

*The Financial Performance of the Dairy
Industry in Six Regions of NSW 1991 to 1997*

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Table of Contents

	Page
List of Tables	(v)
List of Figures	(v)
List of Appendixes	(v)
Acknowledgments	(vi)
Executive Summary	1
1. Introduction	2
1.1 Regions	2
2. Methodology	3
2.1 Physical and income kpi's	3
2.2 Cost and financial performance kpi's	3
2.3 Balance sheet kpi's	3
2.4 Cents per litre kpi's	4
2.5 Graphical comparison and discussion of selected kpi's	4
2.6 Selection of Regions	4
2.7 Data source and Manipulation of Data	5
2.8 ABARE sample selection, weighting and sample accuracy	5
2.9 Imputed Labour Costs	6
2.10 How representative are the farms?	7
2.11 Limitations in use of historical financial data to indicate future trends	7
3. Results	9
3.1 Regional highlights	9
3.1.1 North Coast to Kempsey Shire	14
3.1.2 Taree and Lower Hunter Region	14
3.1.3 Metropolitan Gosford to Wollongong	15
3.1.4 South Coast below Wollongong.	15
3.1.5 Riverina (Deniliquin & Finley area)	16
3.1.6 Other Inland Area	16
3.2 Graphical comparisons and discussions of kpi's	18
3.2.1 Average costs cents per litre of milk NSW 1991-92 to 1996-97	18
3.2.2 Average regional costs of production 1991-92 to 1996-97	19
3.2.3 Average regional feed costs	20
3.2.4 Comparison of Return on Assets	21
3.2.5 Earnings Before Interest and Tax (EBIT)	22
3.2.6 Reinvestment in the Dairy	23
3.2.7 Asset Turnover	24
3.2.8 Diversification of Income	24
3.2.9 Debt Levels	25

3.2.10 Equity % Levels	26
4. Other Observations	27
5. Interstate Comparisons	28
6. Conclusions	31

List of Tables

1.1 Regions selected for financial comparisons	2
2.1 Farms surveyed by ABARE in each NSW region 1991-92 to 1996-97	5
2.2 Differences in DRDC standard terminology and the format supplied by ABARE	6
3.1 Regional physical and income kpi's 1991-92 to 1996-97	10
3.2 Regional cost and financial kpi's 1991-92 to 1996-97	11
3.3 Regional balance sheet kpi's 1991-92 to 1996-97	12
3.4 Regional cost per litre kpi's 1991-92 to 1996-97	13
5 Comparison of interstate costings of milk	28

List of Figures

3.2.1 Average costs cents per litre of milk NSW 1991-92 to 1996-97	18
3.2.2 Average NSW regional costs of production, 1991-92 to 1996-97	19
3.2.3 Average NSW regional feed costs cents per litre, 1991-92 to 1996-97	20
3.2.4 Return on total assets by NSW region, 1991-92 to 1996-97	21
3.2.5 Earnings before interest and tax (EBIT) by NSW region, 1991-92 to 1996-97	22
3.2.6 Average re-investment by NSW region for land, plant and buildings 1991-92 to 1996-97	23
3.2.7 Average asset-turnover ratio by NSW Region 1991-92 to 1996-97	24
3.2.8 Non-dairy income as a proportion of total income by NSW region 1991-92 to 1996-97	24
3.2.9 Debt levels by NSW region, 1991-92 to 1996-97	25
3.2.10 Trends in equity % levels by NSW region, 1991-92 to 1996-97	26

List of Appendices

1 Key performance indicators for NSW Dairy regions 1991-92 to 1996-97	32
2 Methodology used to manipulate data to match the dairy research and development	34

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- 3 Comparison of milk production and acceptance figures as produced from ABARE results and from NSW Dairy Corporation figures. 40

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The Financial Performance of the Dairy Industry in Six Regions of NSW 1991 to 1997

Executive summary

Data was analysed on NSW regional dairy farm financial performance for the period 1991-92 to 1996-97. It clearly showed that three regions, the Riverina, the South Coast and the other inland areas had superior financial performance figures compared to the Metropolitan, Mid- North Coast and Farm North Coast areas. Regions with superior financial performance generally produced more milk and had lower overhead costs and variable costs on a cents per litre basis. The results indicate that there is likely to be a trend to greater proportion of the total production coming from areas where financial performance is greatest. This view is supported by the evidence that these areas have also been the areas where there has been the greatest re-investment taking place.

However, regional trends will not be influenced by overall financial performance alone. Factors such as opportunities for alternative land uses, access to manufacturers, water availability and the demand for rural land are all factors that will also influence regional trends into or out of dairy production.

1. Introduction

The NSW Dairy Industry is about to enter another phase of deregulation which is likely to increase competition to supply the NSW liquid milk market. As a result the NSW dairy industry will experience a period of considerable adjustment. The NSW dairy industry is located in a wide range of locations and climates and milk production systems vary considerably. This report has been compiled¹ to examine how different milk producing areas in NSW have been adjusting in recent times and to gain an understanding of the likely future developments on a regional basis in the NSW dairy industry. NSW Agriculture and the dairy industry in general have a keen interest in anticipating the likely impacts of deregulation as it will assist in planning regional resource allocation and areas where welfare assistance may be most required.

The Australian Bureau of Agricultural and Resource Economics (ABARE) have been undertaking surveys of dairy farmer financial performance on a state wide basis for many years. This data was obtained for NSW dairy farms in six regions for a period 1991-92 to 1996-97. The purpose of this report is to examine regional ABARE data to identify significant differences in financial key performance indicators (kpi's). Regional comparisons were made using the following indicators:

- litres of milk produced
- proportion sold as market milk
- return on assets
- comparisons of costs on a cents per litre basis
- trends in capital investments

1.1 Regions

NSW was divided into six regions representing the major dairy producing areas of NSW, North Coast, Mid-North Coast, Metropolitan, South Coast, Riverina and Other Inland. The six regions were chosen as a compromise between the data that was available and in selecting systems that were similar in terms of location, climate and production systems. Details of regions are included in Table 1.1.

Table 1.1: Regions selected for financial comparisons.

Name	Location of Region
North coast to Kempsey	The North Coast. Coastal local government areas (LGA's) from Queensland border to Kempsey LGA
Mid North Coast and Lower Hunter	Hastings & Taree LGA's and the Lower Hunter including LGA's of Dungog, Gloucester and Maitland.
Metropolitan	The Metropolitan area from Gosford to Wollongong
South Coast	The South Coast area from Wollongong to Eden
Riverina	The Deniliquin and Finley flood irrigation areas
Other Inland	Remaining inland areas: Inverell, Tamworth, Dubbo, Upper Hunter (Singleton, Muswellbrook, Scone), Wagga, Forbes

¹ The financial assistance from the Dairy Industry Development Company (DIDCO) to purchase the data is gratefully acknowledged.

2. Methodology

Key performance indicators (kpi's) were collected for physical and financial measures. Financial measures were further categorised into profit and loss measures, balance sheet and cents per litre comparisons. Maximum, minimum and average regional figures were calculated for selected kpi's. Regional data was then compared by the maximum, minimum and average figures and it was noted which regions reported maximums or minimums for each of the six years. Regions which recorded more than one maximum or minimum figure or in some instances where a kpi has been consistently above or below average has been reported on in section 3, where results are discussed and regional comparisons are made. The kpi's chosen are described below and the actual data for these indicators are presented in Tables 3.1 to 3.4. Note that a complete set of data on regional performance in the format outlined in Appendix 2 is available from the main author.

2.1 Physical and income kpi's

Area freehold land at June 30
 Dairy herd at 30 June
 Total milk sold
 % Milk as Market Milk
 Milk yield per calver
 Calvers per labour unit
 Milk receipts - (net)
 Total non dairy income
 Total dairy income

2.2 Cost and financial performance kpi's

- Concentrates - processed feed
- Fodder - unprocessed grains
- Total feed costs
- Total dairy variable costs
- Dairy gross margin
- Total labour costs (dairy)
- Total dairy overhead costs
- Total dairy operating costs
- Earnings before interest and tax (EBIT)
- Net profit
- Return on Assets %

2.3 Balance sheet kpi's

- Closing value - land and improvements
- Closing value - owned plant and equipment
- Closing value - dairy cattle
- Total assets (Farm capital June 30)
- Farm business debt at June 30
- Farm business equity at June 30
- Farm business equity ratio

2.4 Cents per litre kpi's

- Milk receipts - ¢/ℓ (net)
- Concentrates - processed feed ¢/ℓ
- Fodder - unprocessed grains ¢/ℓ
- Total feed costs ¢/ℓ
- Total variable costs ¢/ℓ
- Gross margin ¢/ℓ
- Total labour costs (dairy) ¢/ℓ
- Total dairy overhead costs ¢/ℓ
- Total dairy operating costs ¢/ℓ
- Dairy operating profit ¢/ℓ

2.5 Graphical comparison and discussion of selected kpi's

Regional performance has been compared graphically for the following kpi's.

- Return to total assets
- Earnings before interest and tax
- Costs per litre comparisons (broad cost categories)
- Feed costs per litre
- Reinvestment in the dairy
- Average asset turnover ratio
- Non dairy income as a percentage of total income
- Debt levels
- Equity levels

2.6 Selection of Regions

In order to provide regional data for a particular year, ABARE initially specified that there must be a minimum of 10 farms surveyed in each region. ABARE provided details of number of farms surveyed in each Statistical Division, or, where requested, the number of farms surveyed in each Local Government Areas (LGA). The final choice of regions were determined by selecting areas which had similar production systems but also mostly satisfied the ABARE specified minimum number requirement. The number of properties surveyed in the selected regions from 1991-92 to 1996-97 are shown in Table 2.1.

Despite the fact that the Metropolitan area did not have any year where the minimum 10 requirement was satisfied, ABARE agreed to provide the data. Likewise data was provided for all years for the Riverina. Note, however, that as discussed in the next section, the accuracy of data with very small sample sizes can be quite unreliable.

Table 2.1: Farms surveyed by ABARE in each NSW region 1991/92 to 1996/97

Region	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
North Coast to Kempsey	18	14	14	12	12	12
Mid North Coast and Lower Hunter	13	13	12	13	12	11
Metropolitan	6	6	7	6	7	6
South Coast	18	16	15	16	17	17
Riverina	7	9	31	14	13	12
Other Inland	15	17	17	14	16	23

2.7 Data source and Manipulation of Data

Regional data was provided by ABARE in spreadsheet format. Data provided weighted means and relative standard errors for item reported on. Wherever possible ABARE figures have been adjusted to conform with standards specified by the Dairy Research and Development Corporation (DRDC)². The methodology used to derive the results is explained in full in Appendix 1. Areas where the figures do not conform exactly and areas where different terms have the same meaning are covered in Table 2.2.

2.8 ABARE sample selection, weighting and sample accuracy

ABARE choose a sample of farms that cover the range of farms known to exist from details of dairy farms provided by the Australian Bureau of Statistics and the NSW Dairy Corporation. Farms in the sample are given a weighting depending on how representative they are of the total farms. For example, a very large farm may only get a weighting of 1, where as a more typical farm which is a similar size to many of the farms in the region may have a higher weighting. Selected farms are surveyed by ABARE staff annually. Taxation returns are used as a source of information, however, cost information is further dissected from that which appears in a profit and loss account. Farms that are selected are generally surveyed for three or four years and then drop out of the sample. This means that around a third of the farms each year are new entrants into the survey. The ABARE results also give sampling errors found in brackets next to the results. The sampling errors in this report are quite high because there are only a small number of farms reported in each district. Sampling errors are expressed as percentages of the survey estimates and termed '*relative standard errors*'. To obtain the standard error from the relative standard error, multiply the relative standard error by the survey estimate and divide by 100. For example, if the total dairy income result is \$100,000 and the relative standard error is 8 per cent, the standard error of the estimate is \$8,000. There is a two in three chance that the 'census value' (the value which would have been obtained if all farms in the target population had been surveyed) is within one standard error and a nineteen in twenty chance that it is between two standard errors. In this example, there is a two in three chance that the census value is between \$92,000 and \$108,000, ($\$100,000 \pm \$8,000$) and a nineteen in twenty chance that the census value lies between \$84,000 and \$116,000 ($\$100,000 \pm \$16,000$). The lower the relative standard error, the more reliable the estimate. Note in situations where a figure such as a net profit figure may be close to zero, the relative standard error will be high. Sampling errors are only provided for selected variables in Appendix 1.

² See *DRDC Definitions & Standards for the Measurement of Australian Dairy Farm Performance* Version 1 January 1999.

Table 2.2: Differences in DRDC standard terminology and the format supplied by ABARE

Term used by DRDC³	ABARE definition or adjustment made
Gross milk income, dairy stock income	Figures provided were net of freight costs.
Inventory changes	Called Build up in Trading Stocks.
Dairy power and irrigation power costs	All electricity was included in shed costs. An adjustment has been made by assigning a rate of half a cent a litre to electricity costs in the dairy . The balance of the electricity costs has been reallocated to feed costs. The rate of half a cent per litre was decided by examining electricity costs reported by the Dairy Accounting Scheme conducted by Dairy Farmers Farm Services (now Dairy Best Business) averaged 0.43 cents per litre for all farms (74 farms) in 1996/97. Results for Bega Valley farmers in 1995/96 was 0.54 cents per litre.
Plant and machinery repairs and maintenance	Included by ABARE as a fixed (overhead) cost. Included in this analysis in other variable costs.
Fuel	Included in ABARE data as a feed cost . Included in this analysis in other variable costs.
Overhead costs	Called fixed costs.
Overhead costs excluding labour and plant & machinery costs	Called common costs . Includes telephone, accountancy, bank and legal, postage & handling, subscriptions, other administration costs, insurance, land rent paid, shire rates, repairs and maintenance to buildings.
Earning before interest and tax (EBIT)	Called Farm operating profit = Gross farm income less variable costs less overhead costs (excluding finance costs) less labour costs including an imputed wage for family members.

2.9 Imputed Labour Costs

A method of estimating the value of family labour for the dairy farm business is important when comparing farm businesses. This imputed labour cost is also useful in determining the efficiency of labour used on dairy farms. The ABARE method of determining imputed labour costs is as follows:

“Payments for owner manger and family labor may bear little relationship to the actual work input. An estimate of the labor input of the owner manger, partners and their families is calculated in work weeks and a value is imputed at the relevant Federal Pastoral Industry Award rates” (ABARE, 1998; p. 75). If an individual works more than 40 hours per week, overtime rates apply.

In a similar manner, the DRDC has prescribed a method of determining imputed labour costs as a means of measuring the opportunity cost of family labour. The method described by the DRDC is based upon the hours worked. Total family labour for the year is estimated and multiplied by the appropriate fixed labour cost figure (\$/hour) to give a Total Imputed Labour Cost.

³ See Appendix 1 for DRDC terminology and calculations used.

2.10 How representative are the farms?

It is important to ensure that ABARE figures are representative in terms of size. In order to check this Dairy Corporation figures on milk production and acceptance rates were compared to the regional results provided by ABARE. A comparison of average production figures (see appendix 3) show the ABARE estimates initially appear low, however, they are very close to median production levels. This is illustrated by the fact that in 1996/97 the NSW Dairy Corporation Dairy Statistics Handbook reports on the North Coast there were 411 (53%) out of a total of 771 farms produced less than 400,000 litres. Average production for the same area was 461,000 litres. It is estimated the North Coast median production level for 1996/97 was 390,000 litres, lower than the 508,000 litre average from the farms in the ABARE survey. Farms reported on for the Mid North Coast and Lower Hunter area appears very low for 1996/97. (See comments in regional analysis for more detail). However, a comparison with regional averages reported by the Dairy Farmers Co-operative, Dairy Accounting Scheme (now Dairy Best Business (DBB)) showed participating farm's production figures to be around 20% to 30% above the averages estimated from Corporation figures. This is to be expected because a voluntary recording scheme such as DBB is more likely to attract the larger operators. In general ABARE results were between the median and average production levels and therefore should provide useful results for regional comparisons.

2.11 Limitations in use of historical financial data to indicate future trends

It is logical to assume that those farms with a superior financial performance will be in a better position to expand because they are more likely to have the financial capacity to fund future expansion. Likewise, those areas showing poorer financial performance are likely to show grow more slowly or even contract their milk production because a higher proportion of farms are likely to cease production. However, there are a number of other factors that will must also impact on regional supply trends. Some limitations are:

- **Opportunity cost of alternative enterprises.** A decision for land to be involved in dairy production will depend on the potential returns from alternatives. Farmers will compare the likely returns of various land uses in order to evaluate if they should remain in dairying or enter dairying. If there are other attractive alternatives then less resources are likely to be put into dairying. In the 1970's and 1980's there was a trend for many coastal dairy farmers to get out of milk production because many of the farmers saw, the alternative land use of beef production as an attractive alternative. The rate of decline in dairy farmer numbers in the 1990's has been less because dairy returns relative to beef returns have been higher. The gross margin per hectare of milking area reported in recent benchmarking studies has generally been in excess of \$1,000 per hectare. Beef gross margins per hectare for the same country is unlikely to exceed \$200 per hectare. Even though capital investment and labour requirements are considerably higher in the dairy industry, for those farmers that are currently in dairy production, milk prices would need to fall considerably or beef prices would need to rise considerably for beef to be an attractive financial alternative.

In inland areas, dairy production is more likely to compete with land that is also suited to irrigated cropping or lucerne hay production. Gross margin per hectare or per megalitre of irrigation water will be important considerations. The gross margin return for alternative crops are generally less than \$1000 per hectare with the exception of cotton and sometimes lucerne hay and rice. At current returns, dairying is unlikely to penetrate into prime cotton areas but is likely to hold its own with other enterprises until the relative prices milk versus the

alternative change. If deregulation causes a significant decline in gross margin per hectare from dairying, then other alternatives are more likely to become attractive.

- **Capital costs of alternatives** Besides the gross margin figure, the capital requirements for alternative enterprises and the capital requirements for entry or continuing in dairying will be important factors. Cropping alternatives can require considerable investment in machinery and a partial budget⁴ assessing the return on capital from changing to an alternative enterprise would be recommended. Likewise, a partial budget should be considered if a new dairying enterprise is being considered and also at the stage when new capital investments are required to continue in dairying. Typical major investments would be when a new milking facility is required or if significant environmental works are required to continue in dairy production.
- **Land values and environmental factors** High land values reduce the return on capital from farming. Areas with high land values will have more limited expansion potential and there will be more temptation to sell. Expensive land is also most likely to be in areas with higher populations and environmental requirements in these areas may also add to costs. Land values are highest in the areas closest to Sydney, Newcastle and Wollongong and further expansion of dairying areas within these areas will be limited and closures, particularly, of smaller dairies is inevitable. If prospects for future capital gain from land ownership is quite high, farmers may choose to continue in dairying, even though farm profits (excluding, capital gain) may appear extremely low.
- **Influence of Quota** It is evident from the data that different regions have different proportions of milk accepted at the higher priced market milk price. In the event of deregulation, and a fall in price for market milk, those areas with higher acceptance levels will suffer more in financial performance. The areas that have the highest proportion of market milk (quota) were the Metropolitan and Mid North Coast and Lower Hunter area, the areas that have the lowest level of quota were the South Coast and the Other Inland areas. The impact of a market milk price fall will be quite severe on each of the above mentioned regions whilst the smallest impact will be on Riverina farms.
- **Other** Factors such as health, availability of labour, access to irrigation water, location of milk processors, lifestyle and preferences will all influence choice of enterprise.

In reviewing the above factors, land values and environmental factors will assist the trend to dairy moving further away from metropolitan areas. From time to time, alternative enterprises may prove to be as attractive or more attractive than dairying and relative prices of milk versus the prices paid for alternative agricultural products that can be produced from the land will dictate trends. In general, however, the stronger areas that are showing the stronger financial performance are the areas that are likely to become more important dairying areas in NSW.

⁴ For information on partial budgets see for example NSW Agriculture Home Study Program, Farm Management: Book 2 *Budgeting* ISBN 0 7305 4658 3 p20 or other farm management texts.

3. Results

3.1 Regional highlights

The key performance indicators outlined in sections 2.1 to 2.4 are included in Tables 3.1 to 3.4. regional kpi's have been examined and reported where results vary significantly from the average. The regional discussions refers to the appropriate table. The section titled "*cents per litre comparison*" in each of the regional discussions in sections 3.1.1 to 3.1.6 refers to data in Table 3.4.

Table 3.1 Regional physical and Income kpi's 1991-92 to 1996-97⁵

Year	Unit	Region 11 - North Coast to Kempsey						1996-97
		1991-92	1992-93	1993-94	1994-95	1995-96		
Area freehold land at June 30	ha	172	181	192	217	220	242	
Dairy herd at 30 June	no	156	172	192	197	191	215	
Total milk sold	ltrs	334,613	447,059	500,265	466,402	441,653	508,937	
% Milk as Market Milk	%	58%	48%	47%	47%	49%	45%	
Milk yield per calver	ltrs/calver	3,617	4,196	4,262	4,141	4,068	4,471	
Calvers per labour unit	calvers/unit	42	40	41	46	45	54	
Milk receipts - (net) (1)	\$	103,726	138,905	153,631	154,514	143,642	169,589	
Total non dairy income	\$	9,609	11,324	14,230	10,757	9,921	10,228	
Total dairy income	\$	112,855	151,758	169,372	172,879	159,034	183,155	
Region 12 - Hastings, Taree, Lower Hunter								
Area freehold land at June 30	ha	164	167	200	192	210	186	
Dairy herd at 30 June	no	117	118	105	134	173	130	
Total milk sold	ltrs	271,726	291,481	251,065	315,634	389,313	321,640	
% Milk as Market Milk	%	69%	67%	62%	66%	67%	61%	
Milk yield per calver	ltrs/calver	3,975	4,237	4,077	3,917	4,392	4,321	
Calvers per labour unit	calvers/unit	33	35	35	39	39	34	
Milk receipts - (net) (1)	\$	90,738	100,302	84,976	117,628	151,330	123,838	
Total non dairy income	\$	5,584	10,202	12,464	10,083	12,050	24,527	
Total dairy income	\$	95,662	112,330	92,166	125,675	169,274	125,877	
Region 13 - Metropolitan Gosford to Wollongong								
Area freehold land at June 30	ha	269	331	263	251	243	292	
Dairy herd at 30 June	no	215	330	252	323	338	365	
Total milk sold	ltrs	410,042	756,566	520,227	780,038	830,046	892,324	
% Milk as Market Milk	%	74%	72%	64%	66%	61%	54%	
Milk yield per calver	ltrs/calver	4,489	4,069	3,861	4,881	4,966	5,118	
Calvers per labour unit	calvers/unit	39	50	42	36	42	45	
Milk receipts - (net) (1)	\$	143,884	277,593	185,457	302,470	323,336	337,704	
Total non dairy income	\$	14,962	13,074	23,361	24,566	23,188	20,687	
Total dairy income	\$	167,251	303,328	211,366	312,696	357,399	357,835	
Region 14 - South Coast to Eden								
Area freehold land at June 30	ha	200	210	197	219	219	195	
Dairy herd at 30 June	no	204	237	208	246	268	258	
Total milk sold	ltrs	516,216	602,408	613,991	639,265	677,005	719,942	
% Milk as Market Milk	%	68%	61%	53%	55%	56%	48%	
Milk yield per calver	ltrs/calver	4,338	4,567	5,093	4,728	4,361	4,799	
Calvers per labour unit	calvers/unit	48	54	55	55	54	54	
Milk receipts - (net) (1)	\$	166,722	202,977	202,548	221,228	240,635	251,623	
Total non dairy income	\$	5,660	9,124	12,873	23,140	32,459	20,935	
Total dairy income	\$	179,503	223,306	214,767	239,231	261,595	269,382	
Region 15 - Deniliquin and Finley								
Area freehold land at June 30	ha	305	298	224	217	470	215	
Dairy herd at 30 June	no	275	274	243	271	220	292	
Total milk sold	ltrs	617,585	673,866	621,411	636,519	559,159	725,050	
% Milk as Market Milk	%	59%	56%	45%	39%	43%	39%	
Milk yield per calver	ltrs/calver	3,628	4,072	4,202	4,004	3,993	4,135	
Calvers per labour unit	calvers/unit	69	54	47	51	44	59	
Milk receipts - (net) (1)	\$	176,784	209,810	180,444	186,316	188,427	231,992	
Total non dairy income	\$	9,742	21,058	27,268	29,624	29,184	32,848	
Total dairy income	\$	193,504	230,885	195,443	207,541	199,615	246,808	
Region 16 - Remaining inland								
Area freehold land at June 30	ha	372	389	425	603	574	442	
Dairy herd at 30 June	no	208	217	254	250	263	260	
Total milk sold	ltrs	540,858	574,298	671,832	723,127	643,193	724,526	
% Milk as Market Milk	%	71%	65%	62%	64%	60%	59%	
Milk yield per calver	ltrs/calver	4,633	4,720	4,749	5,219	4,616	5,225	
Calvers per labour unit	calvers/unit	40	42	40	43	42	42	
Milk receipts - (net) (1)	\$	181,121	194,606	231,018	266,421	243,177	282,728	
Total non dairy income	\$	23,936	27,985	42,695	49,969	58,607	49,910	
Total dairy income	\$	199,983	219,994	261,955	293,298	274,598	303,766	

⁵ Full details of all regional figures are available from the author in Excel spreadsheet format.

Table 3.2 Regional cost and financial kpi's 1991-92 to 1996-97

Year	Unit	Region 11 - North Coast to Kempsey					
		1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Concentrates - processed feed	\$	21,581	31,428	41,480	33,692	35,547	34,052
Fodder - unprocessed grains	\$	11,799	13,858	11,175	22,382	16,195	8,151
Total feed costs	\$	43,291	59,704	65,882	70,601	64,732	66,358
Total <i>dairy</i> variable costs	\$	59,119	77,890	85,801	95,139	86,913	92,877
<i>Dairy</i> gross margin	\$	53,736	73,868	83,572	77,740	72,121	90,278
Total <i>dairy</i> labour costs	\$	38,649	46,665	50,062	44,965	46,735	43,315
Total <i>dairy</i> overhead costs	\$	58,047	71,482	78,590	71,776	74,794	75,750
Total <i>dairy</i> operating costs	\$	117,165	149,372	164,391	166,916	161,707	168,627
Earnings Before Interest and Tax (EBIT)	\$	-4,693	4,272	6,919	3,824	-3,182	14,431
Net Profit (<i>whole farm</i>)	\$	-9,831	-2,878	-3,402	-5,267	-14,656	-3,614
Return on Assets % (<i>whole farm</i>)	%	-0.69%	0.56%	0.74%	0.45%	-0.38%	1.47%
Region 12 - Hastings, Taree, Lower Hunter							
Concentrates - processed feed	\$	17,871	17,952	14,491	29,954	27,079	8,278
Fodder - unprocessed grains	\$	6,295	2,499	3,669	8,973	13,728	16,589
Total feed costs	\$	32,148	28,272	27,149	47,554	53,686	38,851
Total <i>dairy</i> variable costs	\$	43,263	39,991	38,225	61,609	68,972	54,354
<i>Dairy</i> gross margin	\$	52,400	72,339	53,941	64,065	100,303	71,522
Total <i>dairy</i> labour costs	\$	36,681	35,243	31,740	37,236	42,467	41,461
Total <i>dairy</i> overhead costs	\$	58,765	60,766	49,767	64,195	73,641	63,829
Total <i>dairy</i> operating costs	\$	102,027	100,758	87,992	125,804	142,612	118,183
Earnings Before Interest and Tax (EBIT)	\$	-6,765	14,561	7,665	938	27,155	14,174
Net Profit (<i>whole farm</i>)	\$	-11,955	9,093	4,234	-4,685	15,618	8,382
Return on Assets % (<i>whole farm</i>)	%	-0.88%	1.49%	0.73%	0.09%	2.44%	1.26%
Region 13 - Metropolitan Gosford to Wollongong							
Concentrates - processed feed	\$	26,113	36,778	36,535	90,816	27,485	43,284
Fodder - unprocessed grains	\$	26,274	40,651	18,497	52,386	83,658	62,990
Total feed costs	\$	59,917	92,526	65,081	165,511	130,799	124,029
Total <i>dairy</i> variable costs	\$	85,035	128,314	95,944	206,716	171,557	159,360
<i>Dairy</i> gross margin	\$	82,216	175,014	115,422	105,980	185,841	198,474
Total <i>dairy</i> labour costs	\$	43,175	70,071	53,960	87,931	80,321	85,813
Total <i>dairy</i> overhead costs	\$	72,834	133,513	94,430	147,819	137,285	135,982
Total <i>dairy</i> operating costs	\$	157,870	261,826	190,374	354,535	308,843	295,342
Earnings Before Interest and Tax (EBIT)	\$	8,113	26,067	11,935	-44,334	48,622	57,538
Net Profit (<i>whole farm</i>)	\$	-680	20,843	3,254	-50,866	40,132	51,040
Return on Assets % (<i>whole farm</i>)	%	0.17%	0.16%	0.32%	-1.26%	1.56%	0.92%
Region 14 - South Coast to Eden							
Concentrates - processed feed	\$	14,318	14,038	15,613	34,495	21,335	8,707
Fodder - unprocessed grains	\$	31,475	20,309	17,543	32,901	29,677	38,139
Total feed costs	\$	60,870	46,343	49,507	87,250	71,529	70,049
Total <i>dairy</i> variable costs	\$	81,446	72,619	73,432	114,672	100,989	100,496
<i>Dairy</i> gross margin	\$	98,058	150,687	141,334	124,559	160,606	168,886
Total <i>dairy</i> labour costs	\$	43,511	43,754	40,139	44,183	53,081	53,674
Total <i>dairy</i> overhead costs	\$	82,494	82,185	78,544	86,565	102,700	105,058
Total <i>dairy</i> operating costs	\$	163,940	154,805	151,977	201,238	203,688	205,554
Earnings Before Interest and Tax (EBIT)	\$	14,213	68,990	62,622	40,418	58,487	66,955
Net Profit (<i>whole farm</i>)	\$	-709	54,567	54,473	23,679	43,111	55,384
Return on Assets % (<i>whole farm</i>)	%	0.84%	3.49%	3.29%	2.02%	2.76%	3.25%
Region 15 - Deniliquin and Finley							
Concentrates - processed feed	\$	2,338	12,048	9,776	10,243	5,955	6,546
Fodder - unprocessed grains	\$	17,560	18,105	9,130	22,056	8,077	17,323
Total feed costs	\$	42,733	55,766	41,455	57,847	43,725	57,476
Total <i>dairy</i> variable costs	\$	76,494	97,309	74,779	94,847	79,448	99,796
<i>Dairy</i> gross margin	\$	117,010	133,577	120,664	112,695	120,167	147,012
Total <i>dairy</i> labour costs	\$	50,019	54,754	54,714	52,719	56,443	54,786
Total <i>dairy</i> overhead costs	\$	83,558	87,043	89,681	94,431	91,394	96,700
Total <i>dairy</i> operating costs	\$	160,052	184,352	164,460	189,277	170,841	196,496
Earnings Before Interest and Tax (EBIT)	\$	37,886	52,900	39,815	20,114	30,748	53,844
Net Profit (<i>whole farm</i>)	\$	8,557	25,622	20,474	-2,301	12,477	27,932
Return on Assets % (<i>whole farm</i>)	%	4.44%	5.19%	4.07%	1.91%	3.00%	4.78%
Region 16 - Remaining inland							
Concentrates - processed feed	\$	13,245	9,905	10,550	39,740	11,918	11,917
Fodder - unprocessed grains	\$	10,723	11,383	13,195	32,649	31,445	22,408
Total feed costs	\$	43,803	41,871	44,422	96,888	68,921	62,725
Total <i>dairy</i> variable costs	\$	71,738	74,309	79,327	135,450	105,267	106,234
<i>Dairy</i> gross margin	\$	128,245	145,685	182,627	157,848	169,331	197,533
Total <i>dairy</i> labour costs	\$	56,697	57,501	65,828	63,153	62,983	64,431
Total <i>dairy</i> overhead costs	\$	91,939	94,520	110,316	114,154	112,273	120,905
Total <i>dairy</i> operating costs	\$	163,677	168,829	189,643	249,604	217,540	227,139
Earnings Before Interest and Tax (EBIT)	\$	35,858	56,603	70,378	39,836	65,428	84,303
Net Profit (<i>whole farm</i>)	\$	20,056	40,801	53,926	13,415	38,044	58,228
Return on Assets % (<i>whole farm</i>)	%	3.29%	3.90%	4.67%	2.39%	3.80%	5.39%

Table 3.3 Regional balance sheet kpi's 1991-92 to 1996-97

Year	Unit	Region 11 - North Coast to Kempsey					
		1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Closing value - land and improvements	\$	497625	572166	730052	657912	652219	772288
Closing value - owned plant and equipment	\$	45824	49556	65097	62905	65483	64299
Closing value - dairy cattle	\$	87571	104972	122972	125791	125881	141836
Total assets (Farm capital June 30)	\$	681563	765498	933669	855129	846976	980726
Farm business debt at June 30	\$	22177	69116	85635	93548	97656	160371
Farm business equity at June 30	\$	651050	696382	848034	761580	756352	820355
Farm business equity ratio	%	97%	91%	91%	89%	89%	84%
Region 12 - Hastings, Taree, Lower Hunter							
Closing value - land and improvements	\$	619737	816122	796287	913846	982544	972642
Closing value - owned plant and equipment	\$	42661	41126	36415	44357	58998	45989
Closing value - dairy cattle	\$	65541	72208	67109	85513	114095	85620
Total assets (Farm capital June 30)	\$	767063	975326	1055727	1056400	1112494	1120446
Farm business debt at June 30	\$	34887	72880	26334	66448	94717	50833
Farm business equity at June 30	\$	732176	902446	896254	989952	1073764	1061390
Farm business equity ratio	%	96%	93%	97%	94%	92%	95%
Region 13 - Metropolitan Gosford to Wollongong							
Closing value - land and improvements	\$	4503186	n/a	3051888	3338812	2923524	5964779
Closing value - owned plant and equipment	\$	29789	54314	63605	70256	70278	81928
Closing value - dairy cattle	\$	120467	200974	161384	206645	222964	241106
Total assets (Farm capital June 30)	\$	4803284	n/a	3737056	3528036	3125732	6288046
Farm business debt at June 30	\$	45828	44927	74087	60733	73571	60285
Farm business equity at June 30	\$	4617380	n/a	3211625	3467302	3052161	6170960
Farm business equity ratio	%	99%	n/a	98%	98%	98%	99%
n/a = not available							
Region 14 - South Coast to Eden							
Closing value - land and improvements	\$	1472617	1594319	1494665	1747324	1756834	1792928
Closing value - owned plant and equipment	\$	60409	70026	68938	88002	96348	91036
Closing value - dairy cattle	\$	113982	144682	132966	157094	176832	170044
Total assets (Farm capital June 30)	\$	1689514	1976055	1902134	2002933	2115977	2060839
Farm business debt at June 30	\$	96340	97695	84278	143293	148409	109836
Farm business equity at June 30	\$	1613130	1718319	1624686	1859640	1890549	2042821
Farm business equity ratio	%	94%	95%	95%	93%	93%	95%
Region 15 - Deniliquin and Finley							
Closing value - land and improvements	\$	618148	756277	692433	762874	796516	868419
Closing value - owned plant and equipment	\$	67846	79959	87816	102180	96426	100640
Closing value - dairy cattle	\$	154143	166851	155513	173504	145312	192715
Total assets (Farm capital June 30)	\$	852392	1018959	977523	1055650	1023551	1125762
Farm business debt at June 30	\$	177619	198600	185096	217179	206986	226834
Farm business equity at June 30	\$	674773	820359	792427	838471	816565	898928
Farm business equity ratio	%	79%	81%	81%	79%	80%	80%
Region 16 - Remaining inland							
Closing value - land and improvements	\$	1226910	1318570	1484684	1575046	1396507	1273342
Closing value - owned plant and equipment	\$	73644	81639	112981	124818	111593	103622
Closing value - dairy cattle	\$	116172	132040	162762	159886	173325	171331
Total assets (Farm capital June 30)	\$	1091492	1451366	1508000	1669651	1721526	1565225
Farm business debt at June 30	\$	111478	107505	151758	240785	231544	244407
Farm business equity at June 30	\$	1334226	1447185	1494133	1428865	1512441	1229450
Farm business equity ratio	%	92%	93%	91%	86%	87%	83%

Table 3.4 Regional cost per litre kpi's 1991-92 to 1996-97

Year	Unit	Region 11 - North Coast to Kempsey					
		1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Milk receipts - (net) (1)	¢/l	31.00	31.07	30.71	33.13	32.52	33.32
Concentrates - processed feed	¢/l	6.45	7.03	8.29	7.22	8.05	6.69
Fodder - unprocessed grains	¢/l	3.53	3.10	2.23	4.80	3.67	1.60
Total feed costs	¢/l	12.94	13.35	13.17	15.14	14.66	13.04
Total variable costs	¢/l	17.67	17.42	17.15	20.40	19.68	18.25
GROSS MARGIN	¢/l	16.06	16.52	16.71	16.67	16.33	17.74
Total labour costs (dairy)	¢/l	11.55	10.44	10.01	9.64	10.58	8.51
Total dairy overhead costs	¢/l	17.35	15.99	15.71	15.39	16.93	14.88
Total dairy operating costs	¢/l	35.02	33.41	32.86	35.79	36.61	33.13
Dairy operating profit	¢/l	-1.29	0.53	1.00	1.28	-0.61	2.85
Region 12 - Hastings, Taree, Lower Hunter							
Milk receipts - (net) (1)	¢/l	33.39	34.41	33.85	37.27	38.87	38.50
Concentrates - processed feed	¢/l	6.58	6.16	5.77	9.49	6.96	2.57
Fodder - unprocessed grains	¢/l	2.32	0.86	1.46	2.84	3.53	5.16
Total feed costs	¢/l	11.83	9.70	10.81	15.07	13.79	12.08
Total variable costs	¢/l	15.92	13.72	15.23	19.52	17.72	16.90
GROSS MARGIN	¢/l	19.28	24.82	21.48	20.30	25.76	22.24
Total labour costs (dairy)	¢/l	13.50	12.09	12.64	11.80	10.91	12.89
Total dairy overhead costs	¢/l	21.63	20.85	19.82	20.34	18.92	19.84
Total dairy operating costs	¢/l	37.55	34.57	35.05	39.86	36.63	36.74
Dairy operating profit	¢/l	-2.34	3.97	1.66	-0.04	6.85	2.39
Region 13 - Metropolitan Gosford to Wollongong							
Milk receipts - (net) (1)	¢/l	35.09	36.69	35.65	38.78	38.95	37.85
Concentrates - processed feed	¢/l	6.37	4.86	7.02	11.64	3.31	4.85
Fodder - unprocessed grains	¢/l	6.41	5.37	3.56	6.72	10.08	7.06
Total feed costs	¢/l	14.61	12.23	12.51	21.22	15.76	13.90
Total variable costs	¢/l	20.74	16.96	18.44	26.50	20.67	17.86
GROSS MARGIN	¢/l	20.05	23.13	22.19	13.59	22.39	22.24
Total labour costs (dairy)	¢/l	10.53	9.26	10.37	11.27	9.68	9.62
Total dairy overhead costs	¢/l	17.76	17.65	18.15	18.95	16.54	15.24
Total dairy operating costs	¢/l	38.50	34.61	36.59	45.45	37.21	33.10
Dairy operating profit	¢/l	2.29	5.49	4.04	-5.36	5.85	7.00
Region 14 - South Coast to Eden							
Milk receipts - (net) (1)	¢/l	32.30	33.69	32.99	34.61	35.54	34.95
Concentrates - processed feed	¢/l	2.77	2.33	2.54	5.40	3.15	1.21
Fodder - unprocessed grains	¢/l	6.10	3.37	2.86	5.15	4.38	5.30
Total feed costs	¢/l	11.79	7.69	8.06	13.65	10.57	9.73
Total variable costs	¢/l	15.78	12.05	11.96	17.94	14.92	13.96
GROSS MARGIN	¢/l	19.00	25.01	23.02	19.48	23.72	23.46
Total labour costs (dairy)	¢/l	8.43	7.26	6.54	6.91	7.84	7.46
Total dairy overhead costs	¢/l	15.98	13.64	12.79	13.54	15.17	14.59
Total dairy operating costs	¢/l	31.76	25.70	24.75	31.48	30.09	28.55
Dairy operating profit	¢/l	3.01	11.37	10.23	5.94	8.55	8.87
Region 15 - Deniliquin and Finley							
Milk receipts - (net) (1)	¢/l	28.62	31.14	29.04	29.27	33.70	32.00
Concentrates - processed feed	¢/l	0.38	1.79	1.57	1.61	1.07	0.90
Fodder - unprocessed grains	¢/l	2.84	2.69	1.47	3.47	1.44	2.39
Total feed costs	¢/l	6.92	8.28	6.67	9.09	7.82	7.93
Total variable costs	¢/l	12.39	14.44	12.03	14.90	14.21	13.76
GROSS MARGIN	¢/l	18.95	19.82	19.42	17.70	21.49	20.28
Total labour costs (dairy)	¢/l	8.10	8.13	8.80	8.28	10.09	7.56
Total dairy overhead costs	¢/l	13.53	12.92	14.43	14.84	16.34	13.34
Total dairy operating costs	¢/l	25.92	27.36	26.47	29.74	30.55	27.10
Dairy operating profit	¢/l	5.42	6.91	4.99	2.87	5.15	6.94
Region 16 - Remaining inland							
Milk receipts - (net) (1)	¢/l	33.49	33.89	34.39	36.84	37.81	39.02
Concentrates - processed feed	¢/l	2.45	1.72	1.57	5.50	1.85	1.64
Fodder - unprocessed grains	¢/l	1.98	1.98	1.96	4.51	4.89	3.09
Total feed costs	¢/l	8.10	7.29	6.61	13.40	10.72	8.66
Total variable costs	¢/l	13.26	12.94	11.81	18.73	16.37	14.66
GROSS MARGIN	¢/l	23.71	25.37	27.18	21.83	26.33	27.26
Total labour costs (dairy)	¢/l	10.48	10.01	9.80	8.73	9.79	8.89
Total dairy overhead costs	¢/l	17.00	16.46	16.42	15.79	17.46	16.69
Total dairy operating costs	¢/l	30.26	29.40	28.23	34.52	33.82	31.35
Dairy operating profit	¢/l	6.71	8.91	10.76	6.04	8.87	10.58

3.1.1 North Coast to Kempsey Shire

The ABARE results indicates North Coast farms are below the NSW average in terms of area and milk production. (Table 3.1) But they are not as small as the Taree and Lower Hunter farms. Gross margin income ranged from \$30,000 to \$50,000 below average. (Table 3.2)

Net profit (farm business profit) has been negative for the six years and was lowest in four of the six years. (Table 3.2)

Asset values were the lowest of all regions. (Table 3.3) Farm debts show an increasing trend and corresponding equity declined from 97% to 84%. (Table 3.3) However, it would appear the sample chosen in 1996/97 were larger farms which would also be likely to be able to carry higher levels of debt.

Cents per litre comparison (Table 3.4)

Total variable costs cents per litre were higher than average and ranged from .5 to 3 cents a litre above average. Feed costs, in particular, the concentrates - processed feed category, was highest in four out of the six years while purchases of unprocessed grains was mainly below average. It was interesting to compare feed costs to the South Coast region where access to grain is from a similar distance. The South Coast had considerably lower processed feed costs per litre, but higher unprocessed grain costs. The resultant total feed costs per litre were considerably lower. Gross margin per litre was the lowest in five of the six years.

3.1.2 Taree and Lower Hunter Region

These farms were the smallest in terms of area, cow numbers and milk production. (Table 3.1) Litres sold per labour unit were lowest in all years and calvers per labour unit were lowest in five of the six years. (Table 3.1) This demonstrates that there is a significant number of small farms which may be at risk from further price pressures. Total income per farm and milk income per farm were the lowest in five of the six years. (Table 3.1 - sum of non dairy and dairy income). Total variable costs were the lowest as was the total farm gross margin. (Table 3.2) Total dairy fixed costs were the lowest of all regions as were the total operating costs. (Table 3.2)

Net profit (farm business profit) was generally higher than for the North Coast area but still significantly below the average across all areas. (Table 3.2)

The value of land and improvements was higher than the North Coast Region despite the smaller properties. This would imply that land in these areas is relatively expensive because of proximity to Sydney and Newcastle. High land values make it more difficult for the remaining dairy farmers to finance additional land purchases. Increases in land values has been the main reason for an improvement in equity and the reason why equity % has remained static at around 95%. (Table 3.3)

Cents per litre comparison (Table 3.4)

Total variable costs per litre were slightly higher than average on 4 out of six occasions. As with the North Coast, concentrate and processed feed costs per litre were relatively high while grain purchase costs per litre were lower than average. The exception was 1996/97 where grain purchases increased

considerably and the concentrate/processed feed costs per litre declined. Gross margins per litre were about average, however, fixed costs per litre were the highest because total labour costs per litre (included imputed family labour) were the highest of any region. Net profit per litre was below average in 5 out of 6 years (range -4 cents to +0.6 cents).

3.1.3 Metropolitan Gosford to Wollongong

Because of sample sizes of only 6 or 7 farms, results are unreliable. As would be expected year to year results show quite a bit of variation as the sample of farms changes. Results showed that these farms are high production farms. Total milk production per farm averaged the highest of all regions in 4 out of the 6 years. (Table 3.1) The farms also have the largest feed costs due to purchasing the largest amount of unprocessed grains in 5 of the 6 years. (Table 3.2) The farms are also a high users of concentrate and processed feeds with feed costs generally \$10,000 to \$20,000 above average. As a consequence of the high feed costs, variable costs were also the highest. (Table 3.2) Shire rates were the highest of all areas. (this figure is not reported separately it is part of the overhead costs).

Profit measures fluctuated widely as these dairies are more exposed to the feed price variations. (Table 3.2)

Land values are easily the highest but are not reported further because of the problem of sample size and the resultant considerable variations in reported asset values. (Table 3.3)

Due to the high land values equity was the highest of all regions and equity percentage was also the highest. (Table 3.3)

Cents per litre comparison (Table 3.4)

Net milk receipts per litre was on average 2 to 3 cents per litre higher than average due mainly to a lower freight component and the high proportion of market milk. Variable costs per litre were also the highest and 4 to 7 cents above average, due primarily to the highest grain costs per litre in all years and the highest total feed costs per litre in 4 of the 6 years. Total variable costs were the highest in 5 of the 6 years. The resultant gross margins were generally about average excepting 1994/95 (a year of high grain prices) where the gross margin at 14.74 cents was the lowest of any region. Common costs⁶ were amongst the highest with the contribution of shire rates being a significant factor. Operating costs (variable plus fixed costs) per litre are the highest in 5 of the 6 years. Net profit (farm business profit) varies considerably and was higher than average in three years and lower than average in the other three years.

3.1.4 South Coast below Wollongong.

This area has less hectares than average (Table 3.1) but litres produced per hectare⁷ were the highest in 4 of the 6 years. Farms had the highest litres sold per labour unit in the last five years. Milk receipts are \$10,000 to \$25,000 above average. (table 3.1) Purchased grain costs are above average but the use of concentrates - processed feeds per farm are less than average. (Table 3.2)

⁶ Common costs are part of overhead costs and are not reported separately here.

⁷ Not reported separately in Tables.

Net profit (farm business profit) was highest in 4 out of the 6 years. (Table 3.2)

Cents per litre comparison (Table 3.4)

Total feed costs per litre ranged from 7.69 cents per litre to 13.65 cents per litre and gross margin was generally above the average for all regions. Labour costs were the lowest per litre in the last five years and fixed costs were the lowest in four of the six years. Total dairy operating profit per litre is generally well above average and the average for all years is the second highest with the other inland area being the highest. Above average performance in operating profit is one reason for the relatively large increase in production from this region.

3.1.5 Riverina (Deniliquin & Finley area)

This region has the lowest proportion of market milk and the highest per farm sales of manufacturing milk in five of the 6 years with manufacturing milk sales around 100,000 litres above average. Milk production per calver is below average however litres of milk per labour unit and calvers per labour unit are above average. Milk receipts are around average but non-dairy income is above average indicating more diversification than most regions. (Table 3.1) Total variable costs were generally lower and gross margins were above average. Net profit has been close to average in most years but \$5,000 lower in 1996-97. (Table 3.2)

Land values are around 50% of the average of all regions and equity is close to 50% of the overall average. Shire rates were lowest of any area. Debts reported for the region are higher than average, meaning that equity has hovered at around 80% for the whole period, the lowest of any of the regions. (table 3.3) This may be due to the area being a relatively new dairying region and new entrants starting from scratch are likely to incur higher debts than those farms in established areas.

Cents per litre comparison (Table 3.4)

Total variable costs per litre have been the lowest in 5 of the 6 years due mostly to the lowest feed costs (in 4 of the 6 years). Below average grain costs per litre may in part be due to use of grain produced on farm. Total fixed costs per litre was lower than average and the lowest in two of the six years partly due to the relatively low common costs. Total dairy operating costs were the lowest in three years with the South Coast being lower in the remaining three years. The average capital invested per litre produced is the lowest of all areas and would indicate in combination with the relatively low costs would be one area in NSW where further expansion would seriously be considered.

3.1.6 Other Inland Area

These properties average the largest in terms of property size, but this is partly due to other enterprises operating as well as the dairy. Milk produced is above average (50,000 to 100,000 litres above average) and non farm income is well above average (\$20,000 to \$30,000) in the last 3 years. (Table 3.1)

Gross margin per farm was highest in 4 of the 6 years but is partly due to non-dairy enterprises. Machinery costs⁸ are the highest in the last 4 years. The region had the highest Earnings Before Interest

⁸ Not reported separately in tables and is a part of overhead costs.

and Tax (EBIT) (farm operating profit) in five of the six years but due to high interest and lease payments (the highest for the last three years) net profit (farm business profit) was closer to average but still well above and the highest in two of the six years. (Table 3.2)

Investment in machinery is the highest of any region, however, land values are less than most regions meaning that average capital is close to the average across all regions. (Table 3.3) This is another region where due to the relatively high EBIT and average capital investment that one would expect a higher portion of the state production to come from these areas in the future.

Cents per litre comparison (Table 3.4)

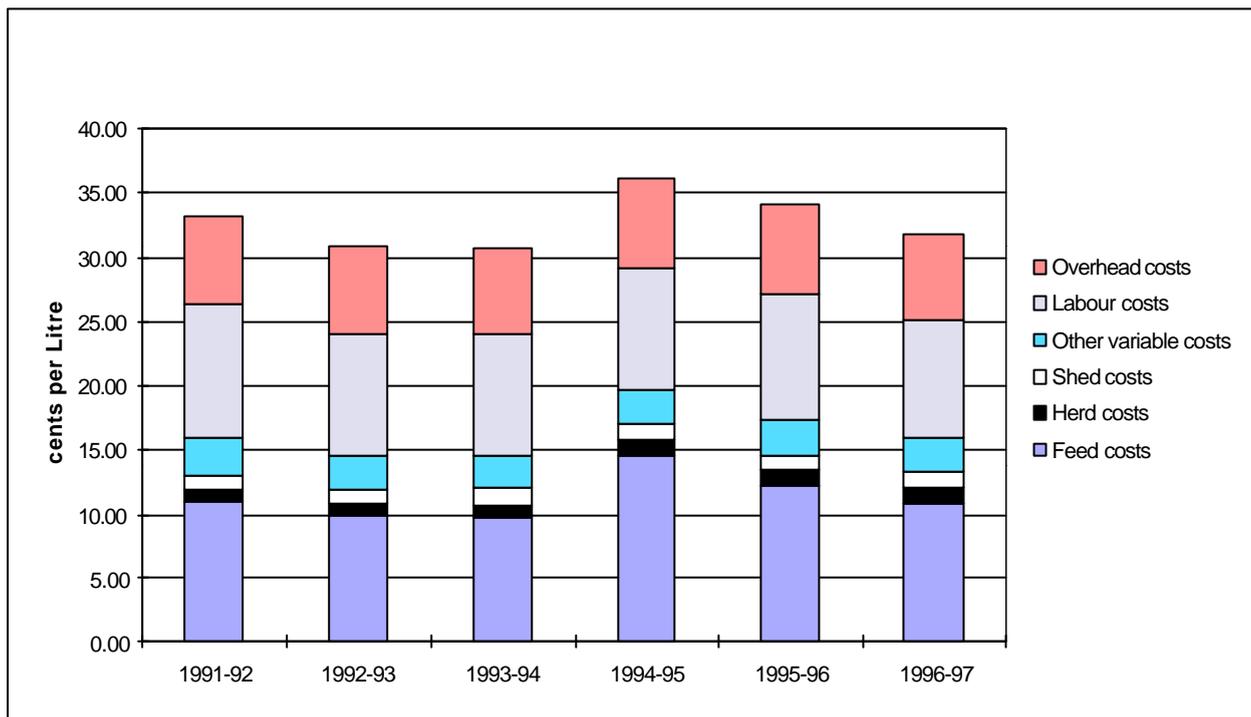
Net milk income per litre was close to the highest and in 1996/97 three cents above average. This is due in part to higher than average acceptance rates. Total variable costs were below average but not generally as low as the Riverina area making the gross margin per litre the highest of any of the areas for the entire six years. Dairy overhead costs per litre are generally slightly above average whilst Dairy operating costs are below average but higher than the Riverina area.

3.2 Graphical comparisons and discussions of kpi's

3.2.1 Average costs cents per litre of milk NSW 1991-92 to 1996-97

The most important costs on a cents per litre basis are feed costs and labour costs, including an allowance for family labour. Feed costs were very high in the drought year of 1994-95 (Figure 4.3)⁹ Total dairy operating costs across all regions varied from 33.2 cents per litre in 1992-93 to 40.4 cents per litre in 1994-95.

Figure 3.2.1: Average costs cents per litre of milk: NSW 1991-92 to 1996-97

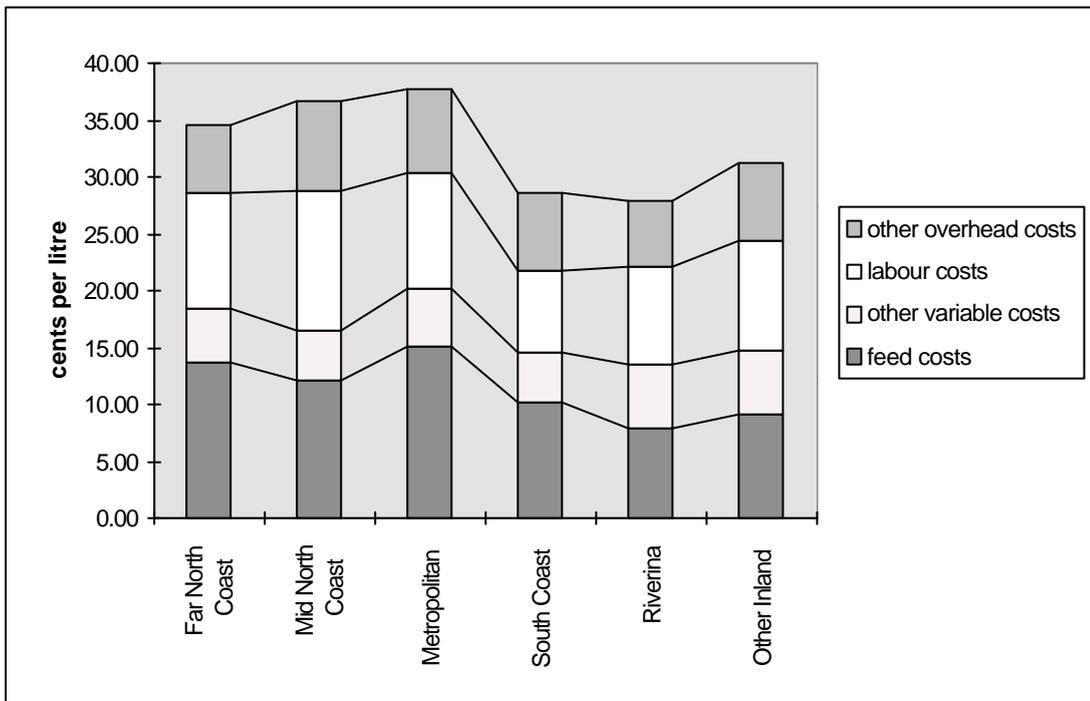


⁹ Data for this Figure 3 are based on averages of the regional averages. They do not use any weighting to adjust for differing farm numbers in each region and is thus only an approximation. Data also varies from the source of the NSW figures referred to in Table 2.5. Costs in this table included non dairy costs in per litre estimates.

3.2.2 Average regional costs of production 1991-92 to 1996-97

Costs of production were categorised into feed costs, other variable costs (including herd costs and shed costs), labour costs and other overhead costs and regional averages were calculated for the years 1991-92 to 1996-97. The average cost regions were generally the South Coast and Riverina area. The South Coast had relatively low labour costs whilst the Riverina generally had the lowest feed costs. The Riverina, farmers however, are generally more seasonal in their production patterns and would therefore more closely match pasture supply and demand. The next lowest cost area was the other inland area, followed by the North Coast. The most expensive areas were generally the Mid North Coast and the Metropolitan area. The Mid North Coast labour costs were higher due to lower milk produced per labour unit. Feed costs are highest per litre in the metropolitan region and is the major reason why costs in this region are the highest overall.

Figure 3.2.2 Average NSW regional costs of production, 1991-92 to 1996-97

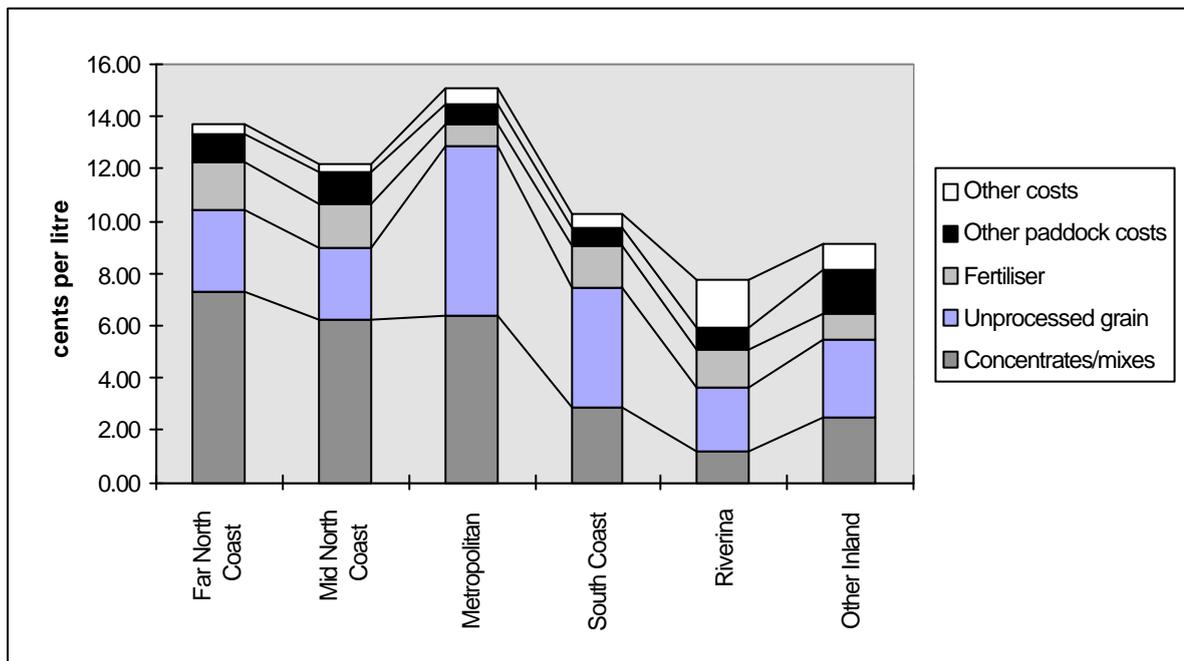


3.2.3 Average regional feed costs

Components of feed costs are examined separately because figure 3.2.4 shows that feed costs are the most significant costs and there is also considerable variation between regions. Components of feed costs included, purchased concentrate feed and mixes, unprocessed grains, fertiliser, other paddock costs¹⁰, and other costs¹¹. Figure 3 clearly shows that concentrates and mixes make up a large component of feed costs in the Far North Coast, Mid North Coast and metropolitan area.

Unprocessed grain costs are highest in the Metropolitan area and the South Coast area. The Riverina in comparison has relatively purchased feed costs and to make it the lowest feed cost area on a cent per litre basis of any of the areas during the survey period. Feed Costs for the South Coast, Riverina and the Other Inland area are considerably below the costs for the other three areas and is one of the main reasons why profit figures are superior in these regions.

Figure 3.2.3 Average NSW regional feed costs cents per litre, 1991-92 to 1996-97



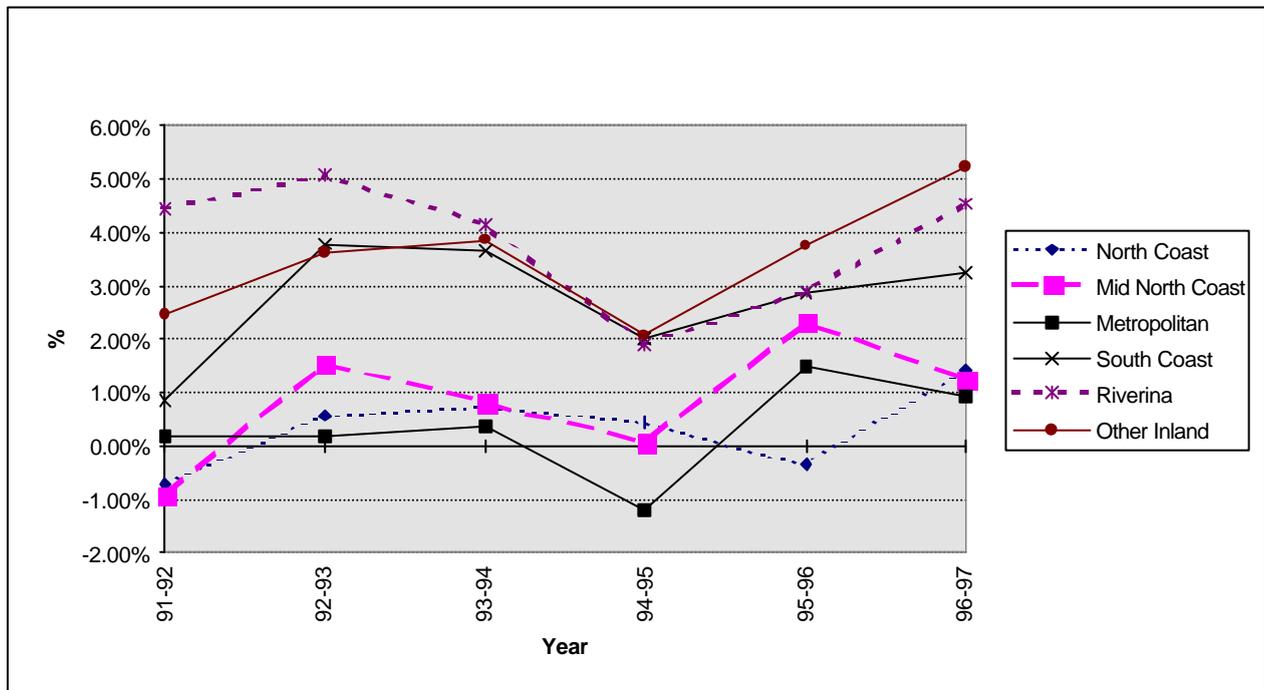
¹⁰ includes seed, electricity for irrigation and pasture chemical costs

¹¹ includes drainage, water and irrigation charges, contract charges and agistment costs

3.2.4 Comparison of Return on Assets

Return on Assets is the earnings before interest and tax (EBIT) as a percentage of total assets. This indicates the return on the total investment in the property because liabilities which can vary considerably from farm to farm are ignored. It is a basic comparison tool used by all businesses to assess performance. Results (Figure 4.1) show considerable year to year variation as would be expected with a series of droughts occurring during this period. Figure 4.1 also shows that there are virtually two performance levels. The South Coast, Riverina and Other Inland areas have generally performed at a level between 2% and 5%, a performance that would be considered low to fair in agricultural terms. The Metropolitan, North Coast and Mid-North Coast performance generally ranged from -1% to 2% a generally poor performance. Part of the reason for lower returns on capital is the higher investment in land that these properties generally have. Also capital gain is not taken into account in this analysis. Some producers may choose to continue dairy farming despite poor returns if capital gains on land are anticipated. This is more likely in areas close to the metropolitan areas.

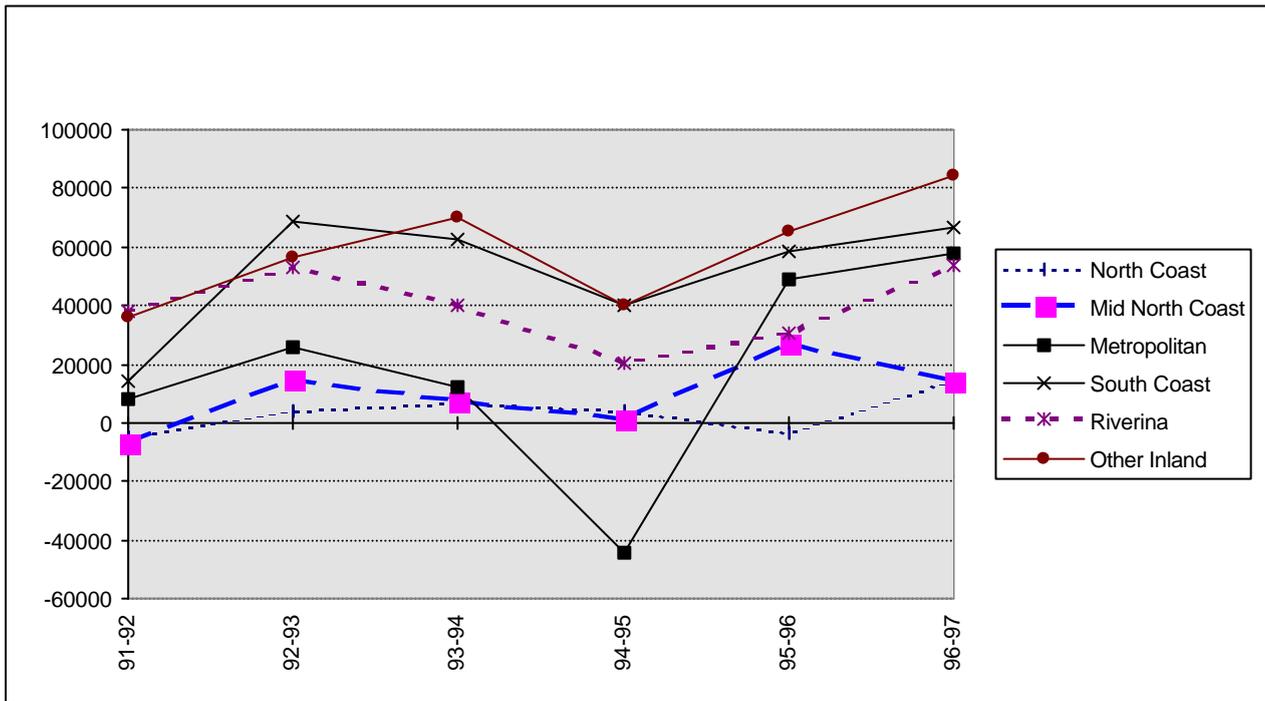
Figure 3.2.4 Return on total assets by NSW region, 1991-92 to 1996-97



3.2.5 Earnings Before Interest and Tax (EBIT)

Figure 4.2 shows a similar picture to that in Figure 4.1. It shows that 1994-95 was a poor year for all areas. The other inland farms compared well on this measure but a higher component of total returns is from non dairy enterprises. The other inland area did not perform as well on a return on capital basis, due to higher capital investment, especially in machinery.

Figure 3.2.5 Earnings before interest and tax (EBIT) by NSW region, 1991-92 to 1996-97

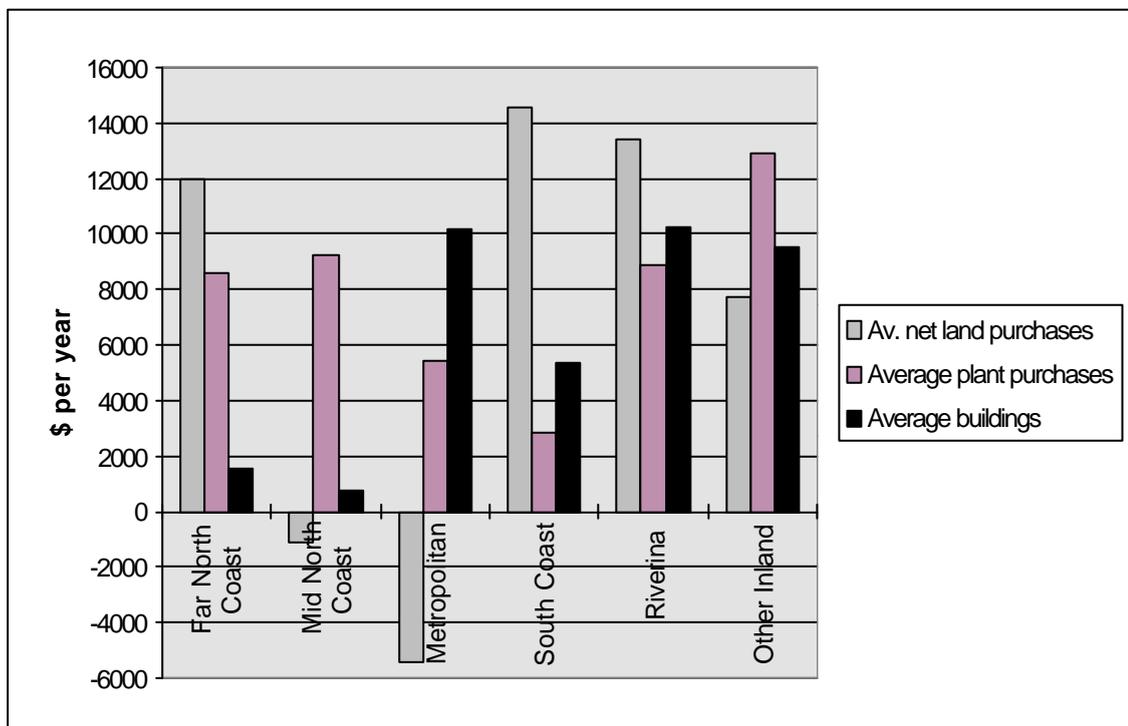


3.2.6 Reinvestment in the Dairy

The level of investment in the dairy will provide an indication of which regions are expanding or will have the capacity to expand. Some investment in machinery and buildings are necessary for a farm to cover depreciation. ABARE provide information on the purchase and sale of land, investment in new buildings and the purchase and sale of plant and equipment.

Due to variations from year to year, regional net investment (purchases less sales) was evaluated on an average basis for the six years 1991-92 to 1996-97. Again results show that investment has been highest in South Coast and Riverina and other inland area. The North Coast has also invested in additional land but relatively less than the leading three regions in plant and equipment and especially in buildings. The Mid North Coast and Metropolitan areas have sold more land in dollar terms than they have purchased. Investment in buildings and machinery is also very low in the Mid North Coast area indicating less expansion opportunities are available than in other areas. It is difficult to draw a tight conclusion from these figures because of the influence the choice of samples can have on the results. One property in the sample that has made a major land purchase or has decided to build a new dairy will have a significant influence on the average results. However, results are consistent with other trends and are in line with the authors' expectations.

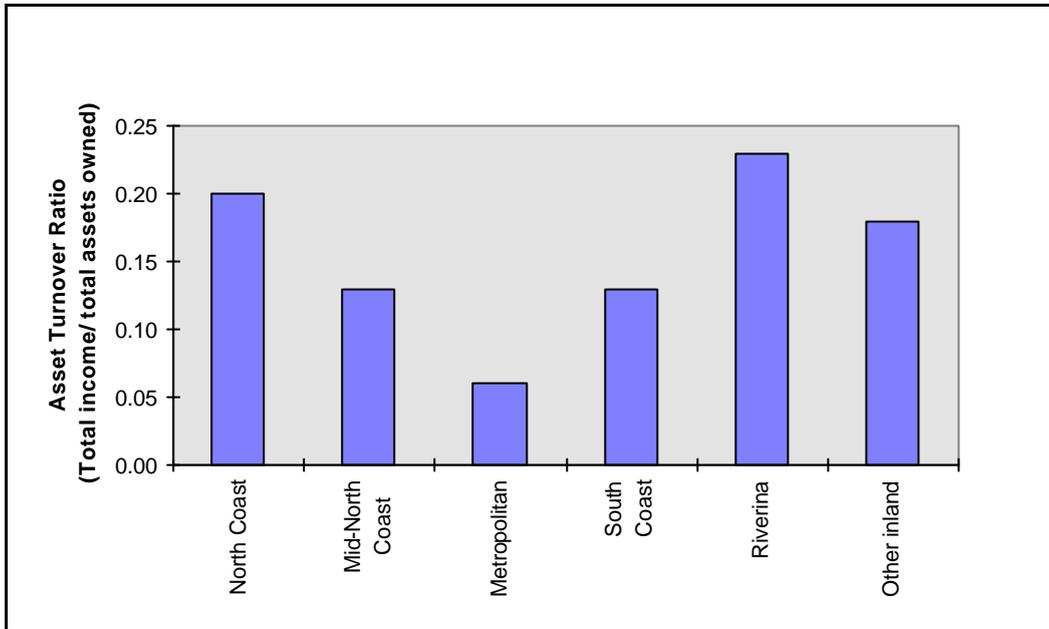
Figure 3.2.6 Average re-investment by NSW region for land, plant and buildings 1991-92 to 1996-97



3.2.7 Asset Turnover

A comparison of the average Asset Turnover Ratio = Total Income (Table 3.1)/total assets (Table 3.3) indicates the ability of farms to use assets owned to generate an income. (Figure 3.2.7.1). The Riverina, other inland region and the North Coast made best use of assets. The relatively low asset turnover ratio for the other areas is due in part to the higher land values in these areas.

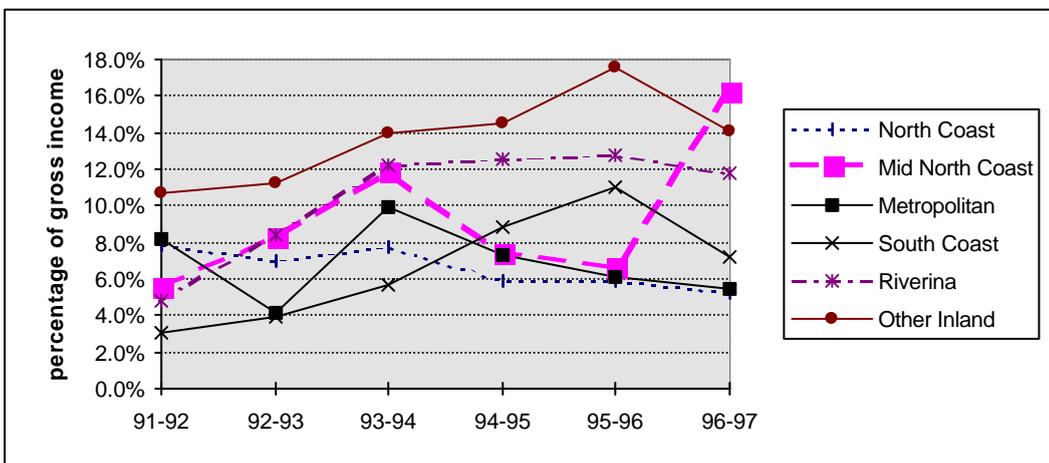
Figure 3.2.7 Average asset turnover ratio by NSW Region 1991-92 to 1996-97



3.2.8 Diversification of Income

The Other Inland and Riverina region dairy farms are more diversified with a higher proportion of non-dairy farm income. (Figure 3.2.7.2). However, overall the proportion of non-dairy income returns were relatively low (ranging from 17.6% down to 3.9%) in all regions indicating a high dependence on dairy returns.

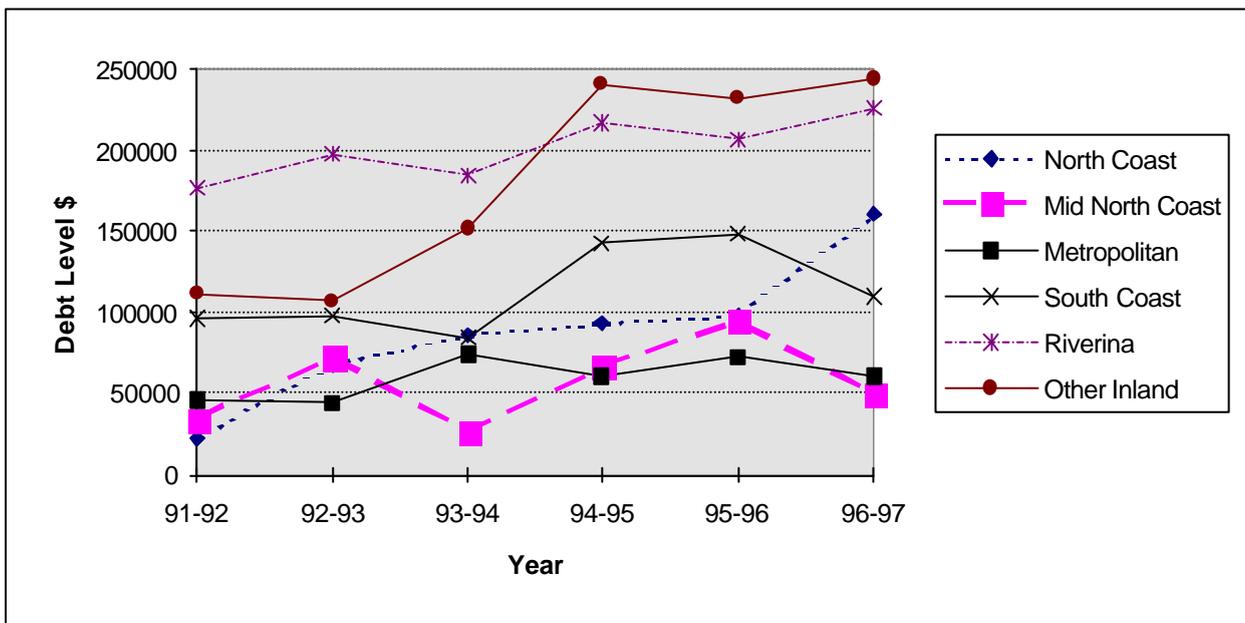
Figure 3.2.8: Non-dairy income as a proportion of total income by NSW region 1991-92 to 1996-97



3.2.9 Debt Levels

Debt levels vary considerably between properties due to many factors such as whether the farm has carried out major recent developments or whether the farm has been recently purchased or if the management of the farm has transferred to a younger generation. A small sample could easily display a biased view of debt levels in a region. Because of the sensitivity of debt information, ABARE make it voluntary for the sample farms to provide debt information. However, only a small percentage of the farms refuse to provide the information. An examination of the original data reveal that the median relative standard error is 40%. This would mean that if a region has the average 1996-97 debt level of \$140,000, with a relative standard error of 40%, there is a two in three chance that the average debt of all dairy farmers in the region would be between \$80,000 and \$200,000 and a 19 in 20 chance that it lies between \$20,000 and \$280,000. Needless to say these results must be treated with extreme caution. The average debt levels of the sample of farmers in each region who provided information on debt is shown in Figure 4.7. Highest levels of debt appear to be incurred on the other inland and Riverina properties. Note variation for one year to the next is more likely to be due to a change in sample rather than an indication that farms in a particular region had either incurred more debts or that they repaid debts.

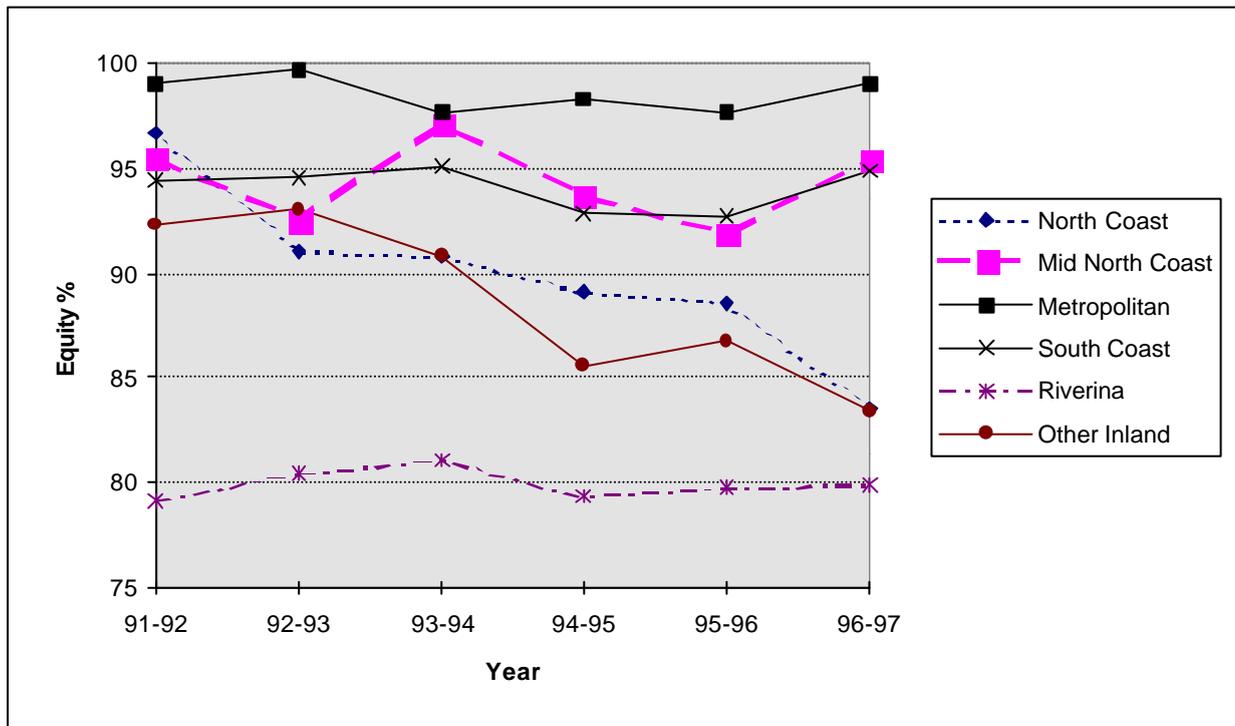
Figure 3.2.9: Debt levels by NSW region, 1991-92 to 1996-97



3.2.10 Equity % Levels

The same cautions apply to equity % levels as those on debt levels covered in the previous section. Equity % represents the percentage of the total assets owned by the farmer. Figure 3.2.10 shows that the Metropolitan, Mid North Coast and Hunter areas have the highest average equity levels. This is consistent with expectations because these areas tend to have inflated land values due to the proximity to urban areas. The Riverina area has consistently shown the lowest equity levels at around 80%. The decline in equity levels in the other inland and North Coast areas is of some cause for concern. It could be due to the sample choosing farms in later years with more debt. It is due in part in the other inland area to a lower land values (the average area of freehold land reported in 1994-95 was 603 hectares but in 1996-97 the sample averaged only 442 hectares) or it could be that land values in these areas have fallen. It could also mean that some of the farms that have remained in the sample for consecutive years have undertaken considerable expansion and have financed the expansion through additional borrowings. In the case of the large increase in debt levels from an average of \$97,656 1995-96 to \$160,371 in 1996-97 would indicate that several low debt farms were replaced in the 1996-97 sample by farms with much higher debt levels.

Figure 3.2.10: Trends in equity % levels by NSW region, 1991-92 to 1996-97



4. Other Observations

- There has been a marked decline in labour costs c/l in all areas: The average figures across all regions show that labour costs have fallen from 10.43 cents per litre in 1991-92 to 9.15 cents per litre in 1996-97. The main reason for this decline is likely to be the increased capital investment, particularly in improved milking facilities and in plant and equipment.
- That costs do not include freight on milk as income is given on net basis.
- The allocation of electricity costs at half a cent per litre produced to shed costs with the balance to irrigation costs is far from perfect. There was still a significant residual electricity cost allocated to irrigation in the Riverina, even though this area is flood irrigated and should not incur any electricity costs for irrigation.
- Examination of Dairy Farmers Co-operative data for the 1997/98 year, reveal similar trends, however, as discussed in section 2.10, participating farms are generally larger than NSW Dairy Corporation figures would indicate as average for the same region. Participating farms in the Riverina area in particular had production levels which were 80% above the Corporation average, whilst production levels indicated from the farms reported in other areas were around 30% above average. This would be expected because voluntary recording schemes are likely to attract the larger producers.

5. Interstate Comparisons

Data obtained was only for NSW, however, other data in a different format was available from another source to make some interstate comparisons. Unfortunately this data did not include non-dairy costs separately. All costs including non dairy costs have been allocated against milk production and because of this fact, the reported costs cents per litre are relatively high. Also the proportion of income coming from the dairy varies from state to state. Victoria has the highest proportion of dairy income with 93.5%; followed by Queensland with 92.3%; NSW, 90.7%; Tasmania, 89.3%, South Australia, 88.5% and Western Australia 84.2% (ABARE 1999). Table 2.5 should thus be interpreted with a degree of caution. Firstly all costs have been inflated because non dairy costs have been included in the cents per litre costings and secondly the costings for states with a lower dairy income as a proportion of total income such as Western Australia will be inflated by more than a state with a high proportion such as Victoria. Nevertheless a comparison of costs between states is still useful in identifying key differences.

Table 5 Comparison of Interstate Costings of Milk (source ABARE)

NSW	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96
herd costs	0.7	1.0	1.0	0.9	1.1	1.1	1.2	1.2
shed costs	0.9	1.0	1.1	1.0	1.0	1.2	1.4	1.3
feed costs	11.9	13.8	16.7	18.4	15.5	15.3	24.7	19.9
other variable costs	2.0	2.4	2.7	2.8	2.6	2.2	2.5	2.5
Total variable costs	15.5	18.2	21.5	23.1	20.2	19.8	29.8	24.9
Labour costs	9.5	10.4	10.3	10.7	9.7	9.5	9.0	10.2
Plant and machinery	3.7	3.7	3.7	3.4	3.0	3.2	3.6	3.7
common costs	3.3	3.5	3.7	3.7	4.2	3.4	3.9	3.9
Total overhead costs	16.5	17.6	17.7	17.8	16.9	16.1	16.5	17.8
Total operating costs	32.0	35.8	39.2	40.9	37.1	35.9	46.3	42.7
VIC								
herd costs	0.6	0.8	0.8	0.8	1.1	1.0	1.0	1.2
shed costs	0.9	0.9	1.0	1.1	1.2	1.0	1.0	1.1
feed costs	4.6	6.4	6.0	7.2	8.1	8.2	10.8	11.7
other variable costs	1.7	1.9	1.7	1.9	2.2	1.9	1.8	1.7
Total variable costs	7.8	10.0	9.5	11.0	12.6	12.1	14.6	15.7
Labour costs	6.3	7.6	7.5	7.7	8.6	7.6	7.5	7.6
Plant and machinery	2.6	2.7	2.8	2.8	2.9	2.6	3.1	2.9
common costs	2.5	2.9	2.4	2.6	3.2	2.5	2.5	3.2
Total overhead costs	11.4	13.2	12.7	13.1	14.7	12.7	13.1	13.7
Total operating costs	19.2	23.2	22.2	24.1	27.3	24.8	27.7	29.4
QLD								
herd costs	0.6	0.9	1.0	1.3	1.2	1.4	1.4	1.5
shed costs	0.7	0.7	0.9	0.7	0.8	0.8	1.0	0.9
feed costs	14.1	12.8	17.4	23.3	22.9	21.9	27.1	24.3
other variable costs	2.4	2.5	3.1	3.1	3.0	3.0	3.3	3.3
Total variable costs	17.8	16.9	22.4	28.4	27.9	27.1	32.8	30.0
Labour costs	10.4	11.2	12.3	12.5	11.2	9.9	10.2	11.8
Plant and machinery	4.0	3.7	4.3	3.9	3.7	3.2	4.0	4.2
common costs	3.3	2.7	2.9	3.0	3.1	2.7	3.2	3.6
Total overhead costs	17.7	17.6	19.5	19.4	18.0	15.8	17.4	19.6
Total operating costs	35.5	34.5	41.9	47.8	45.9	42.9	50.2	49.6

Table 5 cont'd

SA	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96
herd costs	1.0	1.1	1.1	1.2	1.1	1.2	1.2	1.2
shed costs	0.7	0.8	0.9	0.8	0.9	0.9	0.8	1.0
feed costs	10.6	10.2	10.1	10.3	10.0	13.4	16.6	14.5
other variable costs	2.0	2.9	3.2	2.6	2.8	2.5	2.3	2.2
Total variable costs	14.3	15.0	15.3	14.9	14.8	18.0	20.9	18.9
Labour costs	7.6	9.0	10.2	10.3	9.2	8.7	8.2	8.8
Plant and machinery	3.4	3.6	3.8	3.3	3.2	3.4	3.5	3.3
common costs	2.9	3.8	3.5	3.4	3.0	3.1	2.6	2.6
Total overhead costs	13.9	16.4	17.5	17.0	15.4	15.2	14.3	14.7
Total operating costs	28.2	31.4	32.8	31.9	30.2	33.2	35.2	33.6
WA								
herd costs	0.7	1.0	1.1	1.4	1.5	1.4	1.4	1.3
shed costs	0.8	0.8	0.9	0.9	0.9	0.9	0.9	1.0
feed costs	7.3	9.4	10.2	11.3	12.3	12.5	15.7	14.0
other variable costs	2.0	2.5	2.6	3.2	2.7	2.3	2.2	2.4
Total variable costs	10.8	13.7	14.8	16.8	17.4	17.1	20.2	18.7
Labour costs	5.9	6.4	6.7	6.5	6.2	5.9	6.0	5.8
Plant and machinery	3.2	3.1	2.9	3.1	3.3	3.7	4.2	4.2
common costs	3.4	3.0	2.6	2.9	2.9	3.1	3.3	3.2
Total overhead costs	12.5	12.5	12.2	12.5	12.4	12.7	13.5	13.2
Total operating costs	23.3	26.2	27.0	29.3	29.8	29.8	33.7	31.9
TAS								
herd costs	0.5	0.8	0.8	0.9	0.9	1.2	1.1	1.4
shed costs	0.8	0.9	0.9	0.9	1.0	0.9	1.0	1.2
feed costs	3.2	7.1	6.5	7.4	6.9	7.0	10.0	11.5
other variable costs	1.6	2.2	2.1	1.8	2.0	2.0	2.0	2.0
Total variable costs	6.1	11.0	10.3	11.0	10.8	11.1	14.1	16.1
Labour costs	5.6	7.2	6.6	7.3	7.6	7.3	6.7	7.3
Plant and machinery	2.3	2.5	3.5	3.4	3.1	2.5	2.5	2.8
common costs	1.8	1.6	1.9	1.9	2.4	2.0	2.3	2.1
Total overhead costs	9.7	11.3	12.0	12.6	13.1	11.8	11.5	12.2
Total operating costs	15.8	22.3	22.3	23.6	23.9	22.9	25.6	28.3
AUST								
herd costs	0.6	0.8	0.8	1.0	1.1	1.0	1.2	1.2
shed costs	0.8	0.9	1.0	1.0	1.1	1.0	1.0	1.1
feed costs	7.2	8.6	9.1	10.4	10.7	11.0	14.5	13.9
other variable costs	1.8	2.1	2.1	2.2	2.4	2.2	2.1	2.1
Total variable costs	10.4	12.4	13.0	14.6	15.3	15.2	18.8	18.3
Labour costs	7.1	8.4	8.4	8.6	8.9	8.0	7.9	8.2
Plant and machinery	2.9	3.0	3.2	3.0	3.1	2.8	3.3	3.1
common costs	2.7	2.9	2.9	3.0	3.2	2.8	2.9	3.0
Total overhead costs	12.7	14.3	14.5	14.6	15.2	13.6	14.1	14.3
Total operating costs	23.1	26.7	27.5	29.2	30.5	28.8	32.9	32.6

Table 5 shows that NSW and Queensland are on average higher cost producing states than the seasonal producers in the temperate climates. Feed costs from year to year are significantly higher, however, Western

Australia with an extended dry summer also has relatively high feed costs. Overhead costs on average are lower in the southern states, due mainly to larger herd sizes and greater economies of scale.

Part of the cost difference is due more emphasis on year round production to meet quota commitments, part due to a higher proportion of non-dairy costs as discussed above and part is also due to a large number of smaller producers still operating in NSW. 20% of NSW producers are producing under 300,000 litres per annum, 34% are producing less than 400,000 litres and 46% are producing less than 500,000 litres respectively. Comparative figures have not been compiled for Victoria, however, in 1996/97 average annual litres produced per farm in 1996/97 was 52,000 litres higher in Victoria at 552,000 litres compared to 500,000 litres in NSW. It is likely that many of these smaller, generally higher cost producers, will not continue in production beyond the retirement of the present generation. Many are likely to cease production even earlier if there is a significant fall in the price of milk.

The standard error figures reported in Appendix 1 also indicate that there are low cost producers in all regions. Despite the prediction that the proportion of milk produced in each region will change considerably in the next ten years, a dairy industry will still remain in all areas. However, processors should consider regional farm costs of production as well as their own processing and distribution costs in determining the best location for future processing facilities.

6. Conclusions

The analysis has indicated there are considerable differences in the cost structures and the financial performance in NSW. Indications are that the most competitive areas for dairying in NSW will be the South Coast, Riverina and other inland areas. These areas on average have lower costs of production and have generated larger cash surpluses in the period 1991-92 to 1996-97 to finance further investment in the dairy industry. However, other factors also play a significant role in determining the future supply trends for milk production in NSW. Some of these factors are the price of land and the returns from alternative enterprises. It is inevitable that following deregulation the numbers of dairy farmers will decline, especially in the areas adjacent to the large Metropolitan centres and small holdings in coastal areas.

On a cents per litre basis, costs are still considerably higher than those reported from Southern Australia, and further exposure to competitive forces, particularly from Victoria, will place additional financial strain on NSW dairy farmers.

Appendix 1: Key Performance Indicators for NSW Dairy Regions 1991-92 to 1996-97 (standard errors in brackets). Source (ABARE)

Far North Coast												
Year	Unit	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97					
Dairy cows at 30 June	no	108 (6)	117 (3)	126 (4)	120 (4)	119 (8)	141 (8)					
Total milk sold	ltrs	334613 (6)	447059 (6)	500265 (12)	466402 (13)	441653 (12)	508937 (22)					
Milk receipts - (net) (1)	\$	103726 (6)	138905 (6)	153631 (11)	154514 (11)	143642 (10)	169589 (24)					
Total feed costs	\$	47065 (11)	63419 (8)	70477 (11)	75702 (13)	70364 (14)	72415 (32)					
Total variable costs	\$	52512 (10)	71755 (7)	80053 (10)	86584 (11)	80447 (12)	84311 (29)					
GROSS MARGIN	\$	60343 (10)	80004 (11)	89320 (14)	86295 (11)	78588 (7)	98844 (21)					
Total dairy fixed costs	\$	64653 (5)	77617 (7)	84338 (8)	80332 (6)	81260 (9)	84316 (19)					
Dairy operating profit	\$	-4311 (141)	2387 (277)	4981 (170)	5963 (95)	-2673 (254)	14528 (42)					
Farm business profit	\$	-9831 (63)	-2878 (268)	-3403 (249)	-5267 (82)	-14656 (52)	-3614 (99)					
Mid North Coast & Lower Hunter												
Dairy cows at 30 June	no	75 (9)	76 (15)	67 (8)	83 (13)	98 (17)	83 (28)					
Total milk sold	ltrs	271726 (14)	291481 (17)	251065 (10)	315634 (20)	389313 (27)	321640 (53)					
Milk receipts - (net) (1)	\$	90738 (12)	100302 (17)	84976 (10)	117628 (21)	151330 (28)	123838 (56)					
Total feed costs	\$	33421 (9)	29519 (22)	27144 (12)	48075 (22)	54856 (34)	42183 (51)					
Total variable costs	\$	39512 (9)	36958 (20)	34976 (14)	56694 (22)	64382 (32)	50371 (49)					
GROSS MARGIN	\$	56150 (16)	75372 (18)	57190 (7)	68980 (25)	104893 (27)	75505 (64)					
Total dairy fixed costs	\$	62515 (9)	63799 (11)	53016 (5)	69110 (15)	78231 (18)	67812 (21)					
Dairy operating profit	\$	-6365 (64)	11573 (67)	4174 (44)	-130 (7354)	26662 (58)	7693 (455)					
Farm business profit	\$	-11955 (36)	9093 (91)	4234 (45)	-4685 (125)	15618 (53)	8382 (433)					
Metropolitan												
Dairy cows at 30 June	no	126 (18)	202 (17)	148 (38)	208 (30)	197 (21)	200 (17)					
Total milk sold	ltrs	410042 (15)	756566 (12)	520227 (76)	780038 (37)	830046 (29)	892324 (26)					
Milk receipts - (net) (1)	\$	143884 (17)	277593 (13)	185457 (70)	302470 (38)	323336 (31)	337704 (28)					
Total feed costs	\$	65060 (6)	100815 (22)	72281 (59)	173378 (41)	137851 (31)	127838 (38)					
Total variable costs	\$	75347 (7)	118034 (17)	87498 (59)	197747 (40)	162616 (30)	148396 (38)					
GROSS MARGIN	\$	91904 (24)	185294 (28)	123868 (83)	114949 (36)	194782 (32)	209439 (20)					
Total dairy fixed costs	\$	82522 (14)	143793 (14)	102876 (43)	156787 (22)	146227 (20)	146946 (17)					
Dairy operating profit	\$	9382 (156)	41502 (78)	20992 (289)	-41839 (80)	48556 (79)	62493 (39)					
Farm business profit	\$	-681 (1790)	20843 (97)	3254 (1549)	-50866 (65)	40132 (90)	51040 (38)					

(1) net of milk freight, levies, handling and marketing.

Appendix 1: Cont'd**South Coast**

	1991-92		1992-93		1993-94		1994-95		1995-96		1996-97	
Dairy cows at 30 June	123	(6)	139	(8)	130	(9)	142	(8)	160	(12)	153	(9)
Total milk sold	516216	(5)	602408	(8)	613991	(10)	639265	(10)	677005	(12)	719942	(10)
Milk receipts - (net) (1)	166722	(5)	202977	(9)	202548	(11)	221228	(10)	240635	(12)	251623	(11)
Total feed costs	62541	(7)	49522	(9)	51702	(15)	90508	(10)	75761	(14)	75309	(11)
Total variable costs	74590	(6)	64255	(8)	67479	(12)	106889	(9)	93778	(12)	91841	(10)
GROSS MARGIN	104914	(7)	159051	(10)	147288	(11)	132342	(15)	167817	(14)	177541	(12)
Total dairy fixed costs	89350	(6)	90550	(7)	84498	(9)	94348	(10)	109911	(9)	113713	(8)
Dairy operating profit	15563	(33)	68501	(17)	62790	(16)	37993	(35)	57907	(24)	63828	(20)
Farm business profit	-709	(787)	54567	(15)	54473	(20)	23679	(61)	43111	(30)	55384	(22)

Riverina

Dairy cows at 30 June	177	(4)	165	(9)	155	(5)	153	(10)	136	(21)	187	(8)
Total milk sold	617585	(8)	673866	(14)	621411	(5)	636519	(12)	559159	(23)	725050	(11)
Milk receipts - (net) (1)	176784	(9)	209810	(16)	180444	(5)	186316	(12)	188427	(21)	231992	(10)
Total feed costs	46907	(13)	61860	(23)	46446	(12)	63945	(13)	51758	(23)	65966	(10)
Total variable costs	65459	(11)	81114	(21)	62868	(10)	81173	(12)	65913	(23)	84944	(9)
GROSS MARGIN	128045	(10)	149771	(17)	132575	(6)	126368	(18)	133702	(19)	161864	(17)
Total dairy fixed costs	94593	(12)	103237	(13)	101592	(5)	108104	(7)	104929	(16)	111552	(9)
Dairy operating profit	33452	(21)	46534	(26)	30983	(19)	18264	(99)	28773	(76)	50312	(49)
Farm business profit	8557	(122)	25622	(46)	20474	(27)	-2301	(704)	12477	(136)	27932	(86)

Other inland

Dairy cows at 30 June	127	(13)	127	(10)	143	(9)	145	(15)	147	(15)	143	(8)
Total milk sold	540858	(13)	574298	(12)	671832	(10)	723127	(13)	643193	(16)	724526	(5)
Milk receipts - (net) (1)	181121	(13)	194606	(12)	231018	(11)	266421	(13)	243177	(17)	282728	(5)
Total feed costs	44699	(20)	40639	(18)	44472	(15)	97151	(19)	69409	(15)	67205	(8)
Total variable costs	64814	(17)	64249	(16)	70305	(13)	125752	(15)	96961	(13)	94178	(7)
GROSS MARGIN	135169	(11)	155745	(12)	191650	(12)	167546	(15)	177637	(23)	209589	(5)
Total dairy fixed costs	98863	(11)	104580	(11)	119338	(10)	123852	(13)	120580	(13)	132961	(6)
Dairy operating profit	36307	(28)	51165	(22)	72312	(23)	43694	(40)	57058	(49)	76627	(11)
Farm business profit	20056	(54)	40801	(30)	53926	(28)	13415	(114)	38044	(61)	58227	(20)

(1) net of milk freight, levies, handling and marketing.

Appendix 2: Methodology used to Manipulate Data to Match the Dairy Research and Development Recommended Standard. Source of raw data (ABARE)

	Unit	How calculation is made eg. row no [34] = row [32] minus row [33]
Population	no	
Sample Contributing	no	
Physical data		
[1] Area freehold land at June 30	ha	
[2] Area long term Crown lease at June 30	ha	
[3] Area annual Crown lease at June 30	ha	
[4] Area private lease at June 30	ha	
[5] Area private lease at June 30	ha	
[6] Area leased (owned land) out at June 30	ha	
[7] Area irrigated	ha	
[8] Area hay/silage harvested	ha	
[9] Area fodder crops harvested	ha	
[10] Area other crops harvested	ha	
[11] Dairy herd at 30 June	no	
[12] Beef herd at 30 June	no	
[13] Dairy cows at 30 June	no	
[14] Dairy cows mated	no	
[15] Cows that calve - calvers a	no	
[16] Calvers as a percentage of cows mated	%	
[17] Dairy cattle sold	no	
[18] Beef cattle sold	no	
[19] Total market milk sold	ltrs	
[20] Total manufacturing milk sold	ltrs	
[21] Total milk sold = [1] + [2]	ltrs	
[22] Total kilograms of butterfat	kg	
[23] Total farm labour weeks worked	no	
[24] Labour units b	no	
[25] Milk yield per calver	ltrs/calver	
[26] Kilogram of butterfat per cow	kg/calver	
[27] Calvers per hectare	no	
[28] Litres milk sold per hectare	ltrs	
[29] Litres sold per labour unit	ltrs/unit	
[30] Calvers per labour unit	calvers/unit	

a. Includes induced calves and stillborns.

b. Equals total number of work-weeks divided by 52. A work week is calculated as a 40 hour week, up to a maximum of 52 weeks.

Appendix 2 : Cont'd**Dairy profit analysis**

Income		
[31]	Milk receipts - (net) (1)	\$
[32]	Sales - Dairy cattle (2)	\$
[33]	Less : Dairy cattle purchase cost (3)	\$
[34]	Dairy cattle receipts less purchases	\$ [32]-[33]
[35]	Change in dairy tradeable stocks	\$
[36]	Crop receipts excluding fodder crops	\$
[37]	Outward transfer of livestock	\$
[38]	Beef cattle receipts net of purchases (4)	\$
[39]	Change in beef tradeable stocks	\$
[40]	Sheep receipts net of purchases (5)	\$
[41]	Change in sheep tradeable stocks	\$
[42]	Wool receipts (net) (6)	\$
[43]	Change in wool tradeable stocks	\$
[44]	Change in tradeable stocks - Oats	\$
[45]	Fodder receipts	\$
[46]	Rice	\$
[47]	Wheat	\$
[48]	Barley	\$
[49]	Sorghum	\$
[50]	Other grains	\$
[51]	Oilseeds	\$
[52]	Grain legumes	\$
[53]	Other buildup trading stocks	\$
[54]	Off farm contracts	\$
[55]	Receipts from off farm sharefarming	\$
[56]	On farm agistment	\$
[57]	Plant hire receipts	\$
[58]	Other income	\$
[59]	Total non dairy income	\$ SUM[36:58]-[45]
[60]	Total dairy income	\$ [31]+[34]+[35]+[45]
<p>1) Milk receipts net of milk freight, levies, handling and marketing. 2) Sales net of freight and handling and marketing on dairy cattle sold. 3) Landed cost of purchases including freight on dairy cattle purchased. 4) Beef receipts are net of purchases, freight, handling and marketing. 5) Net of promotion, research and marketing charges and freight. 6) Sheep receipts are net of purchases, freight, handling and marketing.</p>		
Variable costs		
Herd costs		
[61]	AI, Stud fees and herd testing	\$
[62]	Livestock materials	\$
[63]	Vet fees	\$
[64]	Water for livestock	\$
[65]	Total herd costs (A)	\$ SUM[61:64]
Shed costs		
[66]	Dairy supplies	\$
[67]	Electricity	\$
[68]	Total shed costs (B)	\$ SUM[66:67]

NB. Not collected by ABARE. Assumed to be [21]* 0.005

Appendix 2 cont'd

Feed costs		
[69]	Agistment	\$
[70]	Concentrates - processed feed	\$
[71]	Contracts paid	\$
[72]	Crop and pasture chemicals	\$
[73]	Electricity for irrigation	\$
		Total recorded by ABARE less [67]
[74]	Fertilizer	\$
[75]	Fodder - unprocessed grains	\$
[76]	Drainage, water and irrigation charges a	\$
[77]	Seed	\$
[78]	Total feed costs (C)	\$
		SUM[69:77]
Other variable costs		
[79]	Fuel, oil and grease	\$
[80]	R & M plant and machinery	\$
[81]	Total other variable costs (D)	\$
		SUM[79:80]
[82]	Total DAIRY variable costs (A+B+C+D)	\$
		[65]+[68]+[78]+[81]
[83]	DAIRY GROSS MARGIN	\$
		[60]-[81]
[84]	Other farm expenses	\$
[85]	FARM GROSS MARGIN	\$
		[83]+[59]-[84]
Overhead costs		
Labour costs		
[86]	Payments to sharefarmers	\$
[87]	Total imputed labour (dairy)	\$
[88]	Wages for hired labour (dairy)	\$
[89]	Total labour costs (dairy)	\$
		SUM[86:88]
Plant and machinery		
[90]	Depreciation - plant and machinery	\$
[91]	Motor vehicle expense	\$
[92]	Plant hire	\$
[93]	Total plant and machinery cost excl. R&M	\$
		SUM[90:92]
Common costs		
[94]	Telephone	\$
[95]	Accountancy fees	\$
[96]	Bank and legal	\$
[97]	Postage and handling	\$
[98]	Subscriptions	\$
[99]	Other administration costs	\$
[100]	Insurance	\$
[101]	Land rent paid	\$
[102]	Shire rates	\$
[103]	Repairs and maintenance - Buildings	\$
[104]	Total common costs	\$
		SUM[94:103]
[105]	Total dairy overhead costs	\$
		[89]+[93]+[104]
[106]	Total dairy operating costs	\$
		[82]+[105]
[107]	Dairy operating profit	\$
		[60]-[106]

Appendix 2 cont'd

[108]	Other non-dairy overhead costs		
[109]	Imputed labour - non dairy	\$	
[110]	Other materials	\$	
[111]	Depreciation apportioned to non dairy	\$	
[112]	Total non dairy overhead costs	\$	SUM[109:111]
[113]	Earnings Before Interest and Tax (EBIT)	\$	[85]-[105]-[112]
	Financing costs		
[114]	Interest	\$	
[115]	Lease payments	\$	
[116]	Total finance costs		SUM[114:115]
[117]	Net Profit	\$	[113]-[116]
[118]	Off farm income a	\$	
	Assets and Liabilities a		
	Assets		
[119]	Closing value - land and improvements	\$	
[120]	Closing value - owned plant and equipment	\$	
[121]	Closing value - dairy cattle	\$	
[122]	Total assets (Farm capital June 30)	\$	
	Debt		
[123]	Farm business debt at June 30 b	\$	
	Capital		
[124]	Total average capital	\$	
[125]	Total closing capital	\$	
[126]	Total opening capital	\$	
[127]	Additional land purchases	\$	
[128]	Disposed land	\$	
[129]	Total additional buildings structure	\$	
[130]	Total additional leased plant	\$	
[131]	Total additional plant purchased (excl leased)	\$	
[132]	Total capital additions (excl leased)	\$	
[133]	Total capital additions	\$	
[134]	Total capital disposed	\$	
[135]	Total disposed plant and equipment	\$	

Appendix 2 cont'd**Financial ratios**

[136]	Farm business equity at June 30 b	\$	[122]-[123]
[137]	Farm business equity ratio b	%	[136]÷[122]*100
<hr/>			
	a. Excludes leased items.		
	b. Includes only those farms responding to questions on debt.		
[138]	Return on Assets %		[113]÷[122]*100
[139]	Return to Total assets Used %		[113]÷[125]*100
[140]	Return to Owners Equity %		[117]÷[136]
[141]	Asset Turnover Ratio		{[59]+[60]}÷[125]
[142]	Profit Margin Ratio%		[113]÷{[59]+[60]}
[143]	Variable Cost Ratio %		{[82]+[84]}÷{[59]+[60]}
[144]	Overhead Ratio %		{[105]+[108]}÷{[59]+[60]}
[145]	Finance Ratio %		[116]÷{[59]+[60]}
[146]	Interest Coverage		[113]÷[116]
[147]	Debt to Income		[123]÷{[59]+[60]}

Cents per litre Returns

[148]	Milk receipts - (net) (1)	¢/l	[31]÷[21]
[150]	Total dairy income	¢/l	[60]÷[21]

Variable costs**Herd costs**

[151]	AI, Stud fees and herd testing	¢/l	[60]÷[21]
[152]	Livestock materials	¢/l	[61]÷[21]
[153]	Vet fees	¢/l	[62]÷[21]
[154]	Water for livestock	¢/l	[63]÷[21]
[155]	Total herd costs	¢/l	[64]÷[21]

Shed costs

[156]	Dairy supplies	¢/l	[65]÷[21]
[157]	Electricity	¢/l	[66]÷[21]
[158]	Total shed costs	¢/l	[68]÷[21]

Feed costs

[159]	Agistment	¢/l	[69]÷[21]
[160]	Concentrates - processed feed	¢/l	[70]÷[21]
[161]	Contracts paid	¢/l	[71]÷[21]
[162]	Crop and pasture chemicals	¢/l	[72]÷[21]
[163]	Electricity for irrigation	¢/l	[73]÷[21]
[164]	Fertilizer	¢/l	[74]÷[21]
[165]	Fodder - unprocessed grains	¢/l	[75]÷[21]
[166]	Drainage, water and irrigation charges a	¢/l	[76]÷[21]
[167]	Seed	¢/l	[77]÷[21]
[168]	Total feed costs	¢/l	[78]÷[21]

Other Variable costs

[169]	Fuel, oil and grease	¢/l	[79]÷[21]
[170]	R & M plant and machinery	¢/l	[80]÷[21]
[171]	Total other variable costs	¢/l	[81]÷[21]
[172]	Total variable costs	¢/l	[82]÷[21]
[173]	GROSS MARGIN	¢/l	[85]÷[21]

Appendix 2 cont'd

<i>Fixed costs</i>			
[174]	Labour costs		
[175]	Total labour costs (dairy)	¢/l	[89]÷[21]
[176]	Total plant and machinery cost	¢/l	[93]÷[21]
[177]	Total common costs	¢/l	[104]÷[21]
[178]	Total dairy overhead costs	¢/l	[105]÷[21]
[179]	Total dairy operating costs	¢/l	[106]÷[21]
[180]	Dairy operating profit	¢/l	[107]÷[21]
Financing costs			
[181]	Interest	¢/l	[114]÷[21]
[182]	Lease payments	¢/l	[115]÷[21]
[183]	% Acceptance	%	[19]÷[21]*100

Appendix 3 : Comparison of milk production and acceptance figures as produced from ABARE results and from NSW Dairy Corporation figures.

Region	Milk Production ('000litres) ABARE figure (1991-92:1996-97) Estimate from Corporation ¹² figures for same periods	% acceptance ABARE figure (1991-92:1996-97) Estimate from Corporation figures for same periods	Comment
North Coast	ABARE (334:508) Corp. (338:530)	ABARE (58%:45%) Corp. (58%:46%)	Farms in later years are a smaller than average production but larger than the median farm.
Hastings, Lower Hunter	ABARE (271:389) Corp. (355:484)	ABARE (69%:61%) Corp. (71%:54%)	Farms are a bit small at 20% below average production level. Income effect of low production will be partially offset in later years by higher acceptance rates.
Metropolitan	ABARE (410:892) Corp. (1165:1586)	ABARE (74%:54%) Corp. (77%:63%)	Some very large producers in this area boost corporation averages. ABARE figures are likely to be mid way between the median and the average
South Coast	ABARE (516:720) Corp. (582:875)	ABARE (68%:48%) Corp. (64%:42%)	Estimate that figures are OK
Riverina	ABARE (618:725) Corp. (582:875) ABARE figure for 1995-96 is 30% below corporation average.	ABARE (59%:39%) Corp. (49%:34%)	Figures for 1995/96 appear low. Other years OK.
Other Inland	ABARE (540:724) Corp. (628:847)	ABARE (71%:59%) Corp. (72%:54%)	Median production in 1996/97 was approx. 750,000 litres.

¹² Note figures derived from NSW Dairy Corporation Industry Statistics (various issues). Since 1996 the Corporation report on four NSW Regions rather than the previous seven regions. 1996-97 figures in the above table have been estimated from relevant Corporation figures.

NSW Agriculture**Economic Research Report Series****Number**

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