORTH

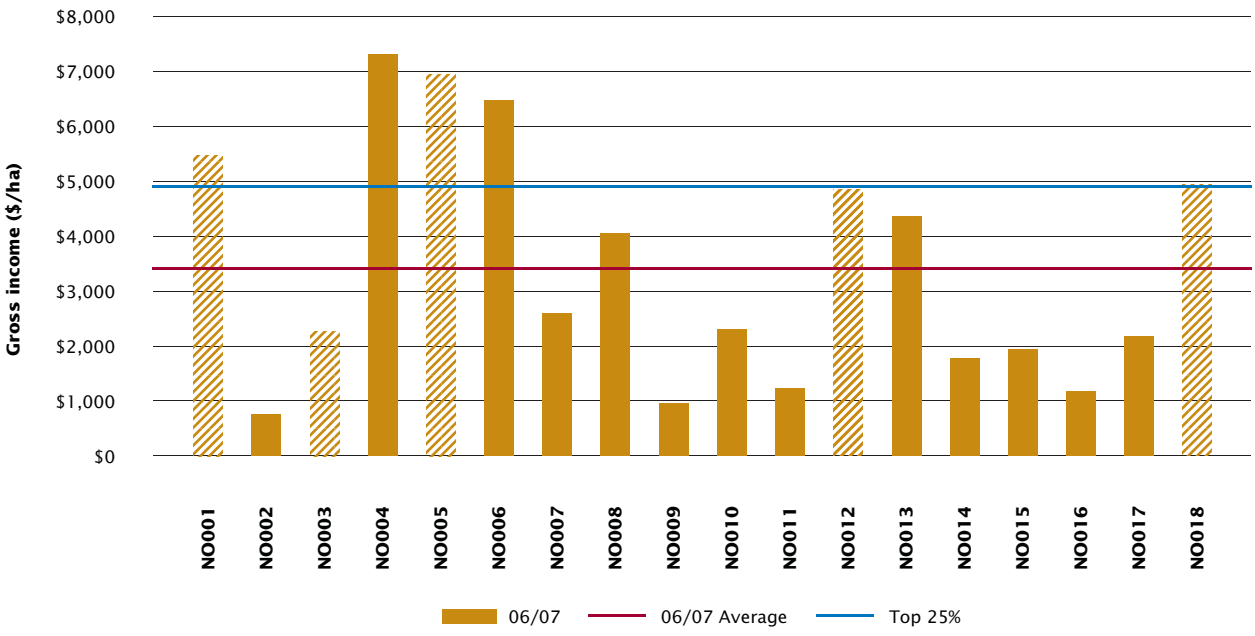
Farm physical parameters	North average	Q1 to Q3 range	Top 25% average
Annual rainfall 06/07	288	261 - 291	264
Water used (irrigation + rainfall) (mm/ha)	539	394 - 658	688
Total useable area (hectares)	336	190 - 447	340
Stocking rate (milking cows per useable hectares)	1.4	1.0 - 1.7	1.9
Milk sold (kg MS /ha)	636	357 - 827	853
Milk sold (kg MS /cow)	430	399 - 497	450
Home grown feed as % of ME consumed	48%	37% - 58%	56%
Labour efficiency (milking cows / labour unit)	80	56 - 96	116
Labour efficiency (kg MS / labour unit)	35,058	21,117 – 46,783	51,805

GROSS FARM INCOME

Gross farm income includes all farm income, whether that is income from milk sales, an increase in inventories of stock or feed or cash income from livestock trading. Figure 15 shows that the top 25% of farms had a higher gross income than the average for the North. It also shows that the top farms ranked on operating profit per hectare did not necessarily have the highest gross income per hectare. Gross income per hectare was strongly linked to stocking rate.

The group average gross income was $3,420/ha, while the top 25% achieved $4,890/ha.

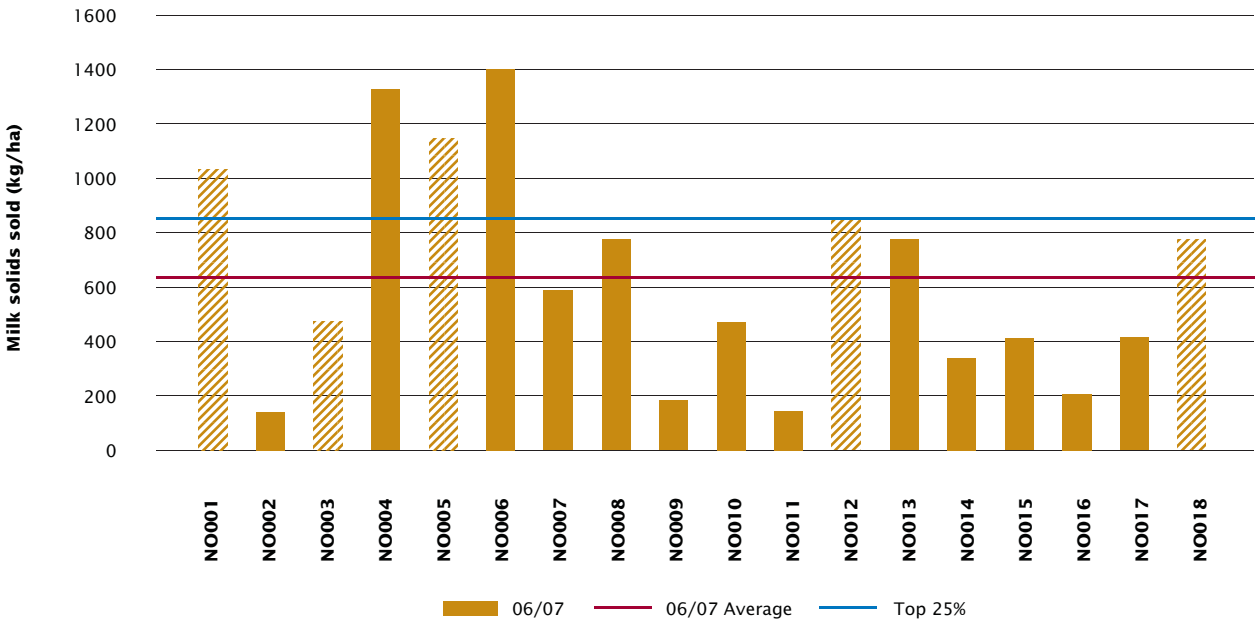
FIGURE 15: GROSS FARM INCOME PER HECTARE – NORTH



MILK SOLIDS PRODUCTION

Figures 15 and 16 show the very strong correlation between income and milk solids sold per hectare. The top 25% of farms in the North produced an average 850kg MS/ha, some 34% more than the whole of group average at 640kg MS/ha.

FIGURE 16: MILK SOLIDS SOLD PER HECTARE – NORTH



OVERHEAD COSTS

Figure 17 illustrates the overhead costs per hectare, which includes imputed labour and depreciation. There was a large range of overhead costs amongst the farms. Appendix tables A4 and A6 show that much of this variation is from the large differences in imputed labour between participants. This analysis calculates imputed labour as the greater of $400 per cow less paid labour or $15 per hour of imputed labour. For example, with one farm the per cow method produced an imputed labour cost of $44,000 while the $15 per hour method resulted in a cost of $112,000, with the greater of the two used. Imputed labour may not reflect a farm's actual drawings for the period, but does indicate the true economic cost.

FIGURE 17: WHOLE FARM OVERHEAD COSTS PER HECTARE – NORTH

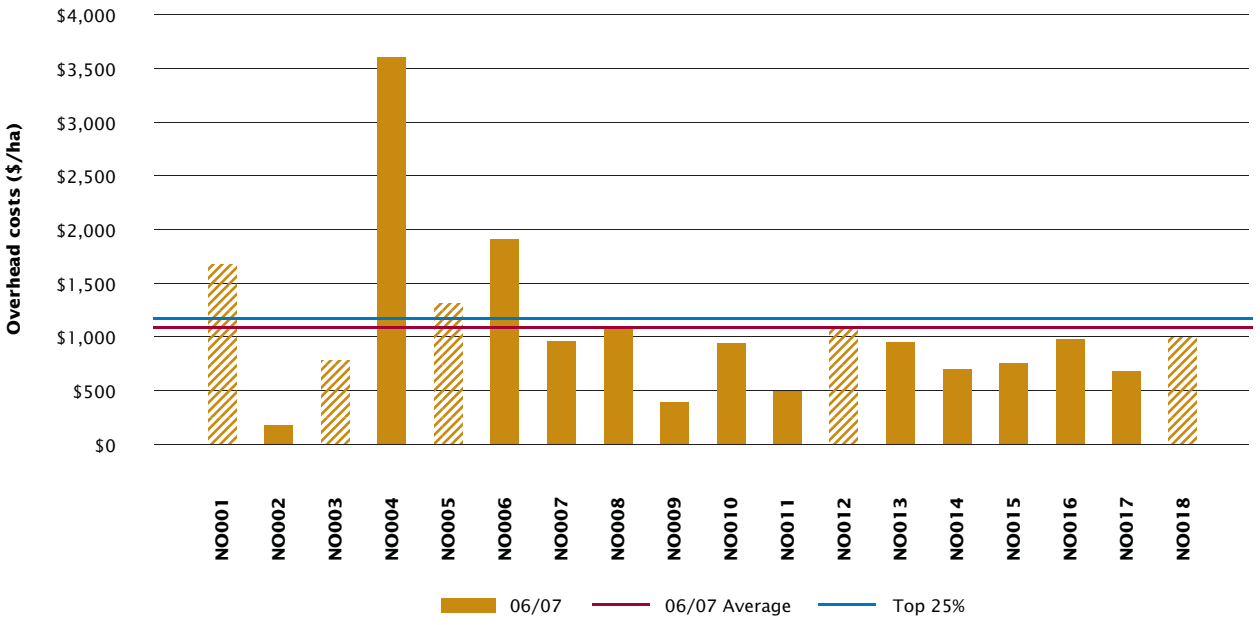


Table 3 shows that the top 25% of farms had equal or lower costs in most categories when compared to the average of the entire North. In particular the top 25% had an imputed labour cost that was lower than the Q1 value. The difference in averages for the North group and the top 25% were greatest for the imputed labour costs and purchased feed, inventory loss and agistment cost.

A break down of variable costs for the individual businesses can be seen in Appendix Table A3.

TABLE 3: COST OF PRODUCTION - NORTH

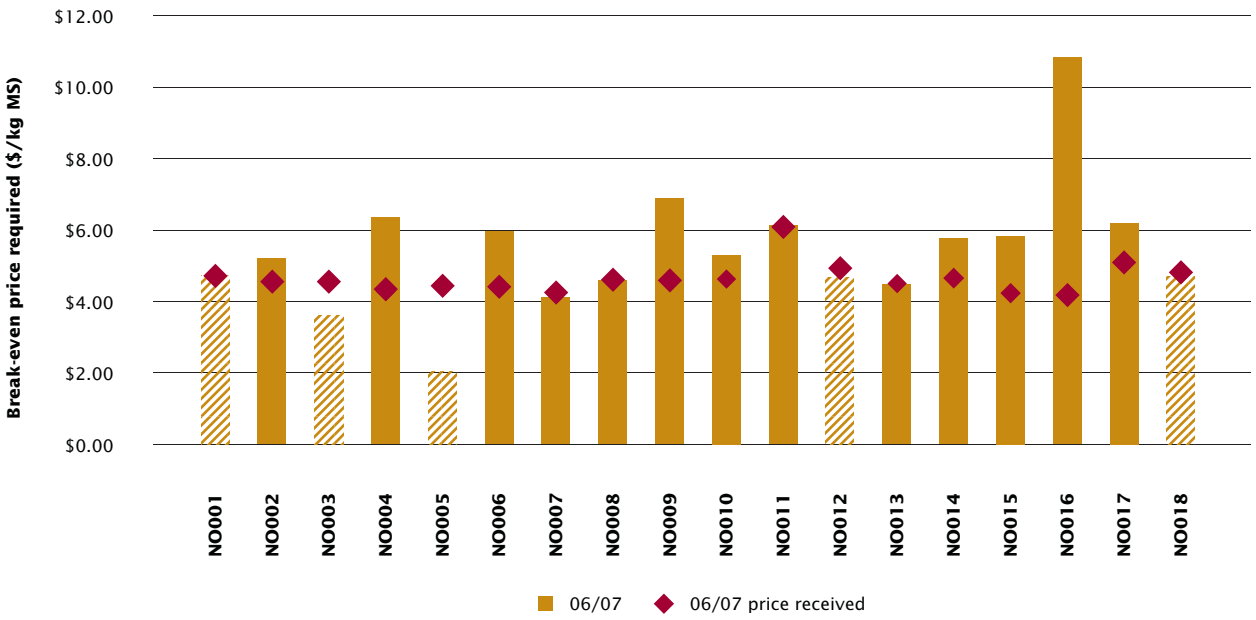
Farm costs ($/kg MS)	North average	Q1 to Q3 range	Top 25% average
VARIABLE COSTS			
Herd costs	$0.21	$0.14 - $0.27	$0.18
Shed costs	$0.17	$0.11 - $0.16	$0.11
Purchased feed, inventory loss and agistment	$2.61	$1.93 - $2.95	$2.04
Home grown feed cost	$0.99	$0.61 - $1.16	$0.86
Livestock trading loss	$0.05	$0.00 – $0.00	$0.00
Total variable costs ($/kg MS)	$4.03	$3.53 - $4.66	$3.19
OVERHEAD COSTS			
Employed labour	$0.36	$0.26 - $0.51	$0.47
Rates	$0.04	$0.03 - $0.04	$0.05
Registration and insurance	$0.02	$0.01 - $0.02	$0.01
Farm insurance	$0.05	$0.03 - $0.05	$0.02
Repairs and maintenance	$0.22	$0.10 - $0.37	$0.22
Bank charges	$0.02	$0.00 - $0.01	$0.01
Other overheads	$0.11	$0.05 - $0.10	$0.08
Depreciation	$0.20	$0.11 - $0.26	$0.14
Imputed labour	$0.91	$0.51 - $1.09	$0.42
Total overhead costs ($/kg MS)	$1.92	$1.32 - $2.06	$1.41
Total cost of production ($/kg MS)	$5.95	$5.02 - $6.36	$4.59

BREAK-EVEN PRICE REQUIRED

The break-even price required for milk is calculated as the cost of production less any livestock trading profit or increase in feed inventory. That is; the sum of variable and overhead costs, livestock trading loss and decrease in feed inventory, less any livestock trading profit or increase in feed inventory. Figure 18 shows that the break-even price required varies from $2.10 per kg MS to $10.80 per kg MS. For the North, high break-even price required tended to be the result of having high overhead costs and relatively low production to spread these cost over. Low break-even price required farms had very low feed costs as well as strong livestock trading profits and feed inventory gains, and had larger than average production levels to dilute their overhead costs. Data on feed usage for the North is presented at the end of this section.

The difference between the price received and the break-even price required is the operating profit per kilogram of milk solids.

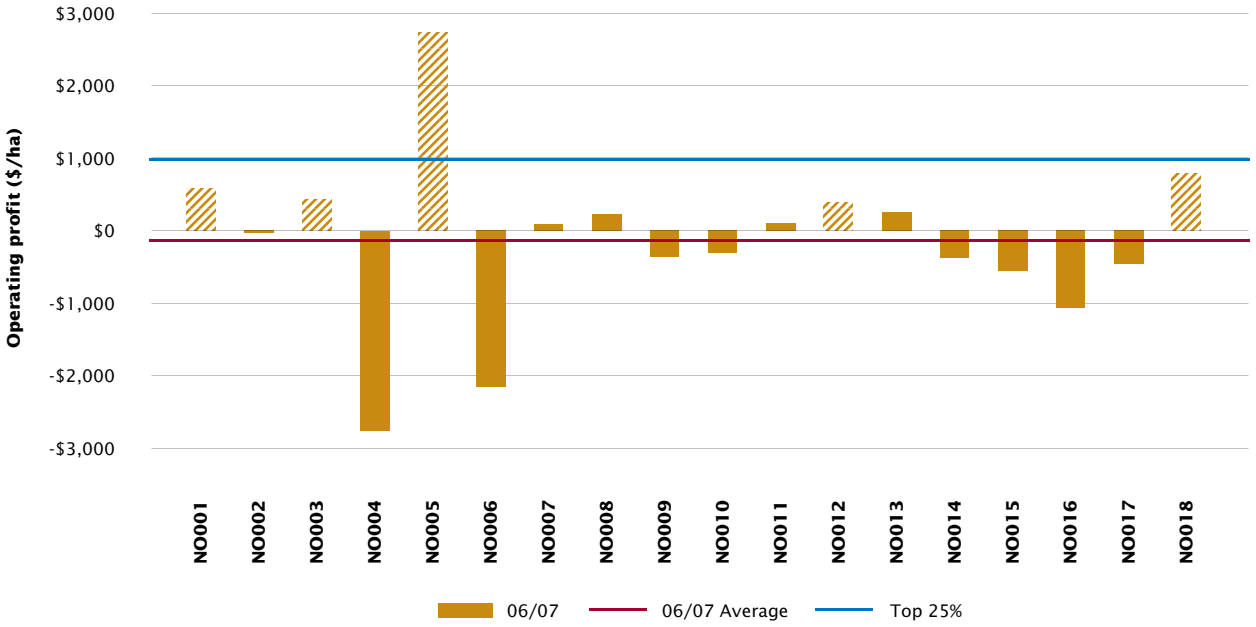
FIGURE 18: BREAK-EVEN PRICE REQUIRED PER KILOGRAM OF MILK SOLIDS SOLD – NORTH



OPERATING PROFIT

Operating profit is the gross income, less variable costs and overhead costs. Figure 19 shows that few farms from in the North made any operating profit in the 2006/07 year. The combination of low rainfall, low water allocations and high feed costs resulted in very difficult operating conditions.

FIGURE 19: WHOLE FARM OPERATING PROFIT PER HECTARE – NORTH



RETURN ON ASSETS AND EQUITY

Return on assets is the operating profit expressed as a percentage of total assets. It is an indicator of the overall earning power of total assets, irrespective of capital structure. Return on equity is the business profit expressed as a percentage of owner equity. It is a measure of the owner's rate of return on investment. Figures 20 and 21 were calculated excluding capital appreciation. For return on equity including capital appreciation refer to Appendix Table A1.

Figure 20 shows that return on assets was highly variable between farms and that only 8 farms achieved a positive return on assets while 10 of the farms had a return on assets between -5% and 5%.

FIGURE 20: RETURN ON ASSETS – NORTH

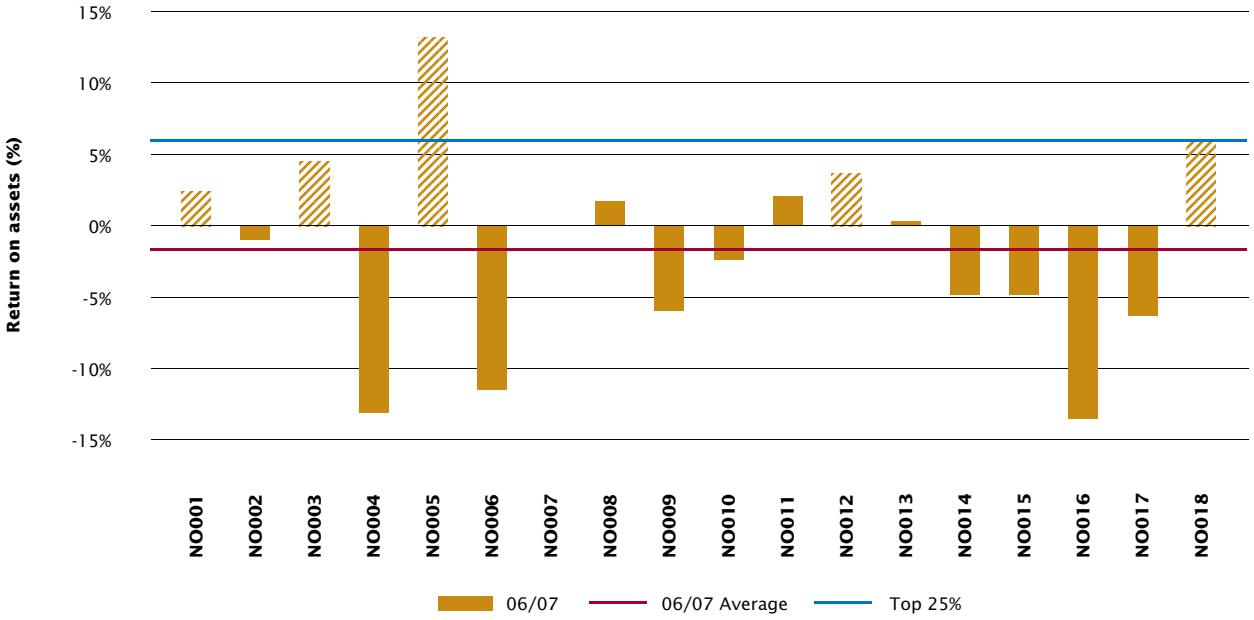
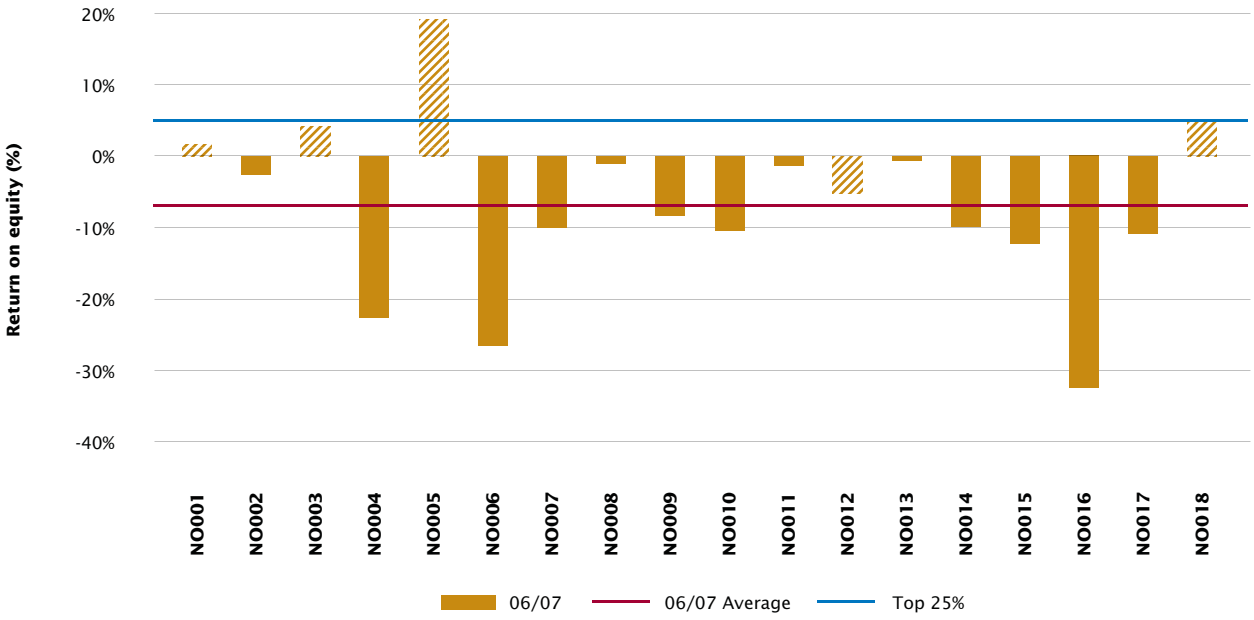


Figure 21 shows the effect of finance costs when low returns on assets are achieved. Farm NO005 is the only farm with a higher return on equity than return on assets suggesting that for all other farms the interest rate paid on borrowings was greater than their percentage returns on assets. Only 4 farms achieved a positive return on equity compared to the 8 farms that achieved a positive return on assets.

FIGURE 21: RETURN ON EQUITY – NORTH



FEED & FERTILISER

FEED CONSUMPTION

Feed data was collected on a whole farm basis, as determining which feeds went to which class of stock would have made the data collection process too difficult on many farms. Figure 22 shows the relative contribution of each feed type to the ME consumption on the farm. For two thirds of the farms surveyed in the North, grazed pasture contributed less than half of the ME consumed on farm.

FIGURE 22: SOURCES OF WHOLE FARM METABOLISABLE ENERGY – NORTH

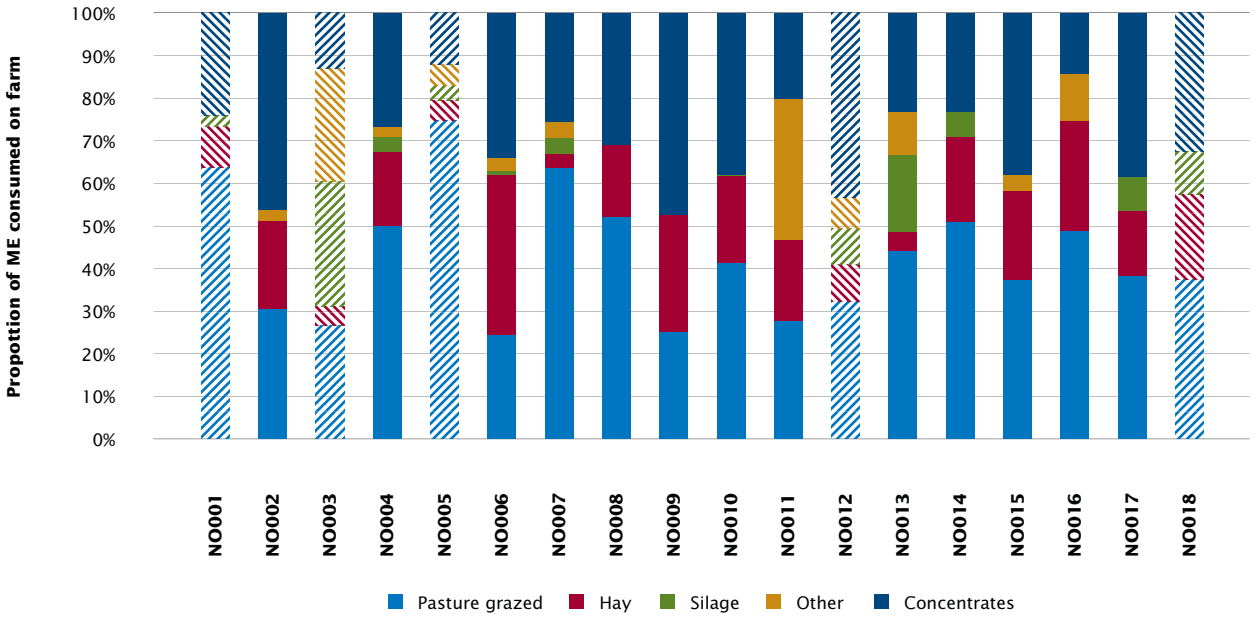
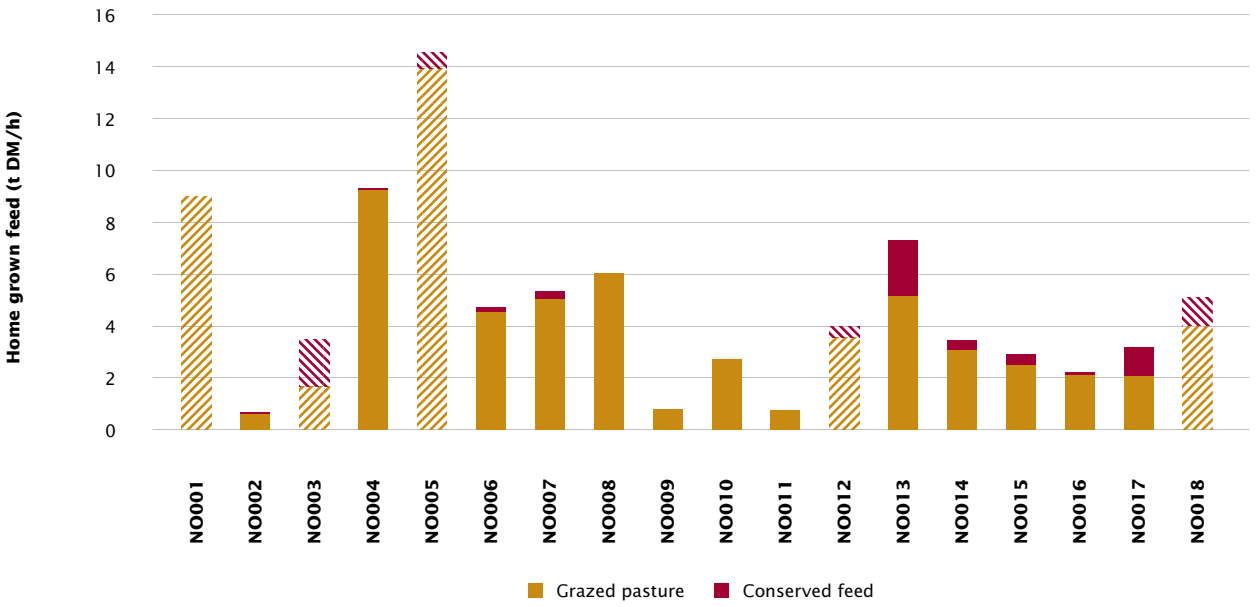


Figure 23 shows the estimated home grown feed production per hectare for farms in the North. The range is very large, from less than 1t/ha to over 14t/ha. Grazed pasture consumption is estimated by using a back calculation method. There can be a number of sources of error in this method including incorrect estimation of liveweight, amounts of fodder and concentrates fed, energy content of fodder and concentrate, energy content of pasture, wastage of feed and associative effects of feeds. Comparing pasture consumption estimated using the back calculation method between farms can lead to incorrect conclusions due to errors in each farm's estimate and it is best to compare pasture consumption on the same farm over time using the same method of estimation. More details on how pasture consumption was calculated can be found in Appendix E.

FIGURE 23: ESTIMATED TONNES OF HOME GROWN FEED PRODUCED PER HECTARE – NORTH



FERTILISER APPLICATION

Figures 23 and 24 show a relationship between fertiliser application during 2006/07 and estimated pasture growth, with most farms that had higher rates of fertiliser application having higher pasture growth and visa versa.

FIGURE 24: FERTILISER APPLICATION PER HECTARE - NORTH