AN ECONOMIC SURVEY

OF NEW ZEALAND

TOWN MILK PRODUCERS

1983-84

R.G. MOFFITT

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THE AGRICULTURAL ECONOMICS RESEARCH UNIT

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PREFACE

This report is the eleventh in an annual series of economic surveys of New Zealand town milk supply farms. These surveys have been undertaken by the Agricultural Economics Research Unit at Lincoln College on behalf of the New Zealand Milk Board and the Town Milk Producers' Federation of New Zealand (Inc.).

As in the past the major objective of this survey has been to estimate the average net farm income received by town milk producers in New Zealand. In addition, however, the opportunity provided by the surveys has been used to collect additional data so that a more comprehensive profile of the industry emerges.

The field work and analysis for this survey was carried out by Russell Moffitt with some assistance from Michael Clemes. The report was compiled by Russell Moffitt.

R.G. Lattimore
Director

ACKNOWLEDGEMENTS

The Agricultural Economics Research Unit gratefully acknowledges the co-operation and assistance willingly provided by officers of the New Zealand Milk Board, Town Milk Producers' Federation of New Zealand (Inc.), and milk producer companies. In particular, thanks are expressed to the individual town milk producers for co-operating in the survey and making the information contained in their accounts available.

The report was typed by Linda Bellamy.

ABBREVIATIONS USED IN THIS REPORT

Avg.	=	Average
Assn	=	Association
c	=	cents
C.V.	=	Capital Value
Dairy prod. ha	=	Dairy productive hectares
equip.	=	equipment
exps	=	expenses
ha	=	hectares
incl.	=	inclusive
l	=	litres
L.U.	=	Labour Units
m.	=	million
milk prod.	=	milk produced
M.P.	=	Milk Producer
N.A.	=	Not Available
no.	=	number
prod. ha	=	productive hectares
RSE	=	Relative Standard Error
s.u.	=	stock units

SUMMARY OF THREE YEARS NEW ZEALAND

SURVEY RESULTS

Characteristic	1981-82	1982-83	1983-84
Farms Surveyed (No.)	152	152	152
Total Farm Area (ha/farm)	97.71	100.39	93.18
Dairy Productive Farm Area (ha/farm)	86.55	87.93	83.59
Daily Quota (l/farm)	786	772	763
Herd Size (cows/farm)	116.71	122.77	123.31
Cows in Milk in December (cows/farm)	100.86	108.02	108.02
Labour Units (L.U./farm)	2.33	2.25	2.26
Milk Production (l/farm)	498,797	473,153	474,217
(l/total ha)	5,105	4,713	5,089
(l/dairy prod. ha)	5,763	5,381	5,673
(l/labour unit)	214,076	210,290	209,831
(l/cow)	4,274	3,854	3,846
Total Value of Farm Assets ($/farm)	557,999	672,446	644,460
Gross Revenue ($/farm)	103,044	122,481	124,458
Total Expenditure ($/farm)	78,853	95,741	97,767
Net Farm Income ($/farm)	24,191	26,740	26,691
Net Income per Dairy Prod. ha ($/ha)	280	304	319
Net Income per Daily Quota ($/l)	30.8	34.6	35.0
Net Income per Cow ($/cow)	207	218	216
Net Income per Litre (cents/l)	4.85	5.65	5.63
Gross Revenue per Litre (cents/l)	20.66	25.88	26.24
Total Expenditure per Litre (cents/l)	15.81	20.23	20.62

Physical and Production Aspects

* The average total area of the New Zealand farms surveyed was 93.18 ha. This was smaller than the 1982-83 survey figure (100.39 ha). The average dairy productive area was 83.59 ha compared with 87.93 ha in 1982-83. The smallest dairy productive area was 22.52 hectares and the largest 245.78 hectares.

* The average daily quota recorded on the surveyed farms was 763 litres compared with the previous 1982-83 survey estimate of 772 litres. The North Island survey average of 787 litres was eight per cent higher than the South Island average quota (727 litres).

* The average number of cows in the herd (including dry cows) per farm was 123. In 1982-83 the corresponding figure was also 123. Herd sizes on individual farms ranged from 52 to 379 cows. The number of cows being milked during December 1983 averaged 108 and ranged from 40 to 345.

* Total milk production per farm (474,217 litres) was similar to the 1982-83 total (473,153 litres). North Island farms show a five per cent increase, and South Island farms a seven per cent fall.

* The proportion of milk sold at town milk quota prices was 65 per cent. This is similar to the 66 per cent for the 1982-83 survey. The South Island sold a greater proportion at quota milk prices (67 per cent) compared with the North Island (64 per cent).

* Milk production per cow was 3,846 litres. It remained the same as the previous year (3,854 litres). Production per labour unit decreased marginally. Milk production per dairy productive hectare increased by five per cent to 5,673 litres per dairy farm.

* The average total labour employed on survey farms (2.26 labour units) was similar to the 1982-83 figure of 2.25 labour units. In the North Island the labour units per farm remained nearly constant at 2.22 units. A small increase from 2.29 to 2.32 labour units occurred in the South Island.

Financial Aspects

* Average net farm income for all surveyed farms for 1983-84 was $319 per dairy productive hectare compared with $314 per hectare in the previous year. The total net farm income was $26,691 per farm. The average income per hectare for the North Island farms was $370 and for the South Island farms it was $251 per hectare. Net farm income per cow was $226 in the North Island and $199 per cow in the south.

* Gross revenue for New Zealand surveyed farms was $1489 per dairy productive hectare. This was seven percent higher compared with the previous year ($1,393 per hectare). The total gross revenue per farm was $124,458 or $1,009 per cow. The North Island farms had an eleven percent increase in revenue per hectare (to $1,597) while the South Island farms had little change in gross revenue per hectare ($1,342).

* Total expenditure per dairy productive hectare was $1,170. This was seven percent higher than the 1982-83 per hectare result. Expenditure per farm was $97,767 or $793 per cow. The average North Island farm had an increase in expenditure of eleven percent per hectare to $1,227. There was little change in the South Island expenditure per hectare result ($1,091).

* Of the 26 farm expenditure components per dairy productive hectare, 16 increased compared with the previous survey result. Labour expenses for all farms rose by four per cent (to $176 per hectare), operating expenses were up by five per cent (to $593 per hectare), administration was up by three per cent (to $35 per hectare), overheads were up by ten per cent (to $258 per hectare) and depreciation increased by 17 per cent (to $108 per hectare).

* From the revenue from milk sales the average price received per litre of all milk produced can be calculated. For the current survey it was 22.5454 cents compared with 22.2829 cents in 1982-83 (a rise of 1.18 percent). In the North Island the average price received for all milk was 22.0676 cents per litre (a fall of 2.53 percent compared with the previous year) and in the South Island it was 23.3516 (an increase of 7.23 percent).

* Milk sales accounted for 85.9 per cent of gross revenue on the average farm (86.1 per cent in 1982-83).

* Net farm income on a cents per litre of total milk produced basis was 5.63 cents compared with 5.65 cents in 1982-83 and 4.85 cents in 1981-82.

* Livestock trading profit per dairy productive hectare increased by 13 per cent from $131 per hectare in 1982-83 to $148 per hectare in 1983-84.

* The average value of total farm assets was $644,460 for a 82.01 hectare farm ($7,858 per hectare). In 1982-83 total farm assets were $672,446 for a 87.59 hectare farm or $7,677 per hectare.

* Total liabilities per farm were $154,772, a five per cent increase in the survey figure from the previous year. Fixed liabilities rose by nine percent and current liabilities fell by 20 percent.

* Equity as a per cent of the value of all assets averaged 77 per cent. This decreased compared with the previous survey (79 per cent). North Island farms had a higher proportion (78 per cent) compared with South Island farms (74 per cent).

CHAPTER 1

BACKGROUND

1.1 Objectives of the National Farm Survey

As in previous years, the principal objective of the 1983-84 survey was to determine the average net farm income received by town milk producers in New Zealand. Information produced by the survey is used for a variety of purposes. It assists decisions concerning applications for price increases from specific producer groups. The national average cost and return results are also used as standards with which cost and return figures derived from smaller regional surveys can be compared. The survey data obtained each year also provide a continuing set of statistics on the economic position of town supply dairy farms. The availability of such information is of value to the individual farmer, regional advisers, and government policy makers.

No attempt has been made in the report to draw any conclusions on whether or not an increase in town milk prices is justified. The analyses have been carried out primarily to meet the basic objective of the survey, namely the determination of national net farm income.

1.2 Producer Prices[1]

Until the August 1982-83 year there had been no change in the basic method of fixing the town milk producer price. It has been linked to the average manufacturing price for whole milk for all major uses. An increase in price of one percent per kilogram of milkfat resulted in an increase of 0.06 cents per litre in the town milk producer price.

In June 1983, the Dairy Board announced an advance end-of-season surplus payment for the 1982-83 season. This brought the average farm gate value for the season up from 333.48 cents to 360 cents per kilogram of milkfat. Traditionally this increase would have been wholly translated into the town milk producer price. However, because of the wage and price freeze, and the fact that town milk producers were essentially servicing the domestic market, Government ruled that for the remainder of the freeze and until 29 February 1984, town milk producer prices were restricted to the maximum approved for the 1981-82 year. These were based on an average farm gate value of 333.48 cents per kilogram of milkfat for wholemilk. After taking into account adjustments for variatiotns in collection costs, the town milk supplier received 1.8102 cents per litre less for the August 1982-83 year than if the traditional price link had applied.

For the period 1 September 1983 to 29 February 1984 the initial town milk producer price was based on the manufacturing price of 333.48

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1 NZ Milk Board Annual Reports for the years ended August 1983 and 1984.

cents per kilogram of milkfat. However Government later allowed an end-of-season surplus payout of 10 cents per kilogram of milkfat to be translated into the town milk price for the year. The final 1983/84 town milk price was based on farm gate values of 343.48 cents per kilogram of milkfat for the period September 1983/February 1984, and 350 cents per kilogram for the March/August 1984 period (Table 2).

Table 1 summarises the national average town milk producer prices for finest grade milk over the past four N.Z. Milk Board financial years.

Most producer companies are actually paid at standard seasonal prices which average back to the national average prices referred to in Table 1. Some producer companies elect to vary their milk prices throughout the year to compensate for climatic conditions, or as a means of encouraging higher production in the more difficult production months. Where within-year variations of prices are utilised, the entire payout must average back to the national average prices.

TABLE 1

National Average Town Milk Producer Prices

Year Commencing 1st September	Finest Grade Final Price (cents per litre)
1980	18.7347
1981	22.9593
1982	22.9593
1983 (to 29 February 1984)	23.4303
1983 (1 March to 31 August 1984)	24.0405

SOURCE: N.Z. Milk Board Annual Report for the year ended August 1984, p.5.

Additional funds for special production allowances were made available for certain regions over and above the basic price payable to town milk suppliers. The purpose of the extra allowances was to help offset the higher costs of production in those regions. Government has approved an increase in the special production allowances of $1.2 million a year for a further three years from 1 September 1983.

Table 2 summarizes the additional district special production allowances for 1983 and 1984.

1.3 Town Milk Production Data

Total town milk production in the year ending 31 August 1983

was nearly three percent above that of the previous year.[2] Table 3 shows the total production and sale of milk passing through the National Milk Scheme for the years ending 31 August 1982, 1983 and 1984.

TABLE 2

Town Milk Additional District Allowances for 1983 and 1984

District	Cents per litre over six autumn and winter months 1983	1984
Rotorua	0.75	0.80
Tokoroa (excluding Putaruru & Hodderville)	0.50	0.60
Gisborne (excluding Wairoa)	1.25	2.50
Hawke's Bay (excluding Maharahara)	1.00	2.25
Ruapehu	2.00	2.25
Blenheim	1.00	1.25
Nelson	1.00	1.25
Grey District	0.50	0.60
Christchurch	1.50	1.70
Ashburton	1.25	1.25
South Canterbury	1.00	1.25
North Otago	2.00	2.00
Dunedin/Balclutha	1.75	1.80
Central Otago	3.00	3.50
Southland	2.75	3.25

SOURCE: N.Z. Milk Board Annual Report for the year ended August 1984.

TABLE 3

Total Town Milk Production

Year Ending 31 August	Milk Production m. litres	Quantity Eligible for Town Milk Price m. litres	Total Town Sales m. litres
1982	662.9915	437.1360	357.8489
1983	659.9610	427.5168	352.7622
1984	679.7172	427.5514	350.3541

SOURCE: N.Z. Milk Board Annual Report for the year ended August 1984, p.22.

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2 Ibid., p.22.

Total milk sales to consumers for the year ended 31 August 1984 were 350,354,062 litres. When adjusted for the leap year this represents a drop of 0.95 percent below the 1983 sales figure. The decline in sales in 1984 was again less than for the previous year, and continues the trend since 1980 (1980-3.18%; 1981-2.43%; 1982-2.20%; 1983-1.42%; 1984-0.95%). The consumer price had remained stable at 30 cents per 600 ml bottle since 1 June 1982.

The decline in milk sales is reflected in the per capita consumption of milk. This showed a decline from an estimated 113.63 litres per head for the year ending 31 August 1983 to 111.37 litres per head in the following year.

1.4 Town Milk Suppliers and Quotas

There were 1,278 town milk quota holders[3] during the 1983-84 milk year compared with 1,309 for the previous year, and in addition, there were two dairy company quota holders. A summary of the number of quota and sub-quota holders over the past four years is given in Table 4, while Table 5 gives details of quota holding dairy companies in 1983-84.

TABLE 4

Total Milk Suppliers and Daily Quotas

Year Ending 31 August	Type of Quota Holders	Total Nominated Quantity (1)	No. Town Milk Suppliers & Sub-quota Holders	Average Daily Quota per Supplier (1)
1982	Total NZ Suppliers	1,060,910	1,377	770
	3 Dairy Companies	20,192	55	367
	Quota and Sub-quota Holders	1,081,102	1,432	755
1983	Total NZ Suppliers	1,037,575	1,309	793
	3 Dairy Companies	19,984	52	384
	Quota and Sub-quota Holders	1,057,559	1,361	777
1984	Total NZ Suppliers	1,034,330	1,278	809
	2 Dairy Companies	13,251	42	316
	Quota and Sub-quota Holders	1,047,581	1,320	794

SOURCE: N.Z. Milk Board, pers. comm.

3 N.Z. Milk Board, pers comm.

TABLE 5

Quota Holding Companies 1983-84

Name of Company	Quota Held (Litres)	Supply District	No. of sub-quota holders
East Tamaki	12,242	Auckland	38
East Tamaki	1,009	Franklin	4
Total	13,251		42 suppliers

SOURCE: N.Z. Milk Board, pers. comm.

Nominated quantities, which producer associations contract to guarantee to meet the daily liquid milk requirements in their area throughout the year, are based on estimated demand in accordance with an agreed formula. Due to the continuing decline in sales since regular price increases began in 1976, nominated quantities have been reducing also.

The agreed formula for fixing nominated quantities is as follows:[4]

1. Average daily sales calculated by taking the net sales by milk stations to vendors over a period of two consecutive winter months and dividing by the appropriate number of days in the period.

2. The resultant daily sales figures to be increased by a tolerance factor of 3.25 percent to cover returned milk, wastage and other factors.

3. The resultant figure to be adjusted to include an allowance for expected changes in the population.

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4 Ibid., p.4

CHAPTER 2

DESCRIPTION OF THE SURVEY

2.1 The Sample

The sampling unit for the survey is the farm, and the main sources of information the farmer and the annual farm accounts.

A random 75 percent of the farmers who participated in the 1982-83 survey were retained for the 1983-84 survey. The other 25 percent were excluded and replaced by a new random selection of farmers. All town milk farms were eligible for selection provided the following criteria were satisfied.

(i) The farm supplied a producer association that had a nominated quantity (N.Q.) of more than 7,500 litres daily.

(ii) The farm itself had a daily quota of more than 200 litres.

(iii) The farm received at least 75 percent of gross revenue from milk sales and related dairy activities.

(iv) The farm engaged no sharemilker.

(v) The farmer had been producing town milk on that particular farm over the twelve months of the survey period.

The decision on eligibility was carried out in two stages. Firstly, information available from the Milk Board prior to sample selection enabled farms not satisfying (i) and (ii) above to be eliminated from the total population. Also, results from a questionnaire which had been sent to each producer company secretary seeking information on the sharemilkers in each company enabled farms to be further eliminated on the basis of (iv). The second stage at which a decision was made on eligibility was at the time of the farm visit when further farms were eliminated because of either (iii) or (v).

Of an initial list of 1278 farms provided by the Milk Board, the eligible population was reduced under (i), (ii) and (iv) to 859 prior to sample selection. Replacement farms were selected at random from the reduced list and the farmers initially contacted by mail. Provided that the farm was found to be eligible and the farmer agreed to participate in the survey, a farm visit was undertaken by Lincoln College staff and the required information obtained. Where farms were found to be ineligible or the farmer unwilling to participate, further replacement farmers were contacted until sufficient numbers were obtained.

2.2 Sample Stratification

The sample was stratified on the basis of two regional groups (North Island and South Island) and three quota sizes (201-600 litres, 601-1000 litres and 1001+ litres).

Table 6 shows the number of survey farms for each strata or group compared with the eligible population for each strata. Further details are given in Appendix C.

TABLE 6

Population and Sample Distribution by Strata[a]

Strata	Estimated Total No. of Farms in Strata	Estimated Proportion of Total Farms in Strata	Number of Farms Surveyed	Proportion of Total Farms Surveyed
North Island				
201-600 litres	130	0.1997	26	0.1711
601-1000 litres	153	0.2436	32	0.2105
1001+ litres	97	0.1489	18	0.1184
Total North Island	380		76	0.5000
South Island				
201-600 litres	129	0.1895	25	0.1645
601-1000 litres	92	0.1472	33	0.2171
1001+ litres	48	0.0711	18	0.1184
Total South Island	269		76	0.5000
New Zealand	649	1.0000	152	1.0000

a See Appendix C

2.3 Weighting

Since the South Island strata were sampled relatively more heavily than the North Island, a simple average of all survey farms would have given a biased national figure. The estimated proportion of the total farms in each strata (Table 6) was therefore used to "weight" the average from each strata to give the overall New Zealand results (and also the North Island and South Island results). This procedure ensures that each strata assumes its correct degree of importance in the final results.

2.4 Data Collection and Assembly

Field work commenced in October 1984 and was completed by May 1985.

To maintain uniformity and continuity of the survey, the manual of procedures introduced by the New Zealand Milk Board and the Town Milk Producers' Federation of New Zealand (Inc.) was followed. Appendix B gives details of definitions, procedures and imputed values used.

A set of farm working accounts for the 1983-84 financial year was obtained from the farmer or his accountant. Milk production records for the farms surveyed were provided from the records of producer associations. Partnerships and companies were treated as owner-operated farms by assuming one of the partners (members) as owner, and the other(s) as employee(s), provided they were engaged in farm work.

Wherever possible, data were transferred directly from the farm accounts to the relevant income and expenditure categories on the survey assembly form. Trade discounts, subsidies and allowances for personal use were deducted from the appropriate expense item before entry. Other adjustments included the calculation of an imputed wage for any unpaid family labour and the assessment of a standard livestock value for each set of accounts.

TABLE 7

Balance Dates of Annual Accounts 1983-84

	North Island	South Island	New Zealand
Number of Farms	76	76	152
	%	%	%
Month Ending			
February	1	1	1
March	58	67	63
April	1	0	1
May	11	4	7
June	25	20	22
July	0	1	1
August	4	7	5
Total	100	100	100

All financial and production data collected referred to the farm's financial year. Table 7 shows the distribution of farm account balance dates of the 152 participating farmers in the 1983-84 survey. It can be seen that 63 percent of all balance dates were March 31st.

Financial results for the survey farms were derived largely from the farm accounts. In cases where these showed insufficient detail, further information was sought from the farmer and/or accountant.

CHAPTER 3

PHYSICAL AND PRODUCTION DATA

3.1 Physical Characteristics of Farms

3.1.1 Farm Area

Table 8 shows the average total farm area and average productive area of the North Island, South Island and average New Zealand survey farms. The same table is broken down by region and quota group in Appendix E.

The average total size of the farm including run-off area for North Island farms was 91.43 hectares, for South Island farms 95.72 hectares, and for the average New Zealand farm, 93.18 hectares. Total farm sizes ranged from 32.32 hectares to 225.18 hectares in the North Island, and from 24.32 hectares to 266.04 hectares in the South Island.

An estimate of the dairy productive area used for milk production also appears in Table 8. On the North Island farms more land was used for sheep, beef and cash crops (8.74 hectares) compared with the South Island (4.74 hectares). However there was more unproductive land (7.44 hectares) on the South Island farms (4.52 hectares for the North Island). The dairy productive area on the average North Island farm was 81.17 hectares. This was less than the 87.11 hectares for the South Island average farm.

Figure 1 is a graphic representation of the total farm area and the dairy productive area.

3.1.2 Land Use

Table 9 gives a brief summary of land use on the surveyed farms. The non-productive area on individual farms ranged up to 40.46 ha in the North Island and up to 72.84 ha in the South Island. Much of this land was in gorse or scrub.

3.1.3 Irrigation

Seventy percent (53 farms) of the surveyed South Island farms used irrigation during the year compared with 11 percent (eight farms) in the North Island (see Table 10). The average percentage of dairy productive land which was irrigated on these 61 farms was 52 percent.

TABLE 8

Average Areas of Town Supply Farms

	North Island	South Island	New Zealand
Number of Farms Surveyed	76	76	152
Freehold Area	79.05	86.30	82.01
Crown & Maori Lease	2.35	4.24	3.13
Rented Area	10.03	5.18	8.04
Total Farm Area	91.43	95.72	93.18
Less Unproductive Area	4.52	7.44	5.71
Productive Area	86.91	88.28	87.47
Less Estimated Sheep, Beef and Cash Crop Area	8.74	4.74	7.11
Plus Estimated 'Grazing' Out Area	3.00	3.57	3.23
Dairy Productive Area Utilised for Milk Production	81.17	87.11	83.59

FIGURE 1

Total Farm Area & Dairy Productive Area

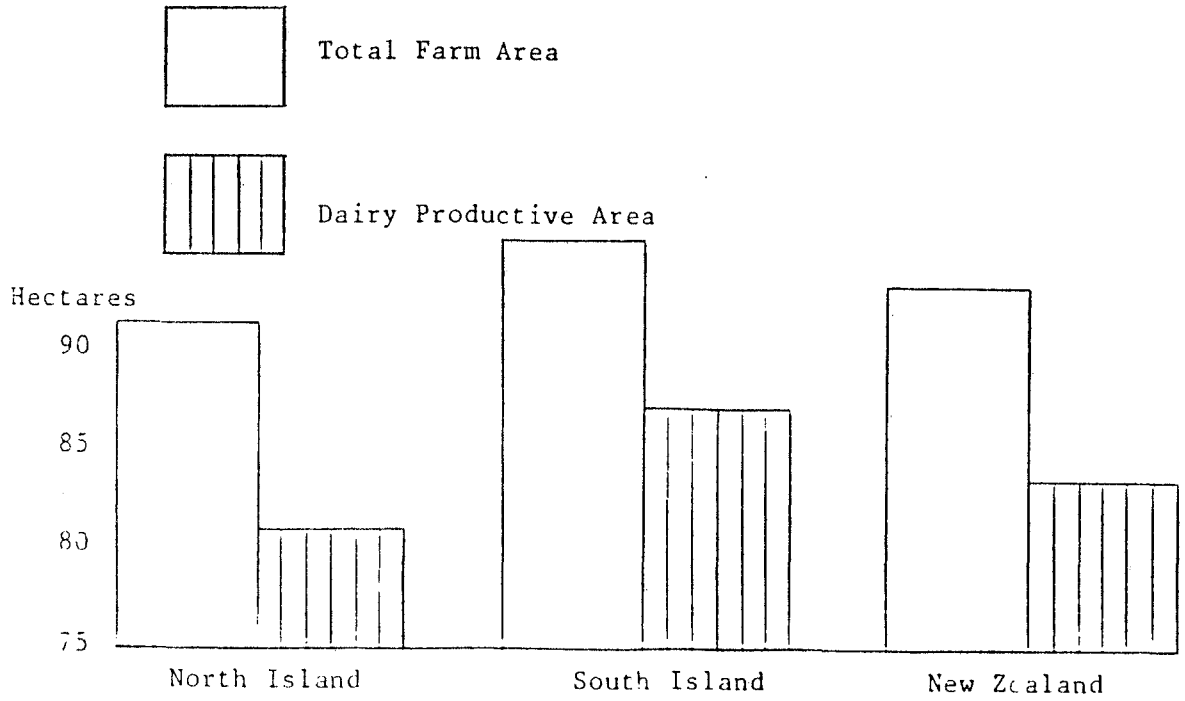


TABLE 9

Utilisation of Farm Area
By Region and Quota Group

	North Island	South Island	New Zealand
Number Surveyed	76	76	152
Proportion of Farm Area under:			
- Dairy Pasture	84.9	83.4	84.2
- Forage Crops	1.3	2.4	1.8
- Sheep & Beef Cattle Pasture & Cash Crops	8.7	5.7	7.5
- Unproductive Land	5.1	8.5	6.5
Total	100.0	100.0	100.0

TABLE 10

Irrigation Use

	North Island	South Island	New Zealand
Number Surveyed	76	76	152
Number of Farms Using Irrigation	8	53	61
- Percentage of Dairy Productive Area Irrigated	40%	69%	52%
- Estimated Total Hours Irrigating[a]	1,380	1,040	1,241

a These results do not include weighted means. The average is calculated according to the number of practicing farmers.

3.2 Labour

The average survey farm employed a total of 2.26 labour units (see Table 11 and Figure 2). This was similar to the 1982-83 figure of 2.25 labour units. There was a marginal decrease in the proportion of permanent labour per New Zealand farm (from 93 percent to 91 percent) and a similar fall in the proportion of family labour (to 69 percent).

TABLE 11

Types of Labour Units

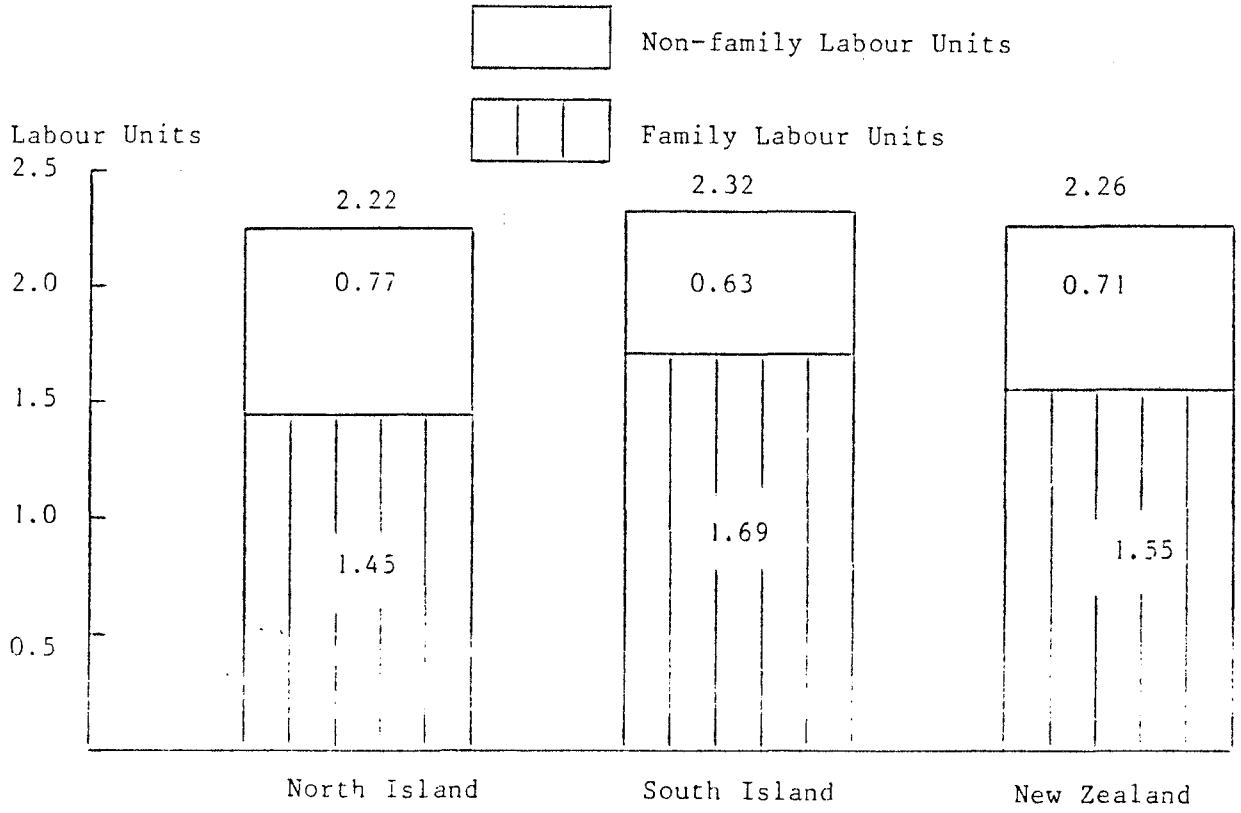
	North Island	South Island	New Zealand
Number Surveyed	76	76	152
Farmer	0.93	1.00	0.96
Permanent Family	0.47	0.57	0.51
Casual Family	0.05	0.12	0.08
Total Family Labour Units	1.45	1.69	1.55
Permanent Non-Family	0.63	0.51	0.58
Casual Non-Family	0.14	0.12	0.13
Total Non-Family Labour Units	0.77	0.63	0.71
Total Labour Units	2.22	2.32	2.26
Proportion of Permanent Labour	91%	90%	91%
Proportion of Family Labour	65%	73%	69%

3.3 Milk Production

The daily quota per surveyed farm was 763 litres (Table 12) compared with the previous New Zealand survey estimate of 772 litres. The average North Island quota was 8.3 percent higher than the average South Island quota (787 and 727 litres). Total annual milk production per farm was similar at 474,217 litres (473,153 litres in 1982-83). The proportion of milk sold at quota prices remained at about 65 percent.

FIGURE 2

Family and Non-Family Labour Units



When the total litres produced per farm is converted to milkfat at a 4.21 percent test[5] the average North Island townmilk farm produced 261 kg per dairy productive hectare compared with the average South Island farm at 209 kg.

The average North Island supplier had 20 percent more cows in his herd in December and over 25 percent more in June compared with the South Island supplier. There was also less available dairy productive land on the North Island farms (81.17 hectares). The South Island producer had more available land (87.11 hectares) but a lower stocking rate of 12.1 stock units per dairy productive hectare. The North Island farmer produced twenty-five percent more milk per dairy productive hectare.

3.4 Other Physical and Production Data

In Appendix D further physical and production information is listed. It includes information such as supplementary dairy feed run-off area, dairy management and stock balances.

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5 NZ Milk Board Annual Report for the year ended August 1984, p.32.

TABLE 12

Milk Production

	North Island	South Island	New Zealand
Number Surveyed	76	76	152
Daily Quota (l)	787	727	763
Milk Production Sold at Quota Prices (l)	320,869	290,682	308,565
Milk Production Sold at Surplus Prices (l)	181,991	141,913	165,652
Total Litres Produced (l)	502,860	432,595	474,217
Proportion of Total Sold at Quota Prices (%)	64	67	65
Average Litres Produced in June 1983 (l)	31,351	28,104	30,027
Average Litres Produced in December 1983 (l)	51,267	43,511	48,105
Average Herd Size (No. Cows -: Includes Dry Cows)	132.64	198.76	123.31
Average No. Milking Cows in June 1983	86.39	68.88	79.25
Average No. Milking Cows in December 1983	115.80	96.73	108.02
Total Litres Converted to 4.21% Milk Fat (kg)	21,170	18,212	19,964
Kg. Milk Fat/Dairy Productive ha (kg)	261	209	239
Total Stock Units[a]/ Farm (No.)	1,194	1,050	1,135
Stock Units/Dairy Productive ha (No.)	14.7	12.1	13.6
Total Litres/Average Herd Size (l)	3,791	3,941	3,846
Litres/December Milking Cows (l)	4,342	4,472	4,390
Litres/Dairy Productive ha (l)	6,195	4,966	5,673
December Cows/Dairy Productive ha (No.)	1.43	1.11	1.29

a For a definition of stock units, see Appendix B.

CHAPTER 4

FINANCIAL DATA

4.1 Introduction

Many of the tables in this Chapter have results presented on a per farm, per average cow and a per dairy productive hectare basis. For both Islands the per farm results are divided by the average number of cows (including dry cows) and dairy productive area for each Island to give the per cow and per dairy productive hectare results. The New Zealand calculations use the New Zealand average number of cows and the New Zealand average dairy productive area.

The reliability of the survey estimates are presented in Appendix C. Comparisons with the results from previous years are presented in Appendix F.

4.2 Capital Structure

Details of the procedures adopted in assessing the capital value of assets and liabilities are listed in Appendix B. They are similar to those followed in previous surveys.

4.2.1 Value of all Assets

The total value of all assets on the average New Zealand survey farm was $660,319 or $7,901 per dairy productive hectare (see Table 13). This was very similar to the 1982-83 value of $7,937 per dairy productive hectare.

The average North Island farm had an all assets total of $723,817 ($8,917 per dairy productive hectare) compared with the South Island figure of $568,084 ($6,521 per hectare). In 1981-82 the difference in asset value per farm between the two Islands was $1,273 per dairy productive hectare, in 1982-83 it was $1,991 and in 1983-84 it had increased to $2,396 per dairy productive hectare. This trend highlights the more rapid rise in North Island land values.

4.2.2 Value of all Liabilities

The average North Island farm had a current and fixed liabilities total of $157,959 or $1,946 per dairy productive hectare (see Table 13). The South Island figure was $150,140 ($1,723 per hectare). The New Zealand value of all liabilities increased compared with the previous year, but the New Zealand equity value fell from $6,253 per dairy productive hectare (1982-83) to $6,048 per hectare.

TABLE 13

Capital Structure - Value of all Assets and Liabilities

	North Island			South Island			New Zealand		
	Per Farm	Per Cow	Per Dairy Prod. ha	Per Farm	Per Cow	Per Dairy Prod. ha	Per Farm	Per Cow	Per Dairy Prod. ha
Assets	$	$	$	$	$	$	$	$	$
Freehold Land (valued at 31.12.83)	593,345	4,473	7,310	436,586	3,978	5,012	529,426	4,293	6,334
Farmer's House (1/2 Book Value)	24,451	184	301	21,020	192	241	23,052	187	276
Other Farm Houses	11,427	86	141	6,690	61	77	9,495	77	114
Farm Buildings	18,156	137	224	23,017	210	264	20,139	163	241
Plant & Equipment	10,501	79	129	16,492	150	189	12,945	105	155
Farm Vehicles	26,848	203	331	24,523	223	282	25,901	210	310
Dairy Stock	22,646	171	279	18,609	170	214	21,000	170	251
Other Stock	490	4	6	178	2	2	363	3	4
Company Shares	2,172	16	27	2,092	19	24	2,139	17	26
Total Farm Assets	710,036	5,353	8,748	549,207	5,005	6,305	644,460	5,225	7,711
Cash at Bank	5,285	40	65	8,382	76	96	6,548	53	78
Sundry Debtors	6,841	52	84	8,640	79	99	7,575	61	91
Other Current Assets	1,655	12	20	1,855	17	21	1,736	14	21
Total All Assets	723,817	5,457	8,917	568,084	5,177	6,521	660,319	5,353	7,901

(Table 13 cont....)

TABLE 13 (cont.)

Capital Structure - Value of all Assets and Liabilities

	North Island			South Island			New Zealand		
	Per Farm	Per Cow	Per Dairy Prod. ha	Per Farm	Per Cow	Per Dairy Prod. ha	Per Farm	Per Cow	Per Dairy Prod. ha
Current Liabilities	$	$	$	$	$	$	$	$	$
Bank Overdraft	7,901	59	97	7,131	65	82	7,587	62	91
Sundry Creditors	8,958	68	111	10,209	93	117	9,468	77	113
Other Current Liabilities	1,233	9	15	766	7	9	1,043	8	12
Total Current Liabilities	18,092	136	223	18,106	165	208	18,098	147	216
Fixed Liabilities									
Rural Bank Mortgages	29,656	224	365	59,845	545	687	41,967	340	502
Trading Bank Mortgages	10,302	78	127	8,480	77	97	9,559	78	114
Building Society Mortgages	3,843	29	47	2,769	25	32	3,405	28	41
Insurance Company Loans	20,232	153	249	1,591	14	18	12,631	102	151
Stock Firm Loans	966	7	12	1,045	10	12	998	8	12
Finance Company Loans	5,835	44	72	4,224	38	48	5,178	42	62
Solicitors Loans	27,317	206	337	24,379	222	280	26,120	212	312
Family Mortgages	39,925	301	492	27,036	246	310	34,669	281	415
Other Liabilities	1,791	13	22	2,665	24	31	2,147	17	26
Total Fixed Liabilities	139,867	1,055	1,723	132,034	1,201	1,515	136,674	1,108	1,635
Total All Liabilities	157,959	1,191	1,946	150,140	1,366	1,723	154,772	1,255	1,851
Equity	565,858	4,266	6,971	417,944	3,808	4,798	505,547	4,100	6,048
Total	723,817	5,457	8,917	568,084	5,174	6,521	660,319	5,355	7,899

4.3 Gross Revenue

4.3.1 Gross Revenue per Farm

Total gross revenue in Table 14 for the average New Zealand farm increased from $1,393 per dairy productive hectare to $1,489 per hectare or to a total of $124,458 per farm. This was a seven percent increase per hectare compared with the year before. Total gross revenue per cow showed a small increase from $998 to $1,009.

Milk sales represented 85.9 percent of the total gross revenue for the average farm. The New Zealand figure of $1,279 per hectare for milk sales was above the 1982-83 figure by seven percent. The profit from all livestock sales of $148 per hectare was 13 percent above the previous year's figure. Livestock standard values were maintained at the same level as the previous survey.

The total North Island gross revenue per farm was $129,660 or $1,597 per dairy productive hectare. This was 19 percent higher than the South Island total of $1,341 per hectare. The total South Island gross revenue was $116,897 per farm. In milk sales per cow the South Island average farm performed better (at $920 per cow) compared with the average North Island farm ($837 per cow).

4.3.2 Types of Milk Payments Received

The average North Island farmer received $73,572 for quota milk (see Table 15). This was seven percent greater than the amount received for quota milk by South Island producers ($68,651). North Island producers also received 32 percent more payment per farm for their surplus milk ($24,396 compared with $18,482). However the South Island producers received more in special allowances, premiums and farm chilling allowances per farm.

TABLE 14

Gross Revenue Components

	North Island			South Island			New Zealand		
	Per Farm	Per Cow	Per Dairy Prod. ha	Per Farm	Per Cow	Per Dairy Prod. ha	Per Farm	Per Cow	Per Dairy Prod. ha
	$	$	$	$	$	$	$	$	$
Milk Sales	110,969	837	1,367	101,018	920	1,160	106,914	867	1,279
Produce Sold	1,210	9	15	1,294	12	15	1,245	10	15
Wool & Skins Sold	268	2	3	21	0	0	167	1	2
Contracting Fees	574	4	7	800	7	9	666	5	8
Rent & Lease Fees	591	5	7	408	4	5	517	4	6
Employee's House	583	4	7	739	7	8	647	5	8
Livestock Profit									
- Dairy	14,612	110	180	10,134	92	116	12,785	104	153
- Other Stock	-867	-6	-10	266	2	3	-406	-3	-5
Other Revenue	1,720	13	21	2,217	20	25	1,923	16	23
Gross Revenue	129,660	978	1,597	116,897	1,064	1,341	124,458	1,009	1,489

TABLE 15

Types of Milk Payments Received

	North Island	South Island	New Zealand
Number Surveyed	76	76	152
Total Litres Produced	502,860	432,595	474,217
Cows in Milk in December 1983	115.80	96.73	108.02
Dairy Productive Hectares	81.17	87.11	83.59
	$	$	$
Payment Received for Milk Paid at Quota Prices	73,572	68,651	71,567
Payment Received for Milk Paid at Surplus Prices	24,396	18,482	21,985
Special Production Allowances	305	1,692	871
Premiums Received or Penalties Paid	-115	114	-22
Farm Chilling Allowances	381	392	386
End of Season, Retrospective and Other Payments	12,430	10,342	11,578
Total Milk Payments Received	110,969	99,673	106,365

4.4 Expenditure

4.4.1 Farm Expenditure

For the average New Zealand farm, total expenditure increased from $1,089 per dairy productive hectare (1982-83) to $1,170 per hectare (1983-84), an increase of seven percent (Table 16). Total expenses per farm rose from $95,741 to $97,767. The largest sector increase was overhead expenses which rose ten percent followed by labour, operating and administration expenses. These rose nine per cent, five percent, and three percent respectively. A large increase of 17 percent was recorded for depreciation.

Among the operating expenses for the average town milk farm large rises per hectare were recorded for grazing (up 64 percent to $18 per hectare), dairy shed expenses (up 26 percent to $29 per hectare or $20 per cow), and weed and pest expenses (up 25 percent to $10 per

TABLE 16

Farm Expenditure Components

	North Island			South Island			New Zealand		
	Per Farm	Per Cow	Per Dairy Prod. ha	Per Farm	Per Cow	Per Dairy Prod. ha	Per Farm	Per Cow	Per Dairy Prod. ha
Labour	$	$	$	$	$	$	$	$	$
Family Labour	2,929	22	36	2,562	23	29	2,779	23	33
Family Casual Labour	317	2	4	704	6	8	475	4	6
Non-Family Permanent & Casual Labour	8,448	64	104	6,334	58	73	7,586	61	91
Unpaid Family Labour	2,653	20	33	3,916	36	45	3,168	26	38
Labour Accommodation	644	5	8	687	6	8	662	5	8
Sub-Total Labour	14,991	113	185	14,203	129	163	14,670	119	176
Operating									
Animal Health	2,854	22	35	2,616	24	30	2,757	22	33
Breeding & Herd Testing	1,780	14	22	1,924	17	22	1,839	15	22
Contractors	1,768	13	22	2,040	18	24	1,879	15	22
Dairy Shed Expenses	2,329	18	29	2,590	24	30	2,435	20	29
Electricity	2,381	18	29	2,272	21	26	2,337	19	28
Fertilizer & Seed	8,247	62	102	5,604	51	64	7,169	58	86
Feed	7,282	55	90	9,512	87	109	8,191	67	98
Grazing Expenses	1,983	15	24	757	7	9	1,484	12	18
Freight	437	3	5	1,076	10	12	697	6	8
Weed & Pest Expenses	835	6	10	877	8	10	852	7	10
Vehicle Expenses	8,819	66	109	9,337	85	107	9,030	73	108
Repairs & Maintenance	10,617	80	131	10,359	94	119	10,512	85	126
Irrigation Expenses	164	1	2	729	7	8	395	3	5
Sub-total Operating	49,496	373	610	49,693	453	570	49,577	402	593

(Table 16 cont....)

TABLE 16 (cont....)

Farm Expenditure Components

	North Island			South Island			New Zealand		
	Per Farm	Per Cow	Per Dairy Prod. ha	Per Farm	Per Cow	Per Dairy Prod. ha	Per Farm	Per Cow	Per Dairy Prod. ha
	$	$	$	$	$	$	$	$	$
Administration									
Accountancy	1,014	8	12	928	9	10	979	8	11
Telephone	701	5	9	582	5	7	653	5	8
General Administration	1,461	11	18	1,116	10	13	1,320	11	16
Sub-total Administration	3,176	24	39	2,626	24	30	2,952	24	35
Overheads									
Insurance	1,537	11	19	1,628	15	19	1,574	13	19
Interest	16,583	125	204	13,762	125	158	15,433	125	185
Rates	2,603	20	32	2,086	19	24	2,392	19	28
Rent	2,513	19	31	1,696	16	19	2,180	18	26
Sub-total Overheads	23,236	175	286	19,172	175	220	21,579	175	258
Total Cash Expenses	90,899	685	1,120	85,694	781	984	88,778	720	1,062
Net Depreciation	8,738	66	108	9,351	85	107	8,989	73	108
Total Expenditure	99,637	751	1,228	95,045	866	1,091	97,767	793	1,170

hectare).

Comparing the results from the two islands, the North Island farmer spent more on grazing expenses per cow ($15 per cow compared with $7 per cow in the South). The South Island farmer however spent 21 percent more on breeding and herd testing (at $17 per cow). Electricity costs per cow in the South Island were also higher ($21 per cow compared with $18 per cow).

Freight costs per dairy productive hectare were much higher in the South Island ($12 per hectare compared with $5 per hectare). Feed costs were 21 percent high in the South (at $109 per hectare). However the North Island farmer spent 59 percent mroe on fertilizer and seed ($102 per hectare) and ten percent more on repairs and maintenance ($131 per hectare).

The average accountancy fees were $1,014 per farm on the North Island farms and $928 per farm in the South. In the North Island rent expenses were $31 per hectare. This was 63 percent higher than the South Island result of $19 per hectare. Both rates ($32 per hectare) and interest payments ($204 per hectare) were also higher in the North Island.

4.4.2 Depreciation of Farm Assets

Net depreciation (Table 17) increased by 12 per cent from $8,058 to $8,989 for the average New Zealand farm. The increase was greater in the North Island (up by 13 percent) compared with the South Island (up ten percent).

Total gross depreciation for New Zealand increased by 13 per cent to $9,994. The average North Island farm had an increase of 15 percent with the South Island average farm showing a smaller rise of 11 percent.

TABLE 17

Depreciation of Farm Assets

	North Island			South Island			New Zealand		
	Ordinary	First Yr. and Special	Gross Depreciation	Ordinary	First Yr. and Special	Gross Depreciation	Ordinary	First Yr. and Special	Gross Depreciation
								$	$
Plant & Equipment	1,209	730	1,939	1,594	1,173	2,767	1,366	910	2,276
Vehicles	3,914	1,715	5,629	3,662	1,704	5,366	3,812	1,710	5,522
Buildings	1,600	758	2,358	1,417	542	1,959	1,526	670	2,196
Gross Depreciation			9,929			10,092			9,994
Less Personal Depreciation on Cars			309			376			336
Less Depreciation Recovered on Plant and Vehicles by Sales			878			365			669
Cost of New Assets	19,764			18,598			19,289		
Net Depreciation			8,739			9,351			8,989

4.5 Farm Income

4.5.1 Net Farm Income

New Zealand net farm income (before taxation) averaged $26,691 in 1983-84 (Table 18). This was similar to the previous years per farm result of $26,740. The net farm income per dairy productive hectare for 1983-84 was $319 per hectare and this was five percent up on the previous year ($304 per hectare). Two years before in 1982-82 the net farm income per hectare for the average New Zealand farm had been $280 hectare.

North Island average net farm income per hectare increased by eleven per cent from $334 to $370 per hectare. The total per farm was $30,023. The North Island farmer had the same percentage increase in his total expenditure per hectare as his increase in gross revenue (both up eleven percent). In the South Island the average farmer had a small increase in his total expenditure per hectare of two percent to $1,091 per hectare. There was a similar small increase in the South Island gross revenue per hectare of one percent to $1,342. The net farm income per hectare result for the average South Island farmer surveyed fell $9 to $251 per hectare. The total net farm income per farm was $21,852.

The difference between the average net farm income of the North Island and the South Island was $119 per hectare and $27 per cow. In the previous year the difference was $74 per hectare and $5 per cow.

In Figure 3 histograms of gross revenue and net farm income per dairy productive hectare are drawn for the two Islands and New Zealand.

TABLE 18

Net Farm Income Components

	North Island			South Island			New Zealand		
	Per Farm	Per Cow	Per Dairy Prod. ha	Per Farm	Per Cow	Per Dairy Prod. ha	Per Farm	Per Cow	Per Dairy Prod. ha
	$	$	$	$	$	$	$	$	$
Gross Revenue	129,660	977	1,597	116,897	1,065	1,342	124,458	1,009	1,489
Total Expenditure	99,637	751	1,227	95,045	866	1,091	97,767	793	1,170
Net Farm Income	30,023	226	370	21,852	199	251	26,691	216	319
Net Farm Income per Stock Unit	25			21			24		
Net Farm Income per December Milking Cow	259			226			247		

FIGURE 3

Gross Revenue and Net Farm Income Per Dairy Productive Hectare

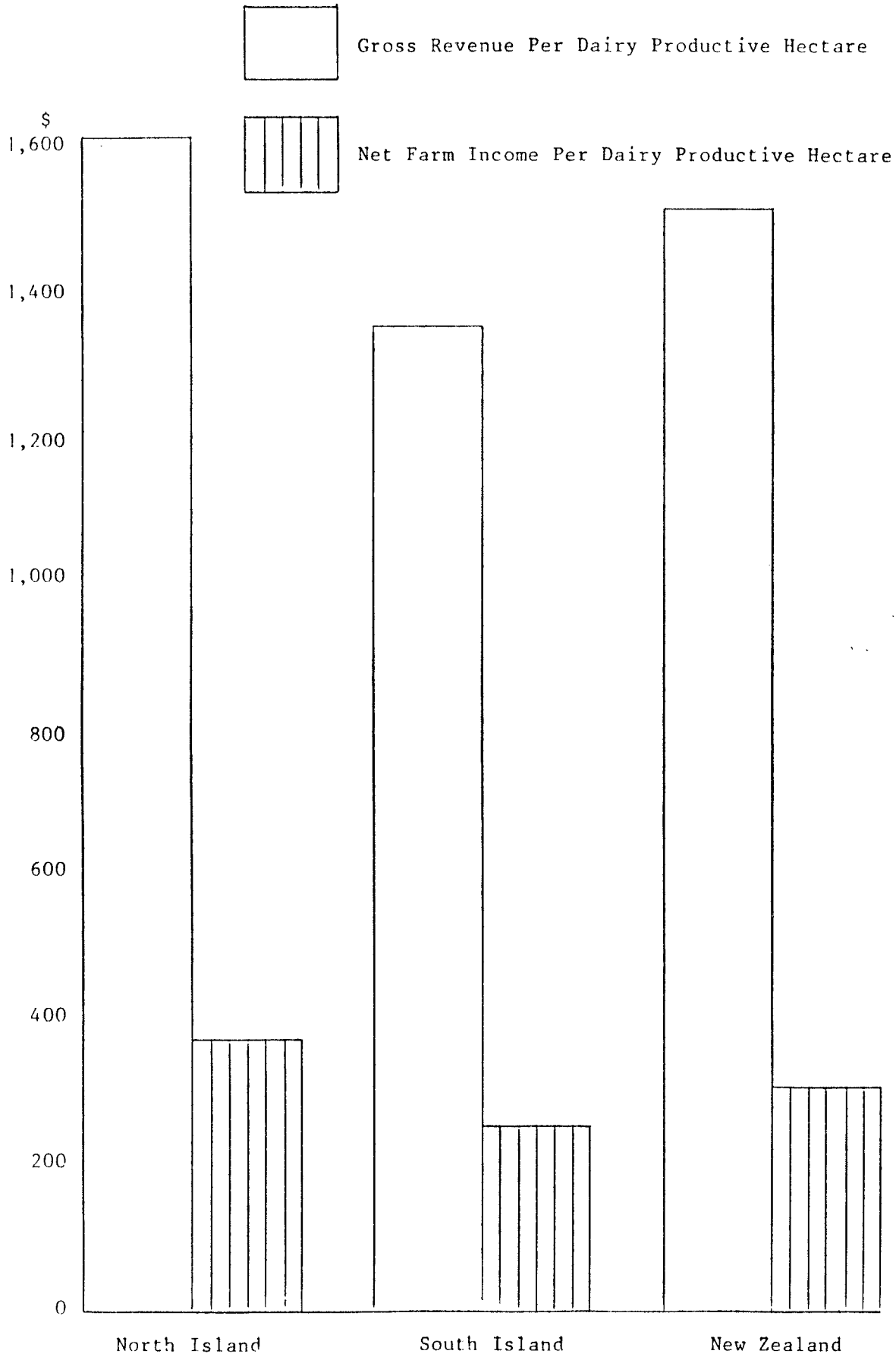

TABLE 19

Cash Surplus from Farming
($ per Farm)

	North Island	South Island	New Zealand
Number Surveyed	76	76	152
Total Litres Produced	502,860	432,595	474,217
Cows in Milk in December 1983	115.80	96.73	108.02
Dairy Productive Hectares	81.17	87.11	83.59
	$	$	$
1. Cash Received:			
Milk Sales	110,969	101,018	106,914
Dairy Cattle Sales	15,036	11,505	13,597
Sheep and Beef Sales	2,683	878	1,947
Bobby Calf Sales	1,850	1,470	1,694
Other Farm Income	4,363	4,740	4,517
Total Received	134,901	119,611	128,669
2. Cash Spent			
Labour and Operating	61,190	59,293	60,418
Overhead and Administration	26,411	21,798	24,530
Dairy Purchases	2,757	3,725	3,152
Sheep and Beef Cattle Purchases	3,812	642	2,520
Total Spent	94,170	85,458	90,620
Cash Surplus from Farming	40,731	34,153	38,049

4.5.2 Cash Surplus

Details of the cash surplus available to farmers after the years farming are listed in Table 19. Imputed revenue and cost components such as allowances for the employee's house and family labour are excluded. Taxation has not been deducted.

Cash surplus from farming increased to $38,049. This was similar to the previous survey results ($37,978). Both Island results also showed little change.

Cash receipts for the average New Zealand farm were up by two percent with cash expenses increasing by three percent. In both Islands the percentage increase in cash spent was one percent higher than the percentage rise in cash received.

Dairy cattle sale receipts showed an increase over the previous year. For the average New Zealand farm, dairy cattle sales were up 20 percent to $13,597.

4.5.3 Farm Incomes Less Implied Interest Rates

In Table 20 an imputed interest rate (e.g. 3.5 percent) was applied first to the equity of the farmer. The resulting figure was then deducted from the net farm income. The actual interest paid was left in as an expense.

Similarly an imputed interest was applied to the total value of farm assets. The resulting figure was then deducted from the sum of net farm income plus actual interest paid. This second approach eliminates any differences that occurred in net farm incomes due to actual interest payments and assumes that the farms were debt free.

TABLE 20

Net Farm Income Less Imputed Interest on Equity and Total Assets

	North Island	South Island	New Zealand
Number Surveyed	76	76	152
Total Litres Produced	502,860	432,595	474,217
Cows in Milk in December 1983	115.80	96.73	108.02
Dairy Productive Hectares	81.17	87.11	83.59
	$	$	$
Equity	565,858	424,443	508,197
Net Farm Income	30,023	21,852	26,691
A. Net Farm Income			
Less Imputed Interest on Equity at Rate of: 3.5%	10,218	6,997	8,904
5%	1,730	630	1,281
7%	-9,587	-7,859	-8,883
Total Farm Assets	710,035	549,208	644,460
Net Farm Income	30,023	21,852	26,691
Interest Paid	16,583	13,762	15,433
B. Net Farm Income			
Plus Interest Paid Less Imputed Interest on Total Farm Assets at Rate of: 3.5%	21,755	16,392	19,568
5%	11,104	8,154	9,901
7%	-3,096	-2,831	-2,988

4.5.4 Measures of Economic Profitability

An attempt has been made in Table 21 to allow a comparison of results from this town milk survey with the results published in the NZ Meat & Wool Board's Economic Service Survey of sheep and beef farms.[6] Most of the terms used here are particular to this table and are not found elsewhere in this report. They are defined in Appendix B.

The calculated rate of return on farm capital invested for the average New Zealand town milk farm was 3.31 percent (Table 21). In previous surveys some of the farm capital components were included at their book values. For this survey the farm capital figures have been adjusted to market values.

The capital turnover percentage is the ratio of gross revenue (less worker's house) to total farm capital expressed as a percentage. In 1983-84 the average New Zealand farm had a capital turnover percentage of 15.7 percent.

The labour and management residual is an assessment of what the farmer earns as a reward for his own labour and management, given that he pays interest at 12.0 per cent on his own equity capital, in addition to the interest he already pays on borrowed capital. The New Zealand average townmilk residual was -$51,381

4.6 Principal Revenue and Expenditure Components

Milk sales represented 85.9 percent of total revenue in the current survey (Table 22). This was similar to the 1982-83 survey (86.1 percent).

The major expenditure subgroup was operating expenses. Operating expenses make up over half the total expenses on the average town milk farm. The next major expenditure subgroup was overheads, followed by labour expenses.

As a percentage of total expenses all expenditure subgroups for the two Islands were similar to those of 1982-83.

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6 New Zealand Meat and Woold Board's Economic Service, Sheep and Beef Farm Survey, 1982-83, p.44.

TABLE 21

Measures of Economic Profitability[a]

	North Island	South Island	New Zealand
Number Surveyed	76	76	152
Freehold Land Area (ha)	79.05	86.30	82.01
Rented and Grazing-Out Area (ha)	15.39	12.99	14.41
	$	$	$
A. Return on Capital			
1. Working Expenses (less imputed costs)	64,366	61,919	63,370
2. Plus assessed Managerial Reward	19,040	16,846	18,145
3. Total Adjusted Working Expenses (1+2)	83,406	78,765	81,515
4. Working Capital (8.33% of 3)	6,948	6,561	6,790
Freehold, Rented and Grazing-Out Land	709,459	503,835	625,615
Buildings (less Farmer's House)	29,583	29,707	29,634
Plant & Equipment	10,501	16,492	12,945
Farm Vehicles (less car at $8,170)	18,678	16,353	17,731
Livestock at Market Value	103,980	86,365	96,798
5. Farm Capital	872,201	652,752	782,723
6. Total Farm Capital (4+5)	879,149	659,313	789,513
7. Net Farm Income	30,023	21,852	26,691
8. Plus Interest Paid	16,583	13,762	15,433
9. Plus Rent Paid	2,512	1,697	2,179
10. Sub-total (7+8+9)	49,118	37,311	44,303
11. Less Managerial Reward (2)	19,040	16,846	18,145
12. Economic Farm Surplus (10/11)	30,078	20,465	26,158
13. Rate of Return Percentage (12/6)	3.42%	3.10%	3.31%

a Most of the terms used in this table are particular to this table alone; they are defined in Appendix B.

(Table 21 cont...)

TABLE 21 (cont...)

Measures of Economic Profitability[a]

	North Island	South Island	New Zealand
B. Capital Turnover Percentage			
14. Gross Revenue (less worker's house)	129,077	116,158	123,811
15. Total Farm Capital (6)	879,149	659,313	789,513
16. Capital Turnover Percentage (14/15)	14.7%	17.6%	15.7%
C. Labour & Management Residual			
17. Total Farm Capital (6)	879,149	659,313	789,513
18. Plus Cash at Bank, Sundry Debtors & Other Current Assets	13,781	18,877	15,859
19. Sub-total (17+18)	892,930	678,190	805,372
20. Less Fixed Liabilities	139,867	132,034	136,674
21. Less Current Liabilities	18,092	18,106	18,098
22. Total Equity Capital (19-20-21)	734,971	528,050	650,600
23. Net Farm Income (7)	30,023	21,852	26,691
24. Less 12.0% of Equity Capital (22)	88,197	63,366	78,072
25. Labour & Management Residual (23-24)	-58,174	-41,514	-51,381

a Most of the terms used in this table are particular to this table alone; they are defined in Appendix B.

TABLE 22

Revenue and Expenditure Proportions

	North Island	South Island	New Zealand
Number of Farms	76	76	152
	%	%	%
Gross Revenue			
Milk Sales	85.6	86.4	85.9
Livestock Profit	10.6	8.9	9.9
Other Revenue	3.8	4.7	4.2
Total	100.0	100.0	100.0
Expenditure			
Labour	15.0	14.9	15.0
Operating	49.7	52.3	50.7
Administration	3.2	2.8	3.0
Overheads	23.3	20.2	22.1
Depreciation	8.8	9.8	9.2
Total	100.0	100.0	100.0
Expenditure/Revenue Ratio	76.8	81.3	78.6

APPENDIX A

PRODUCER ASSOCIATIONS INCLUDED IN SURVEY

NORTH ISLAND

Whangarei Milk Marketing Co. Ltd.
North Shore Co-op. Milk Producers Ltd.
Auckland Co-op. Milk Producers Ltd.
The New Zealand Co-op. Dairy Co. Ltd, Auckland.
Franklin Co-op. Milk Producers Ltd.
Thames Valley Milk Producers Ltd.
Hamilton Milk Producers Co. Ltd.
Western Bay of Plenty (Co-op) Milk Producers Ltd, Tauranga
Eastern Bay of Plenty (Co-op) Milk Producers Ltd, Whakatane
Rotorua Co-op. Milk Producers Co. Ltd.
Tokoroa Co-op. Milk Producers Co. Ltd.
Gisborne Co-op. Milk Producers Assn Ltd.
Hawke's Bay Milk Producers Co-op. Ltd.
New Plymouth Town Milk Co-op. Ltd.
Egmont Town Milk Co-op. Ltd.
Wanganui Co-op. Milk Supply Co. Ltd.
Manawatu Co-op. Milk Producers Co. Ltd.
Wairarapa Town Milk Ltd.
Wellington Dairy Farmers Co-op. Assn Ltd.

SOUTH ISLAND

Nelson Co-op. Milk Producers Assn Ltd.
Blenheim Co-op. Milk Supply Ltd.
Grey District Co-op. Milk Producers Assn Ltd.
Canterbury Dairy Farmers Ltd.
Metropolitan Milk (Ch-Ch.) Ltd.
Ashburton Town Milk Producers Co-op. Co. Ltd.
South Canterbury Co-op. Milk Supply Co. Ltd, Timaru.
North Otago Co-op. Milk Supply Co. Ltd, Oamaru.
Dunedin Dairy Farmers Co-op. Milk Supply Co. Ltd,Dunedin.
Southland Co-op. Milk Producers Ltd, Invercargill.

APPENDIX B

SURVEY DEFINITIONS AND TREATMENT OF DATA

The same basic survey principles and procedures have been adopted as in surveys of previous years. The following definitions and principles were adopted in extracting data from each farm.

FARM AREA:

Total Farm Area:

This was the total area farmed by the producer during his 1983-84 financial year. It included rented land and run-off units, but did not include any 'grazing out' land.

Productive Farm Area:

The productive area of the farm included the land to which stock had regular access. It was the area grazed by stock less the area in roads, yards, races and farm buildings. The productive area of run-off units was also included. Areas under swamp, steep gullies, riverbeds and dense bush were excluded.

Productive Farm Area Used for Dairy Stock:

This was the estimated total productive area of land used for pasture and fodder production for dairy stock grazing during the income year. Estimated areas used for beef cattle and sheep grazing have been deducted. All grazing out areas used by farmers during the year have been converted to an annual grazing area and are included in the estimated area.

Run-Off Units:

Run-off units were land areas separated from the main farm and were mainly used to rear young dairy stock or carry other stock from time to time. Run-off units were included in the total farm area.

LABOUR:

Labour Unit:

A labour unit was defined as a worker, whether owner or employee, who worked on the farm full time over the survey period. Fractional units of labour were used when including work carried out on a part year or part time basis. Any work carried out by children under 12 years was ignored. The farmer's wife, cadet and student workers were assessed according to the amount of useful work carried out.

QUOTA:

This was the average daily quota per farm for the farmer's 1983-84 financial year.

MILK GRADES:

Milk grades are defined by the N.Z. Milk Board as follows:

Finest Grade: For milk which passes a five-hour reductase test and which, while generally complying with the accepted national standard of 4.3 per cent fat for town milk, does not fall below 3.5 per cent fat.

First Grade: For milk which passes a three-hour reductase test but fails to pass the five-hour test and/or which contains 3.25 per cent fat but not 3.5 per cent fat.

Second Grade: For milk which fails to pass a three-hour reductase test and/or contains less than 3.25 per cent fat.

STOCK UNITS:

These figures are based on the stock unit (s.u.) or ewe equivalent conversion ratios recommended by Coop in "N.Z. Agricultural Science", Vol. 1, No. 3, 1965.

Dairy Town Supply	per head	Sheep and Beef Cattle	per head
Freisian Cow	8.5 s.u.	Ewe	1.0 s.u.
Heifer		Hogget	0.6
- 2 year old	6.0	Ram	0.9
- 1 year old	4.5	Cattle-Beef	6.0
Calf	2.5	Heifer-weaner	3.5
Bull	5.5	Yearling Beef	4.0
		2 year old Beef	4.5

REVENUE:

Total Milk Sales:

The value of all milk sales was extracted from each set of accounts and checked against the monthly milk payments as provided by each producer company. Milk receipts include all relevant special payments made by the producer company during the farm's financial year.

Produce Sold:

Proceeds from the sale of other farm produce, e.g. cereals, hay etc.

Contracting Fees:

Gross proceeds from contracting work undertaken by the farmer or his employees e.g. fencing, haybaling, bulldozing etc.

Rent and Lease Fees:

Grazing fees or rent received from farm cottages or land.

Employee's House and Produce:

This value is the sum of the annual imputed rental of $1,300 for the farm employee's house and $190 per annum allowance for each married non-family permanent worker for produce used. The figure of $190 per annum for produce used per full-time married labour unit was adopted to cover milk, meat, vegetables and firewood used. This allowance was not extended to the owner or members of the farm family. The value of produce used was also included in labour accommodation expenses.

Livestock Profit:

Stock profit from the livestock trading accounts. The survey standard values were applied to all livestock. Stock balances were derived with the aid of the farmer and farm accounts.

Other Revenue:

Sales of timber, posts, and sundry items, and interest from Dairy Company shares and investments. Government livestock subsidies and drought relief payments are also included.

Gross Revenue:

Sum of all the above income items. Non-farm income has not been assessed in the survey.

EXPENDITURE:

Family Permanent Labour:

Actual wages paid to permanent family members. It does not include any salary or management fee paid to owner.

Value of Labour Unit:

A standard wage of $11,055 per annum, with the provision of a house, was assumed for the imputed wage of adult workers over 20 years. This figure was based on the adult award wage for dairy farm workers from September 1, 1981 of $7,773 per annum. A further $3,282 was added to compensate for the 12 months milking requirement on a town-milk farm and the proximity of alternative employment opportunities. The imputed wage based on a 54 hour week for youths between 12 and 20 years of age was the award rate for 18 year olds of $6,382 per annum. Of the 152 farmers surveyed for the 1982-83 survey, 52 paid an average annual adult wage of $11,055 to permanent non-family workers.

Non-Family Permanent and Casual Labour:

Wages paid to permanent and casual non-family members. Casual wages include wages paid for relief milking, casual feeding, haymaking etc. during the year. Contractors' work is excluded.

Unpaid Family Labour:

The value of unpaid family labour was assessed as follows.

Adults over 20 years of age	$3.94 per hour
12-20 year old youths and girls	$2.27 per hour
Children under 12 years	Nil.

The time worked by family members up to a maximum of 54 hours per week was assessed and an imputed total wage calculated. If a wage was paid and listed in the accounts, this was noted under family labour and deducted from the assessed total. Any balance was listed as unpaid family labour. If two brothers worked full-time as a partnership, the farm was adjusted to a sole ownership enterprise and one brother was allocated an imputed wage of $11,055 per annum.

Labour Accommodation:

This was calculated as the sum of the imputed rental value of the farm cottage of $1,300 per annum and $190 per annum for produce used by non-family permanent workers. Full board was assessed at $1,000 per year per person.

Contracting:

Payment to contractors for work done, such as bulldozing, fencing, cultivation, hay or silage making and harvesting.

Animal Health:

This amount includes all veterinary fees and drugs, bloat control and facial eczema control.

Breeding and Herd Testing:

Artificial breeding, herd testing and pedigree expenses.

Shed Expenses:

Rubberware, ropes, buckets, cleansers and miscellaneous items for sheds. Rebates have been deducted where applicable.

Electricity:

Electricity used on the farm and up to one-quarter of the domestic account.

Fertiliser and Seed:

Includes cost of fertilizer, seeds and spreading charges. Subsidies and rebates have been deducted.

Feed:

Purchases of hay, straw, dairying meal, grains, minerals, calf food and miscellaneous items such as baler twine. Rebates were deducted where applicable.

Grazing Expenses:

Grazing fees incurred during the year.

Weed and Pest Control:

This amount includes cost of materials and spraying work. In some cases where it is not itemized the cost of spraying work is included in contracting expenses.

Vehicle Expenses:

Includes fuel, repairs, licences, registration, insurance and so on for all vehicles including farm bikes. Personal allowances for vehicle running have been deducted where they were shown in accounts.

Repairs and Maintenance:

Repairs to buildings, plant, fences, water supply, races etc. This item also includes 25% of repairs to the farmer's house.

Development Expenses:

If this amount is detailed in the farmer's accounts, it has been combined with Repairs and Maintenance in the results.

Irrigation Expenses:

Repairs to irrigation equipment and running costs for fuel or electricity.

Accountancy:

Accountancy fees paid on all farm accounts.

Telephone:

Telephone rentals and tolls.

General Administration:

Administration items not allocated elsewhere, e.g. farm advisory services, legal fees, subscriptions, travelling expenses and sundry other administration items.

Insurance:

General insurance of farm assets.

Interest:

The interest paid is that listed in the accounts. It does not include any calculated interest on the farmer's equity capital.

Rates:

The amounts paid to County Council, Harbour Board, Catchment Board, Rabbit Board or Drainage Board.

Rent:

Fees paid for Crown lease or other renting. Excludes all internal rents paid to family trusts and companies etc.

Depreciation of Farm Buildings:

The original cost values of all farm buildings were used to determine depreciation. Ordinary building depreciation rates as claimed for tax purposes were applied. The normal taxation depreciation rate was applied to the cost values of all houses on the farm.

Depreciation of Other Assets:

Depreciation on all other assets except farm buildings was also based on rates used for taxation purposes. All personal allowances for depreciation (eg. motor car) were deducted from the gross depreciation.

Net Depreciation:

Includes all special and ordinary depreciation as claimed for tax purposes plus any loss on sale of an asset and less any profit on sale of an asset.

Total Farm Expenditure:

Sum of all the above expenditure items.

Net Farm Income:

Gross farm revenue less total farm expenditure.

Cash Surplus from Farming:

This is the difference between the cash received and the cash spent. Imputed revenue and cost components such as allowances for the employee's house and family labour are excluded. Taxation has not been deducted.

CAPITAL STRUCTURE - ASSETS:

Freehold Land:

The most recent Government capital valuation for each farm was

obtained from the farmer. This was then updated to December 1983 using the N.Z. All Farmland Price Index published by the Valuation Department. Next the opening book value of each farmer's buildings was subtracted to arrive at the updated land value.

Land Value Indices

Year Ended 31 Dec.	N.Z. Farmland Price Index (June 1980 = 1,000)	Updating Factor
1979	867	2.3126
1980	1,091	1.8378
1981	1,531	1.3096
1982	2,014	0.9955
1983	2,005	1.0

Report of the Valuation Department for the year ended 31 March 1984, p.8.

Farmer's House:

Half the average book value of the farmer's house is included.

Dairy and Other Stock:

Numbers of dairy and other stock in the various classes were determined partly from the farm accounts and partly from discussions with the farmer. The following standard values per head were applied to the various classes of stock:

Dairy Stock:

All Cows	$125	Young Bulls	$50
Heifers-in-calf	$100	Bulls	$200
Heifers	$80		
Yearlings	$50		
Calves	$20		

Sheep:

Ewes	$10	Wethers	$8
Hoggets - Ewe	$10	Rams	$30
- Ram	$8		
- Wether	$8		

Beef Cattle:

Cows	$125	Steers - calves	$50
Heifer - calves	$50	- 1 year	$50
- 1 year	$50	- 2 year	$125
- 2 year	$125	Bulls - calves	$50
		- other	$200

In order to allow comparisons of results with previous surveys the standard values applied to all stock were the same as for the previous two surveys.

Cash at Bank:

Average value of all current accounts held at banks for the farm's financial year.

Sundry Debtors:

Average value of general sundry debts to the farm account. Most of this amount is monthly milk payments due from the Producer companies.

Other Current Assets:

Average value of all other current assets.

Total All Assets:

The sum of all current and long term farm assets.

CAPITAL STRUCTURE - LIABILITIES:

Current Liabilities:

The average balance taken from the farmer's balance sheets for the various current liabilities.

Fixed Liabilities:

The average balance for all the fixed liabilities such as mortgages and long term loans.

Equity:

This value is obtained by subtracting the value of total current and fixed liabilities from the total value of all assets.

TERMS USED IN MEASURES OF ECONOMIC PROFITABILITY:[7]

Working Expenses:

Cash payments for labour (excluding imputed labour and accommodation values) operating and administrative expenses.

Assessed Managerial Reward:

This is an assessment of the payment that should be imputed to an owner-operator for his own labour and management skill. Calculated by

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7 NZ Meat and Wool Board's Economic Service.
Sheep and Beef Farm Survey 1982-83, p.44.

adding $11,055 (imputed value of farm worker's wage) and one per cent of Farm Capital.

Working Capital:

This is estimated to be one twelfth of the total adjusted working expenses. Since town supply farms have monthly milk cheques being paid into their current accounts, one twelfth of these expenses is considered a large enough proportion. The Sheep and Beef Survey allows 50 per cent of these expenses, as income may be received infrequently.

Farm Capital:

This is the sum of the capital value of land and buildings (excluding homestead), plant and machinery, farm vehicles (excluding private car valued at $8,170) and all livestock (valued at market values).

Total Farm Capital:

This is the sum of Working and Farm Capital.

Interest Paid:

This is the interest paid from the annual accounts.

Rent Paid:

This is the actual rent paid.

Economic Farm Surplus:

This is the difference between the sum of net farm income, salaries paid, interest and rent, and the assessed managerial reward.

Rate of Return:

This is the ratio of the Economic Farm Surplus to the Total Farm Capital expressed as a percentage.

Capital Turnover Percentage:

This is the ratio of Gross Revenue to Total Farm Capital expressed as a percentage. It gives an indication of the rate at which a capital investment reproduces itself in the form of gross income.

Labour and Management Residual:

This is an assessment of what the farmer earns as a reward for his own labour and management. The sum of 12.0 per cent interest (similar to the Economic Service Survey) is applied to Equity Capital in addition to the interest already paid on borrowed capital. The sum of 12.0 per cent of the calculated Equity Capital is subtracted from the sum of Net Farm Income and Managerial Salaries paid.

APPENDIX C

RELIABILITY OF SURVEY ESTIMATES

Estimates of farm characteristics based on a sample of farms are likely to differ from the figures which would have been obtained had information been collected from all farms in the population. The magnitudes of these differences or sampling errors of survey estimates in this report are presented in this Appendix in the form of relative standard errors (RSE) of the estimates in percentage terms. The relative standard error is defined as the standard error divided by the mean. The smaller the relative standard error, the more reliable the estimate.

Table 23 sets out the mean and relative standard error for key survey variables. For example, Table 23 shows that for New Zealand the survey estimate of average net farm income was $26,691 with a relative standard error (RSE) of 6.82 per cent. In other words, it is 95 per cent confident that the true value of average net farm income lies within the range of 1.96 x 6.82 per cent x $26,691 either side of the estimated value. That is within $26,691 + $3,568. Relative standard errors of estimates of the means for the various strata tend to be larger than for the New Zealand estimates because the sample size is smaller. Hence, more caution should be exercised in making inferences from the individual strata.

TABLE 23

Reliability of Survey Estimates

Quota Litres	North Island Quota Size (litres) 201-600	601-1000	1001+	All	South Island Quota Size (litres) 201-600	601-1000	1001+	All	New Zealand
Number of Farms	26	32	18	76	25	33	18	76	152
Average Herd Size									
- mean (Cows)	89.21	130.56	194.31	132.64	87.10	107.17	175.53	109.76	123.31
- RSE (%)	5.76	5.81	8.70	4.28	9.15	4.25	9.65	4.66	3.22
Dairy Productive Hectares									
- mean (hectares)	54.01	82.42	115.54	81.17	57.89	99.18	140.04	87.11	83.59
- RSE (%)	5.48	6.99	5.80	3.88	7.13	7.59	9.05	4.75	3.01
Total Litres Produced									
- mean (litres)	306,412	493,854	781.093	502,860	311,124	443,431	734.007	432,595	474,217
- RSE (%)	6.10	4.22	10.68	4.80	12.26	7.25	6.04	5.34	3.62
Gross Revenue									
- mean ($)	74,800	129,498	203,509	129,660	87,605	118,142	192,412	116,897	124,458
- RSE (%)	4.16	4.67	7.64	3.83	7.25	3.44	4.82	3.31	2.69
Total Expenditure									
- mean ($)	57,534	97,487	159,629	99,537	71,901	97,554	151,549	95,045	97,767
- RSE (%)	6.87	4.90	7.18	3.93	8.07	4.93	7.44	4.08	2.87
Net Farm Income									
- mean ($)	17,266	32,011	43,880	30,023	15,704	20,588	40,863	21,852	26,691
- RSE (%)	16.55	10.44	19.69	9.21	14.14	13.70	17.24	8.76	6.82

Estimation Mathematics[8]

In addition to forming the usual survey estimates it was necessary to define the population of farms eligible for the survey since (as noted in Chapter 2) not all ineligible farms could be eliminated from the total population prior to selecting the sample.

Definitions

N_h - the apparent stratum size (known).

N_h^* - the number of farms in stratum h which satisfy the eligibility criteria (unknown).

W_h - N_h^*/N_h, $N = \Sigma N_h$, $\hat{N}^* = \Sigma \hat{N}_h^*$

n_h - the number of eligible farms (farmers) which provided data in stratum h (known).

m_h - the number of ineligible farms drawn in the course of obtaining n_h (known).

c_h - the number of eligible farms (farmers) who declined to provide data (known).

$\hat{\Pi}_h^*$ - $\hat{N}_h^*/\hat{N}^*$, the fraction of eligible farms in the total population coming from stratum h.

$\bar{\mu}h, \sigma h^2$ - the unknown mean and variance of the eligible farms in stratum h.

$\bar{x}_h, s_h^2$ - the mean and variance of the sampled eligible units in stratum h.

$\bar{\bar{\mu}}$ - $\Sigma \hat{\Pi}_h \bar{\mu}_h$, the unknown mean of the characteristic under study over all eligible units.

$\bar{\bar{x}}$ - $\Sigma \hat{\Pi}_h \bar{x}_h$, the sample estimate of $\bar{\bar{\mu}}$

[8] The AERU acknowledges the useful discussions held with Mr J. Jowett of the MAF in formulating the statistical procedures used in this survey.

Sampling Properties of Estimated Stratum Sizes:

$\hat{\tilde{W}}_h = \dfrac{n_h + c_h - 1}{n_h + c_h + m_h - 1}$; unbiased estimator of W_h.

est. var. $\hat{\tilde{W}}_h = \dfrac{\hat{\tilde{W}}_h(1-\hat{\tilde{W}}_h)}{n_h + c_h + m_h - 2} \left(1 - \dfrac{n_h + c_h + m_h - 1}{N_h}\right)$;

unbiased estimator of the variance of $\hat{W}_h$.

The estimated stratum size is:

$\hat{N}_h^* = N_h \hat{W}_h$ with estimated variance equal to N_h^2 multiplied by est. var. $\hat{W}_h$.

est. var. $\hat{N}_h^* = N_h^2$ est. var. $\hat{\tilde{W}}_h^*$.

Mean and Standard Error (s.e.) of the Survey Estimates:

$\bar{\bar{x}} = \Sigma \hat{\Pi}_h^* \bar{x}_h$ where $\hat{\Pi}_h^* = \hat{N}_h^* / \Sigma \hat{N}_h^*$

$$\text{s.e. } \bar{\bar{x}} = \left[\Sigma (\hat{\Pi}_h^* \text{s.e.} \bar{x}_h)^2 + \Sigma \left[\frac{(\text{est. var. } \hat{N}_h^*)^{1/2} \text{ s.e.} \bar{x}_h}{N^*} \right]^2 + \Sigma \left[\frac{(\text{est. var. } \hat{N}_h^*)^{1/2} \quad (\bar{x}_h - \bar{\bar{x}})}{N^*} \right]^2 \right]^{1/2}$$

The first term in the equation for estimating the standard error (s.e.) of the survey means is the normal estimate from a stratified sample. The other two terms relate to the uncertainty in relative stratum sizes. The recorded statistics relating to the estimated stratum sizes are presented in Table 24.

TABLE 24

Estimation of Stratum Sizes

Stratum	N_h	n_h	c_h	m_h	$\hat{N}^*_h$	$\hat{\Pi}^*_h$
North Island						
201-600 litres	130	26	5	3	118	0.1997
601-1000 litres	153	32	2	2	144	0.2436
1001+ litres	97	18	3	2	88	0.1489
South Island						
201-600 litres	129	25	2	4	112	0.1895
601-1000 litres	92	33	4	2	87	0.1472
1001+ litres	48	18	2	3	42	0.0711
Total New Zealand	649	152				1.0000

APPENDIX D

OTHER PHYSICAL AND PRODUCTION DATA

TABLE 25

Farmer's Age, Years of Management Control and Number of Dependants

	North Island	South Island	New Zealand
Number Surveyed	76	76	152
Age of Farmer (principal decision-maker)	47.0	43.7	45.6
Number of Years of Management Control	19	15	18
Number of Dependants (including wife)	2.99	2.47	2.77

TABLE 26

Supplementary Feed Use[a]

	North Island	South Island	New Zealand
Number Surveyed	76	76	152
Number of Farms with Home Grown Hay	72	70	142
- Average No. of Home Grown Bales per Farm	2,933	5,487	3,974
Number of Farms with Purchased Hay	35	51	86
- Average No. of Purchased Bales	1,787	2,882	2,234
Number of Farms Making Silage	66	56	122
- Average No. of tonnes of Silage Made	367	487	416
Number of Farms with Home Grown Grain	1	22	23
- Average No. of tonnes of Home Grown Grain	2.0	30.5	13.6
Number of Farms with Purchased Grain	2	29	31
- Average tonnes of Purchased Grain	74.1	44.4	62.0
Number of Farms with Purchased Dairy Meal	40	33	73
- Average tonnes of Dairy Meal Purchased	13.6	12.2	13.0

a These results do not include weighted means. The average is calculated according to the number of practicing farms.

TABLE 27

Run-Off Area[a]

	North Island	South Island	New Zealand
Number Surveyed	76	76	152
Number of Farms with a Run-Off	54	44	98
- Run-Off Area (ha)	24.27	31.67	27.29
- Distance from Home Farm to Run-Off (km)	5.17	4.62	4.95

a These results do not include weighted means. The average is calculated according to the number of practicing farms.

TABLE 28

Non-Family Adult Worker's Annual Wage Paid and Years of Experience[a]

	North Island	South Island	New Zealand
Number Surveyed	76	76	152
Non-Family Adult Workers:			
- Number of Farms With a Worker for a Full Year	29	26	55
- Annual Average Wage Paid ($)	12,573	9,988	11,519
- Previous Years of Dairy Experience	5.3	4.0	4.8

a These results do not include weighted means. The average is calculated according to the number of practicing farms.

TABLE 29

Nitrogen Fertilizer Use

	North Island	South Island	New Zealand
Number Surveyed	76	76	152
Number of Forms Using Nitrogen	39	51	90
- Area Nitrogen Applied to (ha)	31.3	39.6	34.7
- Total Tonnes of Nitrogen Used	5.71	16.34	10.04
- Number of Farms by Type of Nitrogen			
Urea	27	7	32
S. of Ammonia	3	10	13
DAP	2	17	19
Compound Mix	5	8	13
Other	4	9	13

TABLE 30

Dairy Stock Balances

Opening Stock	New Zealand Average No. Per Farm	New Zealand Value $	Closing Stock	New Zealand Average No. Per Farm	New Zealand Value $
All Cows	121.7	15,213	All Cows	125.1	15,638
Heifers-in-Calf	25.2	2,520	Heifers-in-Calf	25.8	2,580
Other Dairy Stock	62.3	2,492	Other Dairy Stock	62.3	2,782
Sub-Total	209.2		Sub-Total	213.2	21,000
Purchases:			Sales:		
Cows and in-calf Heifers	5.5	2,720	Cull Cows Sold	23.0	7,840
Others Purchased	1.5	431	Others Sold	15.7	5,627
Natural Increases or Calves Bred (No.)	89.6		Bobby Calves Sold	47.8	1,695
Dairy Stock Profit		10,001	Deaths, Missing, etc	6.1	
Opening Balance	305.8	36,162	Closing Balance	305.8	36,162

TABLE 31

Beef and Sheep Stock Balances

Opening Stock	New Zealand Average No. Per Farm	New Zealand Value $	Closing Stock	New Zealand Average No. Per Farm	New Zealand Value $
Sheep:			Sheep:		
Ewes	11.8	118	Ewes	14.2	142
Other Sheep	0.1	1	Other Sheep	5.0	45
Beef:			Beef:		
Beef Cattle	1.7	192	Beef Cattle	2.6	176
Sub-Total	13.6	311	Sub-Total	21.8	363
Purchases:			Sales:		
Sheep Purchased	6.8	128	Sheep Sold	18.6	428
Beef Cattle Purchased	1.4	2,276	Beef Cattle Sold	1.0	1,519
Natural Increase Number	20.1		Deaths,Missing etc.	2.0	
Other Stock Profit		-405			
Opening Balance	41.9	2,310	Closing Balance	41.9	2,310

APPENDIX E

SURVEY RESULTS BY REGION AND QUOTA GROUP

TABLE 32

Average Areas of Town Supply Farms
by Region and Quota Group

Quota Litres	North Island 201-600	North Island 601-1001	North Island 1001+	South Island 201-600	South Island 601-10000	South Island 1001+
Number of Farms Surveyed	26	32	18	25	33	18
	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)
Freehold Area	50.05	79.51	117.19	65.04	96.29	122.28
Crown & Maori Lease	0.31	3.22	3.68	1.69	7.52	4.27
Rented Area	9.32	9.29	12.19	2.73	4.68	12.73
Total Farm Area	59.68	92.02	133.06	69.46	108.49	139.28
Less Unproductive Area	3.76	3.95	6.49	7.46	9.02	4.11
Productive Area	55.92	88.07	126.57	62.00	99.47	135.17
Less Estimated Sheep, Beef and Cash Crop Area	2.78	9.23	15.95	6.32	3.19	3.73
Plus Estimated 'Grazing' Out Area	0.87	3.58	4.92	2.21	2.90	8.60
Dairy Productive Area Utilised for Milk Production	54.01	82.42	115.54	57.89	99.18	140.04

TABLE 33

Utilisation of Farm Area
By Region and Quota Group

Quota Litres	North Island 201-600	North Island 601-1000	North Island 1001+	South Island 201-600	South Island 601-1000	South Island 1001+
Number Surveyed	26	32	18	25	33	18
	%	%	%	%	%	%
Proportion of Farm Area under:						
- Dairy Pasture	87.7	84.1	82.2	76.8	87.5	92.4
- Forage Crops	1.3	1.6	0.9	3.4	1.3	1.9
- Sheep & Beef Cattle Pasture & Cash Crops	4.7	10.0	12.0	9.1	2.9	2.7
- Unproductive Land	6.3	4.3	4.9	10.7	8.3	3.0
Total	100	100	100	100	100	100

TABLE 34

Irrigation Use
By Region and Quota Group[a]

Quota Litres	North Island 201-600	North Island 601-1000	North Island 1001+	South Island 201-600	South Island 601-1000	South Island 1001+
Number Surveyed	26	32	18	25	33	18
Number of Farms Using Irrigation	2	3	3	15	24	14
- Percentage of Dairy Productive Area Irrigated	30%	54%	31%	72%	72%	56%
- Estimated Total Hours Irrigating	541	1,505	2,300	759	1,362	1,125

a These results do not include weighted means. The average is calculated according to the number of practicing farmers.

TABLE 35

Types of Labour Units
By Region and Quota Group

Quota Litres	North Island 201-600	North Island 601-1000	North Island 1001+	South Island 201-600	South Island 601-1000	South Island 1001+
Number Surveyed	26	32	18	25	33	18
Farmer	0.94	0.95	0.87	1.00	1.00	1.00
Permanent Family	0.46	0.48	0.48	0.39	0.74	0.69
Casual Family	0.04	0.04	0.09	0.09	0.16	0.13
Total Family Labour Units	1.44	1.47	1.44	1.48	1.90	1.82
Permanent Non-Family	0.15	0.58	1.35	0.24	0.51	1.22
Casual Non-Family	0.11	0.12	0.20	0.09	0.09	0.28
Total Non-Family Labour Units	0.26	0.70	1.55	0.33	0.60	1.50
Total Labour Units	1.70	2.17	2.99	1.81	2.50	3.32
Proportion of Permanent Labour	91%	93%	90%	90%	90%	88%
Proportion of Family Labour	85%	68%	48%	82%	76%	55%

TABLE 36

Milk Production by Region and Quota Group

	North Island			South Island		
Quota Litres	201-600	601-1000	1001+	201-600	601-1000	1001+
Number Surveyed	26	32	18	25	33	18
Daily Quota (l)	453	784	1,241	474	782	1,290
Milk Production Sold at Quota Prices (l)	182,395	326,140	497,976	179,711	322,190	521,283
Milk Production Sold at Surplus Prices (l)	124,017	167,714	283,117	131,413	121,241	212,724
Total Litres Produced (l)	306,412	493,854	781,093	311,124	443,431	734,007
Proportion of Total Sold at Quota Prices (%)	60	66	64	58	73	71
Average Litres Produced in June 1983 (l)	18,548	31,979	47,495	17,934	30,576	50,098
Average Litres Produced in December 1983 (l)	31,246	48,975	81,871	32,826	42,482	74,132
Average Herd Size (No. Cows -: Includes Dry Cows)	89.21	130.56	194.31	87.10	107.17	175.53
Average No. Milking Cows in June 1983	61.62	88.59	116.00	46.12	74.88	117.11
Average No. Milking Cows in December 1983	75.96	113.53	172.94	81.48	93.88	143.28
Total Litres Converted to 4.21% Milk Fat (kg)	12,900	20,791	32,884	13,098	18,668	30,902
Kg. Milk Fat/Dairy Productive ha (kg)	239	252	285	226	188	221
Total Stock Units [a]/ Farm (No.)	827	1,151	1,756	842	995	1,717
Stock Units/Dairy Productive ha (No.)	15.3	14.0	15.2	14.5	10.0	12.3
Total Litres/Average Herd Size (l)	3,435	3,783	4,020	3,572	4,138	4,182
Litres/December Milking Cows (l)	4,034	4,350	4,517	3,818	4,723	5,123
Litres/Dairy Productive ha (l)	5,673	5,992	6,760	5,374	4,471	5,241
December Cows/Dairy Productive ha (No.)	1.41	1.38	1.50	1.41	0.95	1.02

a For a definition of stock units see Appendix B.

TABLE 37

Capital Structure - Value of all Assets and Liabilities by Region and Quota Group

	North Island			South Island		
Quota Litres	201-600	601-1000	1001+	201-600	601-1000	1001+
Number Surveyed	26	32	18	25	33	18
Total Litres Produced	306,412	493,854	781,093	311,124	443,431	734,007
Cows in Milk in December 1983	75.96	113.53	172.94	81.48	93.88	143.28
Dairy Productive Hectares	54.01	82.42	115.54	57.89	99.18	140.04
Assets	$	$	$	$	$	$
Freehold Land [a] (valued at 31.12.1983)	425,149	603,603	802,157	300,385	483,240	703,082
Farmer's House (1/2 Book Value)	22,251	26,116	24,675	15,348	22,591	32,887
Other Farm Houses	7,528	9,719	19,451	3,047	8,001	13,685
Farm Buildings	14,007	15,010	28,871	21,348	22,041	29,490
Plant & Equipment	6,667	9,771	16,839	13,378	15,120	27,638
Farm Vehicles	18,221	20,410	48,953	21,693	23,938	33,282
Dairy Stock	15,535	21,470	34,108	14,938	18,325	28,984
Other Stock	0	552	1,047	123	153	379
Company Shares	709	2,676	3,309	1,458	2,313	3,325
Total Farm Assets	510,067	709,327	979,410	391,718	595,722	872,752
Cash at Bank	5,979	4,526	5,597	2,440	17,021	6,330
Sundry Debtors	5,637	6,610	8,835	6,171	9,347	13,760
Other Current Assets	467	1,316	3,802	1,011	1,465	4,911
Total All Assets	522,150	721,779	997,644	401,340	623,555	897,753

a Details of the updating of land values are listed in Appendix B.

(Table 37 cont...)

TABLE 37 (cont...)

Capital Structure - Value of all Assets and Liabilities by Region and Quota Group

Quota Litres	North Island 201-600	601-1000	1001+	South Island 201-600	601-1000	1001+
	$	$	$	$	$	$
Current Liabilities						
Bank Overdraft	5,797	7,752	10,967	7,042	6,667	8,330
Sundry Creditors	4,425	7,852	16,847	5,659	13,344	15,846
Other Current Liabilities	177	1,462	2,277	313	344	2,845
Total Current Liabilities	10,399	17,066	30,091	13,014	20,355	27,021
Fixed Liabilities						
Rural Bank Mortgages	28,561	29,681	31,086	71,597	49,751	49,417
Trading Bank Mortgages	6,019	10,042	16,471	9,168	5,315	13,200
Building Society Mortgages	1,592	1,192	11,200	624	1,833	10,426
Insurance Company Loans	6,897	21,384	36,233	614	1,353	4,691
Stock Firm Loans	302	714	2,268	1,499	552	857
Finance Co. Loans	1,952	6,737	9,568	6,195	1,352	4,919
Solicitor's Loans	17,397	28,662	38,421	10,901	20,957	67,403
Family Mortgages	38,113	38,631	44,472	19,120	40,013	21,263
Other Liabilities	0	3,228	1,841	2,576	3,000	2,206
Total Fixed Liabilities	100,833	140,271	191,560	122,294	124,126	174,382
Total All Liabilities	111,232	157,337	221,651	135,308	144,481	201,403
Equity	410,918	564,442	775,993	266,032	479,074	696,350
Total	522,150	721,779	997,644	401,340	623,555	897,753

TABLE 38

Gross Revenue Components by Region and Quota Group

Quota Litres	North Island 201-600	North Island 601-1000	North Island 1001+	South Island 201-600	South Island 601-1000	South Island 1001+
Number Surveyed	26	32	18	25	33	18
Total Litres Produced	306,412	493,854	781,093	311,124	443,431	734,007
Cows in Milk in December 1983	75.96	113.53	172.94	81.48	93.88	143.28
Dairy Productive Hectares	54.01	82.42	115.54	57.89	99.18	140.04
	$	$	$	$	$	$
Milk Sales	65,102	109,941	174,173	74,849	100,986	170,854
Produce Sold	232	1,713	1,700	858	1,591	1,843
Wool & Skins Sold	0	486	269	25	25	0
Contracting Fees	127	668	1,020	1,183	541	312
Rent & Lease Fees	271	880	548	224	690	316
Employee's House	67	591	1,264	553	583	1,556
Livestock Profit						
- Dairy	8,352	12,317	26,764	6,668	11,447	16,654
- Other Stock	0	1,121	-5,284	962	116	-1,278
Other Revenue	649	1,781	3,055	2,283	2,163	2,155
Gross Revenue	74,800	129,498	203,509	87,605	118,142	192,412

TABLE 39

Types of Milk Payments Received by Region and Quota Group

Quota Litres	North Island 201-600	North Island 601-1000	North Island 1001+	South Island 201-600	South Island 601-1000	South Island 1001+
Number Surveyed	26	32	18	25	33	18
Total Litres Produced	306,412	493,854	781,093	311,124	443,431	734,007
Cows in Milk in December 1983	75.96	113.53	172.94	81.48	93.88	143.28
Dairy Productive Hectares	54.01	82.42	115.54	57.89	99.18	140.04
	$	$	$	$	$	$
Payment Received for Milk Paid at Quota Prices	40,449	74,964	115,721	41,901	75,229	126,347
Payment Received for Milk Paid at Surplus Prices	16,661	21,719	39,153	17,048	15,845	27,768
Special Production Allowances	101	267	640	1,064	2,005	2,719
Premiums Received or Penalties Paid	-108	58	-406	62	66	353
Farm Chilling Allowances	215	364	633	256	455	621
End of Season, Retrospective and Other Payments	7,784	12,569	18,432	14,518	3,660	13,046
Total Milk Payments Received	65,102	109,941	174,173	74,849	97,260	170,854

TABLE 40

Farm Expenditure Components by Region and Quota Group

	North Island			South Island		
Quota Litres	201-600	601-1000	1001+	201-600	601-1000	1001+
Number Surveyed	26	32	18	25	33	18
Total Litres Produced	306,412	493,854	781,093	311,124	443,431	734,007
Cows in Milk in December 1983	75.96	113.53	172.94	81.48	93.88	143.28
Dairy Productive Hectares	54.01	82.42	115.54	57.89	99.18	140.04
	$	$	$	$	$	$
Labour						
Family Labour	1,996	2,622	4,682	1,373	3,711	3,350
Family Casual Labour	217	97	812	486	977	722
Non-Family Permanent & Casual Labour	2,904	7,321	17,728	3,194	5,826	15,758
Unpaid Family Labour	2,896	3,088	1,617	3,084	4,238	5,466
Labour Accommodation	132	685	1,264	180	765	1,875
Sub-Total Labour	8,145	13,813	26,103	8,317	15,517	27,171
Operating						
Animal Health	1,264	3,049	4,666	2,247	2,385	4,080
Breeding & Herd Testing	912	2,066	2,477	1,522	1,889	3,065
Contractors	1,133	1,694	2,741	2,264	2,139	1,236
Dairy Shed Expenses	1,378	2,530	3,275	1,741	3,329	3,322
Electricity	1,701	2,267	3,482	1,775	2,230	3,686
Fertiliser & Seed	4,499	8,633	12,642	4,213	6,000	8,492
Feed	3,946	7,268	11,778	6,722	9,797	16,357
Grazing Expenses	762	1,695	4,094	815	425	1,292
Freight	347	409	603	1,049	996	1,312
Weed & Pest Expenses	415	820	1,423	635	965	1,341
Vehicle Expenses	5,321	8,547	13,955	8,038	8,928	13,649
Repairs and Maintenance	6,018	10,872	16,368	7,338	11,791	15,447
Irrigation Expenses	85	119	344	486	828	1,174
Sub-Total Operating	27,781	49,969	77,848	38,845	51,702	74,453

(Table 40 cont...)

TABLE 40 (cont...)

Farm Expenditure Components by Region and Quota Group

Quota Litres	North Island 201-600	601-1000	1001+	South Island 201-600	601-1000	1001+
	$	$	$	$	$	$
Administration						
Accountancy	692	944	1,559	782	1,018	1,131
Telephone	445	804	877	496	584	807
General Administration	721	1,289	2,736	803	1,078	2,030
Sub-Total Administration	1,858	3,037	5,172	2,081	2,680	3,968
Overheads						
Insurance	871	1,572	2,374	1,269	1,668	2,498
Interest	10,208	16,530	25,220	11,130	12,565	23,257
Rates	1,793	2,570	3,743	1,740	2,260	2,647
Rent	1,148	3,012	3,523	859	1,798	3,720
Sub-Total Overheads	14,020	23,684	34,860	14,998	18,291	32,122
Total Cash Expenses	51,804	90,503	143,983	64,241	88,190	137,714
Net Depreciation	5,730	6,984	15,646	7,660	9,364	13,835
Total Expenditure	57,534	97,487	159,629	71,901	97,554	151,549

TABLE 41

Depreciation of Farm Assets by Region and Quota Group

Quota Litres	201-600			601-1000			1001+		
	Ordinary	First Yr. and Special	Gross Deprec-iation	Ordinary	First Yr. and Special	Gross Deprec-iation	Ordinary	First Yr. and Special	Gross Deprec-iation
	$	$	$	$	$	$	$	$	$
i) North Island									
Plant & Equipment	726	461	1,187	1,071	640	1,711	2,083	1,238	3,321
Vehicles	2,497	1,107	3,604	3,477	1,297	4,774	6,529	3,214	9,743
Buildings	1,062	338	1,400	1,608	61	1,669	2,308	2,464	4,772
Gross Depreciation			6,191			8,154			17,836
Less Personal Depreciation on Cars			299			309			323
Less Depreciation Recovered on Plant and Vehicles by Sales			162			861			1,867
Cost of New Assets	16,253			11,551			37,912		
Net Depreciation			5,730			6,984			15,646
ii) South Island									
Plant & Equipment	1,370	839	2,209	1,455	1,283	2,738	2,479	1,833	4,312
Vehicles	2,868	1,609	4,477	4,312	1,280	5,592	4,435	2,833	7,268
Buildings	1,036	490	1,526	1,180	613	1,793	2,926	536	3,462
Gross Depreciation			8,212			10,123			15,042
Less Personal Depreciation on Cars			347			430			342
Less Depreciation Recovered by Plant and Vehicles on Sales			205			329			866
Cost of New Assets	20,048			13,850			24,563		
Net Depreciation			7,660			9,364			13,834

TABLE 42

Net Farm Income Components by Region and Quota Group

	North Island			South Island		
Quota Litres	201-600	601-1000	1001+	201-600	601-1000	1001+
Number Surveyed	26	32	18	25	33	18
Total Litres Produced	306,412	493,854	781,093	311,124	443,431	734,007
Cows in Milk in December 1983	75.96	113.53	172.94	81.48	93.88	143.28
Dairy Productive Hectares	54.01	82.42	115.54	57.89	99.18	140.04
	$	$	$	$	$	$
Gross Revenue	74,800	129,498	203,509	87,605	118,142	192,412
Total Expenditure	57,534	97,487	159,629	71,901	97,554	151,549
Net Farm Income	17,266	32,011	43,880	15,704	20,588	40,863
Net Farm Income Per Stock Unit	21	28	25	19	21	24
Net Farm Income Per Dairy Productive Hectare	320	388	380	271	208	292
Net Farm Income Per December Milking Cow	227	282	254	193	219	285

TABLE 43

Cash Surplus from Farming
by Region and Quota Group

Quota Litres	North Island 201-600	North Island 601-1000	North Island 1001+	South Island 201-600	South Island 601-1000	South Island 1001+
Number Surveyed	26	32	18	25	33	18
Total Litres Produced	306,412	493,854	781,093	311,124	443,431	734,007
Cows in Milk in December 1983	75.96	113.53	172.94	81.48	93.88	143.28
Dairy Productive Hectares	54.01	82.42	115.54	57.89	99.18	140.04
	$	$	$	$	$	$
1. Cash Received:						
Milk Sales	65,102	109,941	174,173	74,849	100,986	170,854
Dairy Cattle Sales	8,810	12,618	27,345	8,337	12,741	17,393
Sheep and Beef Sales	0	1,314	8,523	982	125	2,158
Bobby Calf Sales	1,155	1,872	2,744	1,240	1,288	2,458
Other Farm Income	1,279	5,529	6,592	4,574	5,010	4,626
Total Received	76,346	131,274	219,377	89,982	120,150	197,489
2. Cash Spent						
Labour and Operating	32,898	60,009	101,070	43,898	62,217	94,283
Overhead and Administration	15,878	26,721	40,032	17,079	20,972	36,091
Dairy Purchases	2,115	2,597	3,880	3,562	3,108	5,435
Sheep and Beef Cattle Purchases	0	472	14,392	86	0	3,455
Total Spent	50,891	89,799	159,374	64,625	86,297	139,264
Cash Surplus from Farming	25,455	41,475	60,003	25,357	33,853	58,225

TABLE 44

Net Farm Income Less Imputed Interest on Equity and Total Assets by Region and Quota Group

	North Island			South Island		
Quota Litres	201-600	601-1000	1001+	201-600	601-1000	1001+
Number Surveyed	26	32	18	25	33	18
Total Litres Produced	306,412	493,854	781,093	311,124	443,431	734,007
Cows in Milk in December 1983	75.96	113.53	172.94	81.48	93.88	143.28
Dairy Productive Hectares	54.01	82.42	115.54	57.89	99.18	140.04
	$	$	$	$	$	$
Equity	410,918	564,442	775,993	266,032	497,074	696,350
Net Farm Income	17,266	32,011	43,880	15,704	20,588	40,863
A. Net Farm Income						
Less Imputed Interest on Equity at Rate of: 3.5%	2,884	12,256	16,720	6,393	3,190	16,491
5%	-3,280	3,789	5,080	2,402	-4,266	6,046
7%	-11,498	-7,500	-10,440	-2,918	-14,207	-7,882
Total Farm Assets	510,067	709,327	979,410	391,718	595,722	872,752
Net Farm Income	17,266	32,011	43,880	15,704	20,588	40,863
Interest Paid	10,208	16,530	25,220	11,130	12,565	23,257
B. Net Farm Income						
Plus Interest Paid Less Imputed Interest on Total Farm Assets at rate of: 3.5%	9,622	23,715	34,821	13,124	12,303	33,574
5%	1,971	13,075	20,130	7,248	3,367	20,482
7%	-8,231	-1,112	541	-586	-8,548	3,027

TABLE 45

Measures of Economic Profitability by Region and Quota Group[a]

Quota Litres	North Island 201-600	North Island 601-1000	North Island 1001+	South Island 201-600	South Island 601-1000	South Island 1001+
Number Surveyed	26	32	18	25	33	18
Freehold Land Area (ha)	50.05	79.51	117.19	65.04	96.29	122.28
Rented and Grazing-Out Area (ha)	10.50	16.09	20.79	6.63	15.10	25.60
	$	$	$	$	$	$
A. Return on Capital						
1. Working Expenses (less imputed costs)	34,756	63,046	106,242	45,979	64,896	98,251
2. Plus assessed Managerial Reward	16,541	19,049	22,377	14,833	17,355	21,157
3. Total Adjusted Working Expenses (1+2)	51,297	82,095	128,619	60,812	82,251	119,408
4. Working Capital (8.33% of 3)	4,273	6,839	10,714	5,066	6,852	9,947
Freehold, Rented and Grazing-Out Land	514,312	725,795	944,473	330,972	559,066	850,310
Buildings (less Farmer's House)	21,535	24,729	48,322	24,395	30,042	43,175
Plant & Equipment	6,667	9,771	16,839	13,378	15,120	27,638
Farm Vehicles (less car at $8,170)	10,051	12,240	40,783	13,523	15,768	25,112
Livestock at Market Value	69,700	100,582	155,520	69,221	83,663	137,666
5. Farm Capital	622,265	873,117	1,205,937	451,489	703,659	1,083,901
6. Total Farm Capital (4+5)	626,538	879,956	1,216,651	456,555	710,511	1,093,848
7. Net Farm Income	17,266	32,011	43,880	15,704	20,588	40,863
8. Plus Interest Paid	10,208	16,530	25,220	11,130	12,565	23,257
9. Plus Rent Paid	1,148	3,012	3,523	859	1,798	3,720
10. Sub-total (7+8+9)	28,622	51,553	72,623	27,693	34,951	67,840
11. Less Managerial Reward (2)	16,541	19,049	22,377	14,833	17,355	21,157
12. Economic Farm Surplus (10/11)	12,081	32,504	50,246	12,860	17,596	46,683
13. Rate of Return Percentage (12/6)	1.93%	3.69%	4.13%	2.82%	2.48%	4.27%

a Most of the terms used in this table are particular to this table alone; they are defined in Appendix B.

(Table 45 cont...)

TABLE 45 (cont...)

Measures of Economic Profitability by Region and Quota Group[a]

Quota Litres	North Island 201-600	601-1000	1001+	South Island 201-600	601-1000	1001+
B. Capital Turnover Percentage						
14. Gross Revenue (less worker's house)	74,733	128,907	202,245	87,052	117,559	190,856
15. Total Farm Capital (6)	626,538	879,956	1,216,651	456,555	710,511	1,093,848
16. Capital Turnover Percentage (14/15)	11.9%	14.6%	16.6%	19.1%	16.5%	17.4%
C. Labour & Management Residual						
17. Total Farm Capital (6)	626,538	879,956	1,216,651	456,555	710,511	1,093,848
18. Plus Cash at Bank, Sundry Debtors & Other Current Assets	12,083	12,452	18,234	9,622	27,833	25,001
19. Sub-total (17+18)	638,621	892,408	1,234,885	466,177	738,344	1,118,849
20. Less Fixed Liabilities	100,833	140,271	191,560	122,294	124,126	174,382
21. Less Current Liabilities	10,399	17,066	30,091	13,014	20,355	27,021
22. Total Equity Capital (19-20-21)	527,389	735,071	1,013,234	330,869	593,863	917,446
23. Net Farm Income (7)	17,266	32,011	43,880	15,704	20,588	40,863
24. Less 12.0% of Equity Capital (22)	63,287	88,209	121,588	39,704	71,264	110,094
25. Labour & Management Residual (23-24)	-46,021	-56,198	-77,708	-24,000	-50,676	-69,231

a Most of the terms used in this table are particular to this table alone; they are defined in Appendix B.

TABLE 46

Farmer's Age, Years of Management Control and Number of Dependants by Region and Quota Group

	North Island			South Island		
Quota Litres	201-600	601-1000	1001+	201-600	601-1000	1001+
Number Surveyed	26	32	18	25	33	18
Age of Farmer (principal decision-maker)	46.8	46.7	47.7	42.5	43.5	47.2
Number of Years of Management Control	18	21	17	14	16	18
Number of Dependants (including wife)	3.19	2.88	2.89	2.36	2.67	2.33

TABLE 47

Supplementary Feed Use by Region and Quota Group

Quota Litres	North Island 201-600	North Island 601-1000	North Island 1001+	South Island 201-600	South Island 601-1000	South Island 1001+
Number Surveyed	26	32	18	25	33	18
Number of Farms with Home Grown Hay	25	30	17	23	30	17
- Average No. of Home Grown Bales per Farm	1,665	3,265	4,089	3,750	6,978	7,032
Number of Farms with Purchased Hay	9	15	11	17	23	11
- Average No. of Purchased Bales	1,548	1,347	2,827	2,262	2,730	4,851
Number of Farms Making Silage	21	29	16	19	21	16
- Average No. of tonnes of Silage Made	230	361	561	398	470	757
Number of Farms with Home Grown Grain	0	0	1	4	13	5
- Average No. of tonnes of Home Grown Grain	0	0	8	20.3	28.8	61.4
Number of Farms with Purchased Grain	0	2	0	7	12	10
- Average tonnes of Purchased Grain	0	180.0	0	71.7	17.0	28.5
Number of Farms with Purchased Dairy Meal	11	20	9	11	13	9
- Average tonnes of Dairy Meal Purchased	8.2	18.8	12.4	10.0	13.4	15.3

TABLE 48

Run-Off Area by Region and Quota Group

Quota Litres	North Island 201-600	North Island 601-1000	North Island 1001+	South Island 201-600	South Island 601-1000	South Island 1001+
Number Surveyed	26	32	18	25	33	18
Number of Farms with a Run-Off	15	24	15	12	22	10
- Run-Off Area (ha)	19.25	22.24	34.33	29.40	32.60	35.77
- Distance from Home Farm to Run-Off (km)	6.5	4.8	4.0	3.9	4.4	7.0

TABLE 49

Non-Family Adult Worker's Annual Wage Paid and Years of Experience by Region and Quota Group

Quota Litres	North Island 201-600	North Island 601-1000	North Island 1001+	South Island 201-600	South Island 601-1000	South Island 1001+
Number Surveyed	26	32	18	25	33	18
Non-Family Adult Workers:						
- Number of Farms With a Worker for a Full Year	2	12	15	3	10	13
- Annual Average Wage Paid ($)	13,773	11,986	11,925	9,608	9,678	11,642
- Previous Years of Dairy Experience	6.0	3.7	7.1	1.7	5.3	7.2

TABLE 50

Nitrogen Fertilizer Use by Region and Quota Group

Quota Litres	North Island 201-600	North Island 601-1000	North Island 1001+	South Island 201-600	South Island 601-1000	South Island 1001+
Number Surveyed	26	32	18	25	33	18
Number of Farms Using Nitrogen	11	16	12	16	19	16
- Area Nitrogen Applied to (ha)	27.1	22.9	50.8	36.0	43.1	42.0
- Total Tonnes of Nitrogen Used	4.46	3.47	11.04	8.02	22.2	26.4
- Number of Farms by Type of Nitrogen						
Urea	6	11	8	1	2	4
S. of Ammonia	1	2	-	3	5	2
DAP	1	-	1	6	6	5
Compound Mix	1	2	2	4	1	3
Other	2	1	1	2	5	2

APPENDIX F

SURVEY RESULTS OF PREVIOUS YEARS

TABLE 51

Comparisons With Survey Results of Previous Years[a]

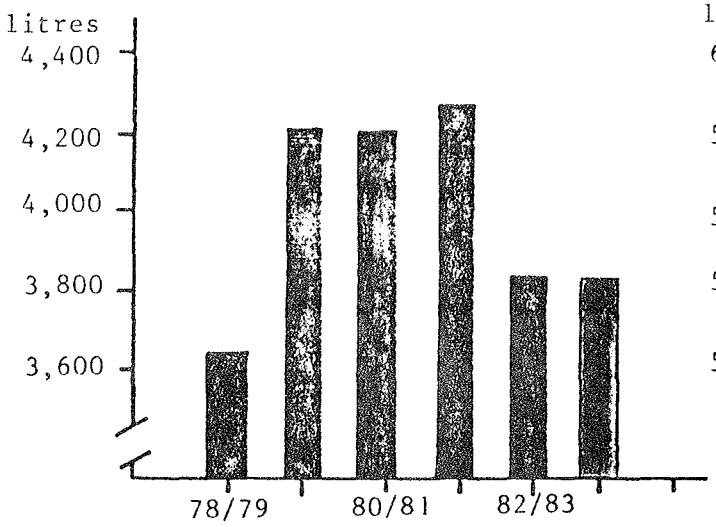
	1979-80	1980-81	1981-82	1982-83	1893-84
NZ Suppliers (No.)	1,540	1,467	1,377	1,309	1,278
Survey Sample (No.)	152	152	152	152	152
a) Physical Characteristics:					
Dairy Productive Area (ha)	82.68	83.72	86.55	87.93	83.59
Daily Quota (l)	807	803	786	772	763
Herd Size (No. Cows)	112.89	119.28	116.71	122.77	123.31
Milk Production (l/farm)	484,611	499,772	498,797	473,153	474,217
Milk Production (l/labour unit)	215,383	220,164	214,076	210,290	209,831
Milk Production (l/dairy prod. ha)	5,861	5,970	5,763	5,381	5,673
Total Labour Units Engaged (L.U.)	2.25	2.27	2.33	2.25	2.26
b) Financial Characteristics:					
Total Farm Assets ($/farm)	345,140	434,788	557,999	672,446	644,460
Gross Revenue ($/farm)	70,121	86,056	103,044	122,481	124,458
Gross Revenue (c/l)	14,47	17.22	20.66	25.89	26.24
Total Expenditure ($/farm)	53,412	66,388	78,853	95,741	97,767
Total Expenditure (c/l)	11.02	13.28	15.81	20.23	20.62
Net Farm Income ($/farm)	16.709	19,668	24,191	26,740	26,691
Net Farm Income (c/l)	3.45	3.94	4.85	5.65	5.63

a Survey comparisons are aso given in the form of histograms in Figure 4. The data have been taken from the last five economic surveys of New Zealand town milk producers.

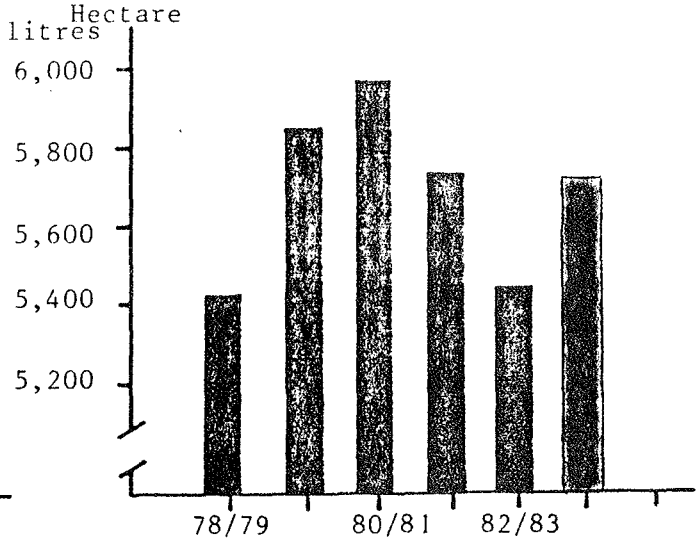
FIGURE 4

Survey Comparisons with Previous Years

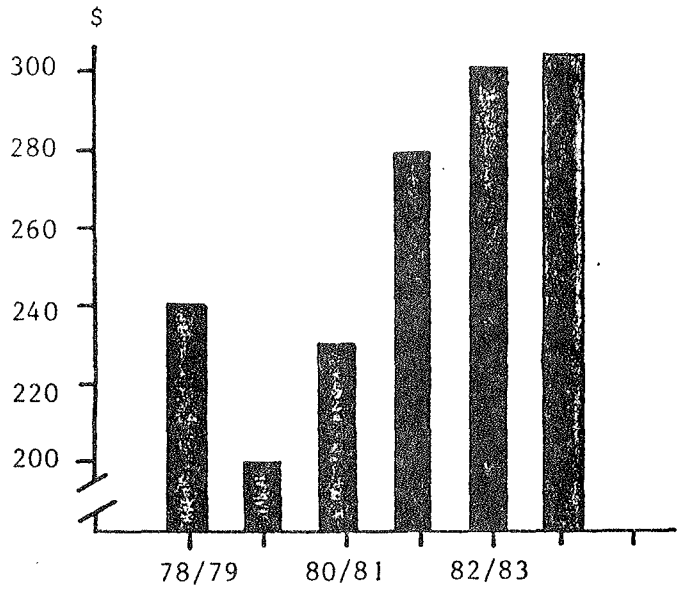
1. Milk Production per Average Herd Size



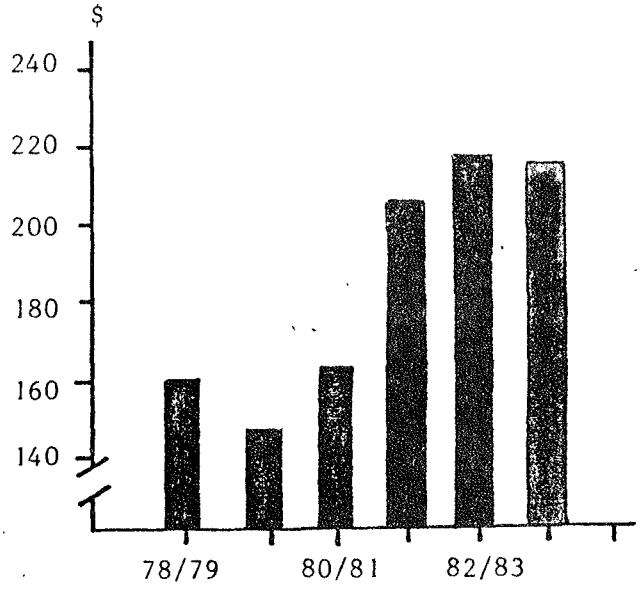
2. Milk Production per Dairy Productive Hectare



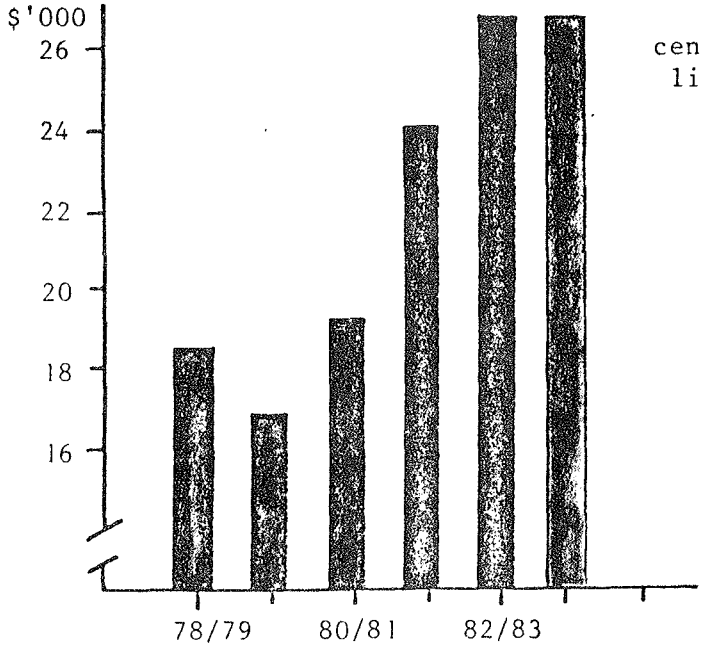
3. Net Farm Income per Dairy Productive Hectare



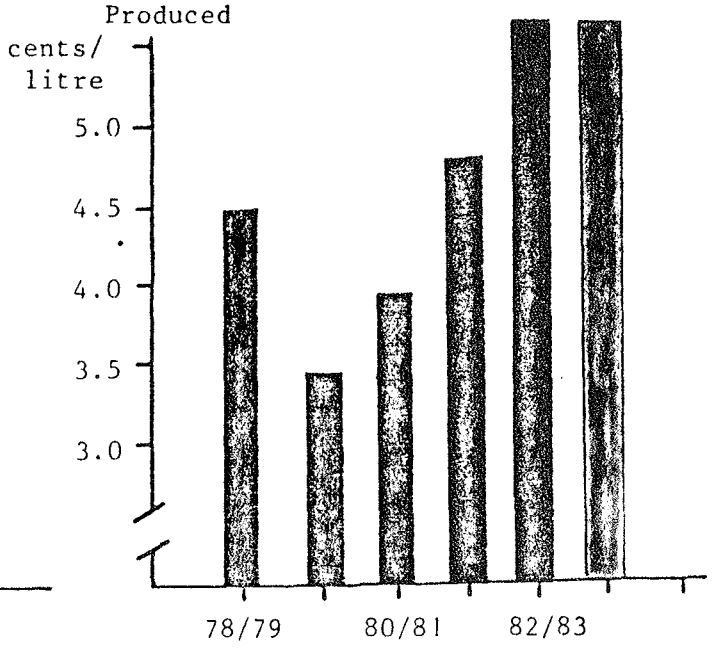
4. Net Farm Income per Average Herd Size



5. Net Farm Income per Farm



6. Net Farm Income per Litre Milk Produced



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