AN ECONOMIC SURVEY

OF NEW ZEALAND

TOWN MILK PRODUCERS

1978-79

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PREFACE

This report is the sixth 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 for this survey was carried out by Russell Moffitt with assistance from Michael Clemes. Russell Moffitt completed the analysis and compiled the Report with assistance from Michael Rich.

J. B. Dent
Director

July 1980

ABBREVIATIONS USED IN THIS REPORT

no.	=	number
ha	=	hectares
prod. ha	=	productive hectares
ℓ	=	litres
L.U.	=	Labour Units
m.	=	million
milk prod.	=	milk produced
exps.	=	expenses
equip.	=	equipment
M.P.	=	Milk Producer
Assn.	=	Association
N.A.	=	Not Available

SUMMARY OF 1977-78 AND 1978-79 NEW ZEALAND

SURVEY RESULTS

Characteristic	1977-78	1978-79
Farms Surveyed (no.)	152	152
Total Farm Area (ha/farm)	87.0	84.8
Productive Farm Area (ha/farm)	82.7	79.7
Dairy Productive Farm Area (ha/farm)	80.9	76.19
Daily Quota (ℓ/farm)	774	768
Herd Size (cows/farm)	110	113
Labour (L.U./farm)	2.14	2.18
Milk Production (ℓ/farm)	421 864	413 522
(ℓ/ha)	4 847	4 877
(ℓ/prod.ha)	5 099	5 188
(ℓ/dairy prod.ha)	5 218	5 428
(ℓ/L.U.)	197 133	189 689
(ℓ/cow)	3 820	3 670
Total Value of All Assets ($/farm)	279,395	296,651
Gross Revenue ($/farm)	51,640	59,745
Total Expenditure ($/farm)	36,445	41,245
Net Income ($/farm)	15,195	18,500
Gross Revenue (cents/ℓ)	12.24	14.45
Total Expenditure (cents/ℓ)	8.64	9.97
Net Income (cents/ℓ)	3.60	4.47

SUMMARY

Physical and Production Aspects

- The average size of the farms surveyed (including run-off areas) was 84.8 ha, which was 2.2 ha below the 1977-78 survey figure. Average productive area used for dairying was 79.7 ha compared with 82.7 ha in 1977-78.

- Forty-two per cent of survey farms were individually owned. Husband-wife partnerships were the next most common form of ownership. Land tenure was predominantly freehold.

- The average number of milking cows per farm was 113 compared with 110 in 1977-78 and 112 in 1976-77. Herd sizes on individual farms ranged from 25 to 408 milking cows. There was little change in non-dairy stock numbers.

- Total milk production per farm (413,522ℓ) was two per cent less than for 1977-78. North Island farms showed a 4.6 per cent decrease, and South Island farms showed a 1.9 per cent decrease.

- The proportion of milk sold at townmilk prices was 74 per cent. This compares with 75 per cent for the 1977-78 survey. The South Island again sold a greater proportion at town milk prices (75 per cent) than the North Island (73 per cent).

- Milk production per labour unit and per cow declined compared with the previous survey. Milk production per total hectare and per dairy productive hectare increased marginally.

- The average total labour employed on survey farms (2.18 labour units) was similar to the 1977-78 figure of 2.14 labour units. In the North Island there was an increase in the total labour used (2.23 to 2.28 units) while in the South Island the labour units per farm remained constant at 2.01.

- Average daily quota recorded on the farms was 768 litres compared with the previous survey estimate of 774 litres. Daily quotas on the farms surveyed ranged from 232 litres to 2 545 litres.

Financial Aspects

- The average price received per litre of all milk produced by the survey farms was 12.4134 cents compared with 10.8955 cents in 1977-78.

- Milk sales accounted for 86 per cent of gross revenue (89 per cent in 1977-78).

- Total farm expenditure ($41,245) was 13.2 per cent higher than for the previous survey ($36,445). The largest expenditure class increase was net depreciation (up 28 per cent) followed by labour (up 16 per cent).

- Average net depreciation was $4,176, an increase of 28 per cent compared with the 1977-78 survey estimate of $3,267.

- Average net farm income for all surveyed farms for 1978-79 was $18,500 compared with $15,195 in the previous year. This represented a 21.8 per cent increase. The average for North Island farms was $21,031 while the average for South Island farms was $14,008.

- Net farm income on a cents per litre of total milk produced basis was 4.47 cents compared with 3.60 cents in 1977-78 and 3.11 cents in 1976-77.

- Livestock trading profit increased by over 65 per cent from $3,442 in 1977-78 to $5,691 in 1978-79.

- The average value of farm assets was $280,966 which represents an increase of six per cent over the figure recorded for 1977-78.

- Total liabilities per farm were $68,047, a 6.2 per cent increase in the survey figure of the previous year.

- Equity as a per cent of the value of all assets averaged 77 per cent. This was the same as the previous survey. North Island farms had a higher proportion (79.9 per cent) than South Island farms (69.6 per cent).

CHAPTER 1

BACKGROUND

1.1 Objectives of the National Farm Survey

As in previous years, the principal objective of the 1978-79 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 costs 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 this Report to draw any conclusions on whether an increase in town milk prices is justifiable. 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 Climatic Conditions

Drought conditions were experienced in the major town milk producing districts during the late summer and early autumn months of 1978. By March, conditions were so bad that drought relief committees were forming and relief assistance being sought. However, by April and May most districts had had some rain and this, combined with mild temperatures, produced rapid pasture growth.

In the spring months most districts had favourable weather with good pasture growth. However, in Otago and Southland wet conditions and minor flooding during the spring and summer led to reduced production and some haymaking difficulties.

During the summer months dry spells caused concern in some districts but frequent showers in February led to the resurgence of pasture growth.

The mild, moist conditions in most districts during the 1979 autumn, resulted in an abundance of feed with substantial quantities of surplus milk being produced.

1.3 Producer Prices

There was no change in the basic method of fixing the town milk producer price. It continued to be linked to the manufacturing price for whole milk for all major uses. An increase (or decrease) in price of one cent per kilogram of milkfat results in an increase (or decrease) of 0.06 cents per litre in the town milk producer price.

The national average advance prices for the year commencing 1 September 1978 were fixed at 12.5517 cents per litre for finest grade, 12.1847 cents per litre for first grade, and 11.4527 cents per litre for second grade. These prices were subsequently adjusted to take into account the end-of-season surplus distribution made by the New Zealand Dairy Board and a Government Supplementary payment of 6.58 cents per kilogram of milk fat approved under the Supplementary Minimum Price Scheme announced in the 1978 Budget. The final national prices per litre for the 1978-79 milk year for the three grades of town milk were 13.3873 cents for finest, 13.0203 cents for first, and 12.2883 cents for second.

Table 1 gives a summary of 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 Advance Price (cents per litre)	Finest Grade Final Price (cents per litre)
1975	9.1965	10.0371
1976	9.7503	10.8141
1977	11.4693[a]	12.5643
1978	12.5517	13.3873

[a] This includes an adjustment of 1.155 cents per litre approved in April 1978.

Source: N.Z. Milk Board

As in past years special producer prices over and above the national average price have been paid in certain districts with difficult production conditions, or where additional payments were necessary because of competition from other forms of farming. A proportion of these allowances is reviewed each year.

Table 2 summarises the national, seasonal and district town milk prices for the year ended 31 August, 1979.

TABLE 2

Town Milk Producer Prices for Years ending 31 August 1978 and 1979

Part 1: NATIONAL AND SEASONAL PRICES

Grade of Milk	Year ended 31 August	Seasonal Prices (cents per litre) National Town Milk Price	Spring & Summer (Sept to Jan incl.)	Autumn (Feb to April incl.)	Winter (May to August incl.)
Finest	1978	12.5643	10.6170	12.5470	15.4270
	1979	13.3873	11.0076	13.3606	16.8896
First	1978	12.1973	10.2500	12.1800	15.0600
	1979	13.0203	10.6406	12.9936	16.5226
Second	1978	11.4653	9.5180	11.4480	14.3280
	1979	12.2883	9.9086	12.2616	15.7906

Part 2: ADDITIONAL LOCAL PRICES

District	Cents per litre over six autumn and winter months 1978	1979
(i) All South Island	0.735	0.735
(ii) Tokoroa	0.550	0.700
Rotorua	0.660	0.700
Gisborne	0.367	0.367
Hawke's Bay	0.600	0.600
Ruapehu	1.000	2.000
Wairarapa	-	0.367
Wellington 30-mile area	0.185	0.185
Christchurch	0.367	0.367[a]
North Otago	0.735	0.735[a]
Dunedin/Balclutha	0.250	0.250[a]
Central Otago	1.100	1.100[a]
Southland	0.735	0.735[a]

Source: N.Z. Milk Board

[a] Additional to South Island allowance 2 (i) above.

1.4 Town Milk Production Data

Total town milk production in the year ending 31 August 1979 was 2.3 per cent higher than in the previous year. Table 3 shows the total production and sale of milk passing through the National Milk Scheme for the years ending 31 August 1977, 1978, and 1979.

TABLE 3

Total Town Milk Production

Year ending 31 August	Milk Production m. litres	Milk sold at town milk prices m. litres	Prop'n of milk sold at town milk prices (%)
1977	739.3	534.7	72.3
1978	706.5	534.3	75.6
1979	722.9	535.2	74.0

Source: N.Z. Milk Board 26th Annual Report 1979.

Total milk sales to consumers were 386.3 m. litres. This was 2.3 per cent below the 1978 figure. The decline in sales was influenced by two increases in consumer prices during the 1978-79 period. The first increase was from nine cents to ten cents per 600 ml bottle as from 1 May 1978 and a further increase from ten cents to fifteen cents was made with effect from 1 April 1979.

The decline in milk sales is reflected in the per capita consumption of milk. This showed a decline from an estimated 132.18 litres per head for the year ending 31 August 1978 to 127.22 litres per head in the following year.

In accordance with Government policy nominated quantities[a] were frozen for a further year at their 1975-76 levels and, except in one instance in which a small increase was approved, no changes were made in the case of individual associations.

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[a] Nominated quantities are the quantities of milk which producer associations contract to guarantee daily to meet the liquid milk demand for the year.

1.5 Town Milk Suppliers and Quotas

There were 1 601 town milk quota holders during the 1978-79 milk year compared with 1 664 for the previous year, and in addition, there were three dairy company quota holders. A summary of the number of quota holders over the past four years is given in Table 4, while Table 5 gives details of quota holding dairy companies in 1978-79.

TABLE 4

Town Milk Suppliers and Daily Quotas

Year Ending 31 August	Type of Quota Holders	Total N.Q.[a] (ℓ)	No. Town Milk Suppliers	Average Daily Quota per Supplier (ℓ)
1976	Total NZ Suppliers	1 298 528	1 709	759.82
	Dairy Companies	51 376	5	10 275.20
	Direct Quota Holders	1 247 152	1 704	731.90
1977	Total NZ Suppliers	1 298 528	1 732	749.73
	Dairy Companies	28 137	4	7 034.25
	Direct Quota Holders	1 270 391	1 728	735.18
1978	Total NZ Suppliers	1 298 528	1 667	778.96
	Dairy Companies	24 570	3	8 190.00
	Direct Quota Holders	1 273 958	1 664	765.60
1979	Total NZ Suppliers	1 298 748	1 604	809.69
	Dairy Companies	24 593	3	8 197.67
	Direct Quota Holders	1 274 155	1 601	795.85

[a] Nominated quantity

Source: N.Z. Milk Board

TABLE 5

Quota Holding Companies 1978-79

Name of Company	Quota held (ℓ)	Supply District	No. of sub-quota holders
East Tamaki	15 216	Auckland	63
East Tamaki	1 253	Franklin	7
Bruntwood	8 124	Hamilton	8
Total	24 593	Total	78
Proportion of Total Nominated Quota:	1.89%	Proportion of Total no. of Suppliers	4.65%

Source: N.Z. Milk Board

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 per cent of those farms that participated in the 1977-78 survey were retained for the 1978-79 survey. The remaining 25 per cent were excluded and replaced by a new random selection of farms. 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 10,000 litres daily.

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

(iii) The farm received at least 75 per cent of gross revenue from town milk sales.

(iv) The farm engaged no sharemilker.

(v) The farmer had been producing town milk on a 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 a questionnaire returned by approximately 72 per cent of town milk producers prior to sample selection enabled further farms to be 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 1 601 farms provided by the Milk Board, the eligible population was reduced under (i) and (iv) to 1 168 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.

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 give 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 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 January 1980 and was completed by June.

TABLE 6

Population and Sample Distribution by Strata[b]

Strata	Estimated Total No. of Farms in Strata[a]	Estimated Proportion of Total Farms in Strata[a]	Number of Farms Surveyed	Proportion of Total Farms Surveyed[a]
North Island				
201-600 litres	271	0.2217	26	0.171
601-1000 "	291	0.2627	32	0.211
1001 + "	176	0.1550	18	0.118
Total North Island	738	0.6394	76	0.500
South Island				
201-600 litres	228	0.1819	35	0.230
601-1000 "	137	0.1259	27	0.178
1001 + "	65	0.0528	14	0.092
Total South Island	430	0.3606	76	0.500
New Zealand	1,168	1.0000	152	1.000

[a] See Appendix C.

[b] Because of rounding some columns do not add exactly to the totals shown.

To maintain uniformity and continuity of the survey the manual of procedures as 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 1978-79 financial year was obtained from the farmer or his accountant. Milk production records for the farms surveyed were compiled from the records of producer associations. Accounts of farms where managers were employed were adjusted to an owner-operated basis. Likewise, 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.

All financial and production data collected referred to the farm's financial year. Table 7 shows the distribution of farm account balance dates as determined from a mail census of town milk producers carried out in October 1979. It can be seen that approximately 60 per cent of all balance dates were March 31st.

TABLE 7

Distribution of Balance Dates[a]

Percentage of Farms with Balance Date Falling on:								
Mar 31	April 30	May 31	June 30	July 31	Aug 31	Sept 30	Oct 31	Total
60%	2%	9%	20%	2%	5%	1%	1%	100%

Source: Unpublished Census of Town Milk Producers, October 1979.

[a] Unpublished: 72 per cent return of questionnaires.

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.

Where 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.

A complete list of all survey definitions is given in Appendix B.

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 South Island, North Island and average New Zealand survey farms including run-off units. 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 89.79 hectares, for South Island farms 75.92 hectares, and for the average New Zealand farm, 84.79 hectares. Farm sizes ranged from 21.0 hectares to 208.8 hectares in the North Island, and 25.45 hectares to 268.30 hectares in the South Island.

An estimate of the total dairy productive area used for milk production appears in Table 8. This area decreased for both Islands and New Zealand. The largest decrease was for the average South Island farm from 76.49 ha in 1977/78 to 69.05 ha in 1978/79.

TABLE 8

Average Areas of Town Supply Farms

Area per Farm	North Island	South Island	New Zealand
	(ha)	(ha)	(ha)
Freehold Area	79.40	67.52	75.12
Crown & Maori Lease	2.32	1.62	2.07
Rented Area	8.07	6.78	7.60
Total Farm Area	89.79	75.92	84.79
Less Unproductive Area	5.75	3.95	5.09
Productive Area	84.04	71.97	79.70
Less Estimated non-dairying Area	5.52	3.99	4.97
Plus Estimated 'Grazing Out' Area	1.68	1.07	1.46
Estimated Dairy Productive Area[a] Utilized for Milk Production	80.20	69.05	76.19

[a] Hereafter abbreviated to 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 65.23 ha in the North Island and up to 41.18 ha in the South Island.

TABLE 9

Utilization of Farm Area

	North Island	South Island	New Zealand
Proportion of Farm Area Under:	%	%	%
Dairy Pasture	86.2	86.7	86.4
Forage Crops	1.5	3.0	2.0
Sheep & Beef Cattle Pasture & Cash Crops	6.2	4.9	5.8
Unproductive Land	6.1	5.4	5.8
Total	100	100	100

3.1.3 Irrigation

Forty-nine per cent (37 farms) of the surveyed South Island farms used irrigation during the year compared with 11 per cent (8 farms) in the North Island.

3.2 Farm Ownership

Table 10 shows the distribution of the various forms of farm ownership. Individual ownership predominates in the South Island (57 per cent) followed by husband and wife partnerships. In the North Island the order was reversed with husband and wife partnerships being the most favoured (41 per cent) followed by sole ownership at 33 per cent.

TABLE 10

Types of Farm Ownership

Farm Ownership	North Island	South Island	New Zealand
	%	%	%
Individual Owner	32.8	57.0	41.5
Partnership:			
(i) Husband-wife	40.7	28.0	36.1
(ii) Father-son(s)	5.5	6.9	6.0
(iii) Other family	5.1	2.0	4.0
Family Company	14.5	4.9	11.1
Trust	0.0	1.2	0.4
Other Ownership	1.4	0.0	0.9
Total	100	100	100

3.3 Labour

The average survey farm employed a total of 2.18 labour units (see Table 11) which was marginally higher than the 1977/78 figure of 2.14 labour units. An increase in labour units per farm for the North Island from 2.23 in 1977/78 to 2.28 units occurred. Increases also occurred in the proportion of permanent labour per New Zealand farm (up from 90 per cent to 93 per cent) and also in the proportion of family labour (up from 71 per cent to 78 per cent).

TABLE 11

Types of Labour Units

Type of Labour	North Island	South Island	New Zealand
Farmer	0.94	1.00	0.97
Permanent Family	0.56	0.57	0.56
Casual Family	0.10	0.07	0.09
Total Family Labour Units	1.60	1.64	1.62
Permanent Non-family	0.62	0.33	0.52
Casual Non-family	0.06	0.04	0.05
Total Non-family Labour Units	0.68	0.37	0.56
Total Labour Units	2.28	2.01	2.18
Proportion of Permanent Labour	92%	95%	93%
Proportion of Family Labour	74%	85%	78%

3.4 Milk Production

3.4.1 Milk Production per Farm

The daily quota per surveyed farm was 768 litres (Table 12), compared with the previous New Zealand survey estimate of 774 litres.

Total annual milk production per farm, compared with 1977/78, declined by two per cent. The proportion of milk sold at quota prices also showed a slight decrease of one per cent.

The average South Island producer continued to produce more milk on a litres-per-cow basis than his North Island counterpart. However, the North Island farmer produced more milk per hectare and per labour unit.

TABLE 12

Milk Production

	North Island	South Island	New Zealand
MILK PRODUCTION PER FARM:			
Daily Quota (ℓ)	834	651	768
Milk Production Sold at Quota Prices (ℓ)	338 807	263 676	311 734
Milk Production Sold at Surplus Prices (ℓ)	111 190	85 107	101 788
Total Annual Milk Production (ℓ)	449 997	348 783	413 522
Proportion of Total Production Sold at Surplus Prices (%)	27	25	26
Proportion of Total Production Sold at Quota Prices (%)	73	75	74
Total	100	100	100
Average Herd Size (No. cows)	129.03	83.67	112.68
MILK PRODUCTION:			
litres/cow	3 488	4 169	3 670
ℓ/total ha	5 012	4 594	4 877
ℓ/prod. ha	5 355	4 846	5 188
ℓ/dairy prod. ha	5 611	5 051	5 428
ℓ/labour unit	197 367	173 524	189 689
ℓ/farm/day	1 233	956	1 133

3.5 Other Physical and Production Data

In Appendix D further physical and production information is listed. It includes information such as supplementary dairy feed, types of dairy sheds and wintering barns, dairy management and stock balances.

CHAPTER 4

FINANCIAL DATA

4.1 Introduction

Many of the tables in this section have results presented on a per farm, per cow and a per hectare basis.

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 identical 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 $296,651 (see Table 13). This was 6.2 per cent higher than the 1977-78 value.

The average North Island farm had an all assets total of $337,433 compared with the South Island figure of $224,300. In 1976-77 the difference in asset value per farm between the two Islands was $82,071, in 1977-78 it was $108,674 and in 1978-79 the rate of increase slowed. The gap in asset values per farm was $113,133.

4.2.2 Value of All Liabilities.

There was little change in the value of current and fixed liabilities for the average North Island farm between 1977-78 and 1978-79 although the value of liabilities in the South Island increased by 13.3 per cent. The New Zealand value of liabilities and equity both increased by six per cent compared with the previous year.

TABLE 13

Capital Structure - Value of all Assets and Liabilities[a]

	North Island			South Island			New Zealand		
	Per Farm	Per Cow	Per total ha	Per Farm	Per Cow	Per total ha	Per Farm	Per Cow	Per total ha
ASSETS									
Freehold Land (valued at 31.12.78)	259,216	2,009	2,887	153,672	1,837	2,024	221,167	1,963	2,608
Improvements	1,287	10	14	1,569	19	21	1,388	12	16
Farmer's House ($\frac{1}{4}$)	3,517	27	39	3,437	41	45	3,488	31	41
Other Farm Houses	5,092	39	57	2,729	33	36	4,240	38	50
Farm Buildings	9,591	74	107	13,271	158	175	10,919	97	129
Plant & Equipment	6,783	53	75	7,139	85	94	6,912	61	82
Farm Vehicles	9,783	76	109	9,517	114	125	9,688	86	114
Dairy Stock	20,086	156	224	13,666	163	180	17,772	158	210
Other Stock	971	8	11	754	9	10	893	8	11
Company Shares	1,584	12	18	1,101	13	15	1,410	13	17
Working Capital	3,285	25	36	2,741	33	36	3,089	27	36
Total Farm Assets	321,195	2,489	3,577	209,596	2,505	2,761	280,966	2,494	3,314
Cash at Bank	3,877	30	43	3,643	44	48	3,792	33	45
Sundry Debtors	3,397	26	38	3,244	39	42	3,342	30	39
Other Current Assets	8,964	70	100	7,817	93	103	8,551	76	101
Total All Assets	337,433	2,615	3,758	224,300	2,681	2,954	296,651	2,633	3,499

TABLE 13 (cont'd)

Capital Structure - Value of all Assets and Liabilities[a]

	North Island			South Island			New Zealand		
	Per Farm	Per Cow	Per total ha	Per Farm	Per Cow	Per total ha	Per Farm	Per Cow	Per total ha
	$	$	$	$	$	$	$	$	$
CURRENT LIABILITIES									
Bank Overdraft	4,161	32	46	2,170	26	29	3,443	31	41
Sundry Creditors	3,849	30	43	5,298	63	70	4,372	39	52
Other Current Liabilities	1,967	15	22	1,331	16	17	1,738	15	20
Total Current Liabilities	9,977	77	111	8,799	105	116	9,553	85	113
FIXED LIABILITIES									
First Mortgages	50,500	391	563	47,410	567	625	49,387	438	582
Other Mortgages & Term Loans	7,465	58	83	12,019	144	158	9,107	81	107
Total Current & Fixed Liabilities	67,942	526	757	68,228	816	899	68,047	604	802
Equity or Proprietorship	269,491	2,089	3,001	156,072	1,865	2,055	228,604	2,029	2,697
Total	337,433	2,615	3,758	224,300	2,681	2,954	296,651	2,633	3,499

[a] Because of rounding, some columns do not add exactly to the totals shown.

4.3 Gross Revenue

Total gross revenue in Table 14 for the average New Zealand farm increased by 15.7 per cent compared with the year before.

Milk sales represented 86 per cent of the total gross revenue for the average farm. The New Zealand figure of $51,332 for milk sales was above the 1977-78 figure by 11.7 per cent. The profit from livestock sales of $5,691 per farm was 65.3 per cent 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 of $64,528 was nearly 26 per cent higher than the South Island total per farm ($51,254). North Island was also higher in revenue per total hectare but trailed the South Island in revenue per cow.

TABLE 14

Gross Revenue Components

	North Island			South Island			New Zealand		
	Per Farm	Per Cow	Per total ha	Per Farm	Per Cow	Per total ha	Per Farm	Per Cow	Per total ha
	$	$	$	$	$	$	$	$	$
Milk Sales	55,094	427	614	44,652	534	589	51,332	456	605
Produce Sold	293	2	3	554	7	7	387	3	5
Wool & Skins Sold	297	2	3	98	1	1	225	2	3
Contracting Fees	170	1	2	72	1	1	135	1	2
Rent & Lease Fees	309	3	4	166	2	2	257	2	3
Employee's House	677	5	8	230	3	3	516	5	6
Livestock Profit	6,326	49	70	4,564	54	60	5,691	50	67
Other Revenue	1,362	11	15	918	11	12	1,202	11	14
Gross Revenue	64,528	500	719	51,254	613	675	59,745	530	705

4.4 Expenditure

4.4.1 Farm Expenditure.

For the average New Zealand farm, total expenditure increased by 13.2 per cent to $41,245 in 1978-79 (Table 15). The largest increase was depreciation which rose 27.8 per cent followed by labour, operating, and overhead expenses which rose 16.0 per cent, 12.8 per cent and 7.2 per cent respectively. The only subgroup to fall was administration expenses which was down nearly two per cent.

The two highest individual operating expenses for the average town milk farm were cost of feed which rose by 11.5 per cent and vehicle expenses (up 11.7 per cent). Then followed repairs and maintenance which increased by 20 per cent. Fertilizer and seed expenses were the next highest operating expense.

A rise of ten per cent in the interest paid on the average New Zealand farm was recorded. The average amount paid in the North Island increased by 5.4 per cent to $5,293 per farm while in the South Island the average interest paid was up by 16.1 per cent to $5,002.

A fall of 13.4 per cent occurred in rent payment for the average New Zealand farm.

TABLE 15

Farm Expenditure Components[a]

Expenses	North Island Per Farm	North Island Per Cow	North Island Per total ha	South Island Per Farm	South Island Per Cow	South Island Per total ha	New Zealand Per Farm	New Zealand Per Cow	New Zealand Per total ha
	$	$	$	$	$	$	$	$	$
LABOUR									
Family Labour	1,846	14	20	1,551	19	20	1,740	15	21
Family Casual Labour	238	2	3	286	3	4	256	2	3
Non-Family Permanent & Casual Labour	4,209	33	47	1,954	23	26	3,396	31	40
Unpaid Family Labour	1,975	15	22	2,165	26	28	2,043	18	24
Labour Accommodation	979	8	11	663	8	9	865	8	10
Sub-total Labour	9,247	72	103	6,619	79	87	8,300	74	98
OPERATING									
Animal Health	1,073	8	12	817	10	11	981	9	12
Breeding & Herd Testing	672	5	7	332	4	4	550	5	6
Contractors	764	6	8	1,151	14	15	904	8	11
Dairy Shed Expenses	712	6	8	818	10	11	750	7	9
Electricity	1,148	9	13	1,066	13	14	1,118	10	13
Fertilizer & Seed	3,483	27	39	1,940	23	26	2,927	26	35
Feed	3,767	29	42	4,074	49	54	3,878	34	46
Grazing Expenses	421	3	5	122	1	2	313	3	4
Freight	401	3	4	595	7	8	471	4	6
Weed & Pest Expenses	320	2	4	198	2	3	276	2	3
Vehicle Expenses	3,818	30	42	3,430	41	44	3,678	33	43
Repairs & Maintenance	3,936	31	44	3,156	38	42	3,655	32	42
Irrigation Expenses	69	1	1	265	3	3	140	1	2
Sub-total Operating	20,584	160	229	17,964	215	237	19,641	174	232
Total Labour & Operating	29,831	232	332	24,583	294	324	27,941	248	330

TABLE 15 (cont'd)

Farm Expenditure[a]

Expenses	North Island			South Island			New Zealand		
	Per Farm	Per Cow	Per total ha	Per Farm	Per Cow	Per total ha	Per Farm	Per Cow	Per total ha
	$	$	$	$	$	$	$	$	$
ADMINISTRATION									
Accountancy	436	3	5	341	4	4	402	3	5
Telephone	335	3	4	236	3	3	299	3	3
General Administration	457	3	5	490	6	7	469	4	6
Sub-total Administration	1,228	9	14	1,067	13	14	1,170	10	14
OVERHEADS									
Insurance	696	5	8	699	8	9	697	6	8
Interest	5,293	41	59	5,002	60	66	5,188	47	62
Rates	1,251	10	14	895	11	12	1,123	10	13
Rent	1,121	9	12	648	8	8	950	8	11
Sub-total Overheads	8,361	65	93	7,244	87	95	7,958	71	94
Total Cash Expenses	39,420	305	439	32,894	393	434	37,069	329	437
Net Depreciation	4,077	32	45	4,352	52	57	4,176	37	49
Total Expenditure	43,497	337	484	37,246	445	491	41,245	366	486

[a] Because of rounding some columns do not add exactly to the totals shown.

4.4.2 Depreciation of Farm Assets.

Net depreciation (Table 16) increased by 27.8 per cent to $4,176 for the average New Zealand farm. The increase was greater in the North Island (up by 29.3 per cent) compared with the South Island (up 27.3 per cent).

The first year and special depreciation result for New Zealand increased by 29.7 per cent. The average North Island farm had an increase of 17.1 per cent with the South Island average farm showing a more substantial increase of 51.5 per cent.

A decrease was recorded in the buildings sector of first year and special depreciation. For New Zealand this figure fell by 13.5 per cent (from $281 in 1977-78 to $243 in 1978-79).

TABLE 16

Depreciation of Farm Assets[a]

Type of Asset	North Island Ordinary	North Island First Year & Special	North Island Gross Depreciation	South Island Ordinary	South Island First Year & Special	South Island Gross Depreciation	New Zealand Ordinary	New Zealand First Year & Special	New Zealand Gross Depreciation
	$	$	$	$	$	$	$	$	$
Plant & Equipment	761	507	1,268	811	546	1,357	779	521	1,300
Vehicles	1,752	841	2,593	1,620	1,040	2,660	1,704	913	2,617
Buildings	832	(200)[a]	832	756	(319)[a]	756	805	(243)[a]	805
Gross Depreciation			4,693			4,773			4,722
Less Personal Depn on cars			250			194			230
Less Depn. recovered on Plant & Vehicles by Sales			366			227			316
Net Depreciation			4,077			4,352			4,176

[a] Special and First Year Depreciation on buildings is excluded in calculating Gross Depreciation.

4.5 Farm Income

4.5.1 Net Farm Income.

New Zealand net farm income averaged $18,500 in 1978-79 (Table 17), an increase of 21.8 per cent over the previous survey result of $15,195. In 1977-78 net farm income was up by 12.6 per cent.

The North Island average farm income increased by 19.5 per cent to $21,031. The North Island farmer increased his average gross revenue at a faster rate (up 13.0 per cent) than his increase in total expenditure (up 10.1 per cent). In the South Island the average farmer increased his gross revenue by 15.4 per cent. This was similar to the increase in his total expenditure (up 15.0 per cent). The result for the average South Island farmer surveyed was a smaller percentage increase in net income of 16.6 per cent to $14,008.

The cash difference between the average net farm income of the North Island farm and the South Island farm was $7,023. In 1977-78 the cash difference was $5,580.

Results by quota group are given in Appendix D.

TABLE 17

Net Farm Income Components

	North Island			South Island			New Zealand		
	Per Farm	Per Cow	Per total ha	Per Farm	Per Cow	Per total ha	Per Farm	Per Cow	Per total ha
	$	$	$	$	$	$	$	$	$
Gross Revenue	64,528	500	719	51,254	612	675	59,745	530	704
Total Expenditure	43,497	337	485	37,246	445	491	41,245	366	486
Net Farm Income	21,031	163	234	14,008	167	184	18,500	164	218

4.5.2 Cash Surplus.

Details of the cash surplus available to farmers after the year's farming are listed in Table 18. Imputed revenue and cost components such as allowances for the employee's house and family labour are excluded. Taxation has not been deducted.

The increase in cash surplus from farming at $24,778 was 28.8 per cent higher than the previous survey. The average North Island farm had a 27.9 per cent increase compared with the South Island at 23.8 per cent.

Livestock sales showed a substantial increase over the previous year. For the average New Zealand farm, dairy cattle sales were up 61 per cent, sheep and beef sales up 88 per cent and bobby calf sales up 55 per cent.

TABLE 18

Cash Surplus from Farming

($ per farm)

	North Island	South Island	New Zealand
1. CASH RECEIVED:	$	$	$
Milk Sales	55,094	44,652	51,332
Dairy Cattle Sales	5,417	3,936	4,884
Sheep & Beef Sales	1,187	935	1,096
Bobby Calf Sales	1,498	865	1,269
Other Farm Income	2,432	1,808	2,207
Total	65,628	52,196	60,788
2. CASH SPENT:			
Labour & Operating	26,877	21,756	25,032
Overhead & Administration	9,588	8,311	9,128
Cattle Purchases	1,788	1,354	1,631
Sheep & Beef Cattle Purchases	200	252	219
Total	38,453	31,673	36,010
CASH SURPLUS FROM FARMING	27,175	20,523	24,778

4.5.3 Farm Incomes less Imputed Interest Rates.

In Table 19 an imputed interest rate (e.g. 3.5 per cent) 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.

TABLE 19

Net Farm Income less Imputed Interest on Equity and Total Assets

	North Island	South Island	New Zealand
	$	$	$
Equity or Proprietorship	269,491	156,072	228,604
Net Farm Income	21,031	14,008	18,500
A. Net Farm Income less Imputed Interest on Equity at rate of:			
3.5% p.a.	11,599	8,546	10,499
5% p.a.	7,557	6,205	7,070
7% p.a.	2,167	3,083	2,498
Total Farm Assets	321,195	209,596	280,966
Net Farm Income	21,031	14,008	18,500
Interest Paid	5,293	5,001	5,188
B. Net Farm Income plus Interest Paid less Imputed Interest on Total Farm Assets at rate of:			
3.5% p.a.	15,083	11,674	13,855
5% p.a.	10,264	8,530	9,640
7% p.a.	3,841	4,338	4,021

4.5.4 Measures of Economic Profitability.

An attempt has been made in Table 20 to allow a comparison of results from this townmilk survey with those found in the N.Z. Meat & Wool Board's Economic Service survey of sheep and beef farms . Many of the terms used here are particular to this table. They are defined in Appendix B.

The calculated rate of return on farm capital invested for the average New Zealand farm was 5.75 per cent (Table 20). The figure for the previous year was 4.81 per cent. The average North Island farm at 5.78 per cent was higher than the average South Island farm (5.65 per cent).

The capital turnover percentage is the ratio of gross revenue to total farm capital, expressed as a percentage. In 1977-1978 the average New Zealand farm had a capital turnover percentage of 19.98 per cent. For this current survey, the figure increased to 21.75 per cent.

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 8.0 per cent on his own equity capital, in addition to the interest he already pays on borrowed capital. The New Zealand average residual was $1,858 compared with $425 for the previous survey.

TABLE 20

Measures of Economic Profitability[a]

	North Island	South Island	New Zealand
Number of Farms	76	76	152
A. RETURN ON CAPITAL	$	$	$
1. Working Expenses (Labour, operating & administration less imputed costs)	28,104	22,822	26,202
2. Plus assessed Managerial Reward ($6,286 plus 1% of Farm Capital - see 5)	9,378	8,273	8,979
3. Total adjusted Working Expenses (1+2)	37,482	31,095	35,181
4. Working Capital (8.33% of 3)	3,122	2,590	2,930
5. Farm Capital (excluding dwelling, car, shares & working capital)	309,178	198,686	269,348
6. TOTAL FARM CAPITAL (4+5)	312,300	201,276	272,278
7. Net Farm Income	21,031	14,008	18,500
8. Plus Interest Paid	5,293	5,001	5,188
9. Plus Rent Paid	1,122	649	950
10. Sub-total (7+8+9)	27,446	19,658	24,638
11. Less assessed Managerial Reward (2)	9,378	8,273	8,979
12. Economic Farm Surplus (10-11)	18,068	11,385	15,659
13. Rate of Return % (12/6)	5.78%	5.65%	5.75%
B. CAPITAL TURNOVER PERCENTAGE			
14. Gross Revenue (less worker's house)	63,851	51,024	59,229
15. Total Farm Capital (6)	312,300	201,276	272,278
16. Capital Turnover Percentage (14/15)	20.44%	25.35%	21.75%
C. LABOUR & MANAGEMENT RESIDUAL			
17. Total Farm Capital (6)	312,300	201,276	272,278
18. Plus Cash at Bank	3,877	3,643	3,793
19. Sub-Total (17+18)	316,177	204,919	276,071
20. Less Fixed Liabilities	57,964	59,429	58,495
21. Less Current Liabilities	9,977	8,799	9,553
22. TOTAL EQUITY CAPITAL (19-20-21)	248,236	136,691	208,023
23. Net Farm Income (7)	21,031	14,008	18,500
24. Less 8.0% of Equity Capital (22)	19,859	10,935	16,642
25. Labour & Management Residual (23-24)	1,172	3,073	1,858

[a] The terms used in this table are defined in Appendix B. They are similar to those used by the N.Z. Meat and Wool Boards' Economic Service in their "Sheep and Beef Farm Survey".

4.6 Principal Revenue & Expenditure Components

Milk sales represented 85.9 per cent of total revenue in the current survey (Table 21). This was 3.1 per cent less than in 1977-78. This reduction was due to the rise in livestock profit from 6.7 per cent to 9.5 per cent for New Zealand farms.

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

When comparing the North and South Islands, labour expenses and depreciation were the only subgroups with a difference greater than two per cent of total expenses. As a percentage of total expenses, all other expenditure subgroups for the two Islands were similar.

TABLE 21

Revenue and Expenditure Proportions

	North Island	South Island	New Zealand
	%	%	%
Gross Revenue			
Milk Sales	85.4	87.1	85.9
Livestock Profit	9.8	8 9	9.5
Other Revenue	4.8	4.0	4.6
Total	100	100	100
Expenditure			
Labour	21.3	17.8	20.1
Operating	47.3	48.2	47.6
Administration	2.8	2.9	2.9
Overheads	19.2	19.4	19.3
Depreciation	9.4	11.7	10.1
Total	100	100	100
Expenditure/ Revenue Ratio	67.4	72.7	69.0

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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 (Ambury's), Auckland
- Franklin Co-op Milk Producers Ltd
- Thames Valley Milk Producers Ltd
- Hamilton Milk Producers 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 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
- Canterbury Dairy Farmers Ltd
- Metropolitan Milk Ltd
- Ashburton Town Milk Producers Co-op Ltd
- South Canterbury Co-op Milk Supply Co. Ltd (Timaru)
- North Otago Co-op Milk Supply Co. Ltd
- Dunedin Dairy Farmers Co-op Milk Supply Co. Ltd
- Southland Co-op Milk Producers Assn Ltd (Invercargill)

Source: N.Z. Milk Board

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 and assembling data from each farm:

TOTAL FARM AREA: This was the total area farmed by the producer during his 1978-79 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 that 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 total farm area.

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.

VALUE OF LABOUR UNIT: A standard wage of $6,286 per annum, with or without the provision of a house, was assumed for the imputed wage of adult workers over 20 years. This figure was calculated from the adult award wage for dairy farm workers from 1 July 1978 of $5,286 per annum. A further $1,000 was added to compensate for the 12 months milking requirement on a town-milk farm. The imputed wage assumed for youths between 12 and 20 years of age was $5,200.

HOUSE RENT FOR EMPLOYEES: Where a house was provided by the farmer for an employee (including other family members), the rental was assessed at $1,300 for the year.

FULL BOARD AND LODGING: This was assessed at $1,000 per year per person.

PRODUCE USED: A 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 included in labour accommodation expenses.

LAND VALUES: The most recent Government valuation for each land assessment was obtained. The Valuation Department's "Farmland Sales Price Index" was used to update all land assessments to 31 December 1978 values. The index was obtained from the N.Z. Valuation Department's Annual Report for the year ended 31 March 1979.

Year ended 31st December	Farmland Price Index	Factor to convert to 31 Dec. 1978
1975	1 000	1.355
1976	1 101	1.231
1977	1 238	1.095
1978	1 355	1.0

To obtain a value for land only, the total opening book value of all farm buildings was deducted from the "updated" capital value of the farm.

DEPRECIATION OF FARM BUILDINGS: The original cost values of all farm buildings were used to determine depreciation. Ordinary building depreciation rates were applied (i.e. no special depreciation allowances) to the book values. The normal taxation depreciation rate was applied to the cost values of all houses on the farm except that rates were applied to only one quarter of the original value of the farmer's dwelling.

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 (e.g. motor car) were deducted from the gross depreciation.

WORKING CAPITAL: Working capital was calculated by dividing the total expenses on each farm by 12. Hence, cash expenses for a month were considered equivalent to the annual working capital for the farm.

DEVELOPMENT EXPENDITURE: Certain capital expenditures may be treated as expenses for income tax purposes. The deduction of these expenses for tax purposes may be deferred, either in whole or in part, for up to nine years, and includes, inter alia, expenditures on the following:

(i) Eradication of animal and vegetable pests
(ii) Construction of fences
(iii) Construction of roads, access tracks, and topdressing landing strips
(iv) Sinking of bores and the construction of dams
(v) Swamp drainage.

Fertiliser expenditure may also be deferred for up to four years. All development expenditure that was included in the farm operating expenses was isolated and deducted from the relevant expenditure item. Development expenditure has been included in the farm assets.

QUOTA: This was the average daily quota per farm for the farmer's 1978-79 income year.

STANDARD VALUES USED IN THE VALUATION OF LIVESTOCK: Numbers of dairy 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
Heifer-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 yr	$ 50
- 1 yr	$ 50	- 2 yr	$125
- 2 yr	$125	Bulls - calves	$ 50
		- other	$200

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

MILK GRADES are defined by 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.

INCOME:

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 these items.

CONTRACTING: Gross proceeds from contracting work undertaken by the farmer or his employees; fencing, hay baling, bulldozing etc.

RENT AND LEASE FEES: Grazing fees and rent received from farm cottages or land.

EMPLOYEE'S HOUSE AND PRODUCE: This value is the sum of the annual imputed rental value of the farm employee s house(s) and the $190 per annum allowance for each married non-family permanent worker for produce used.

LIVESTOCK PROFIT: Net 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: Sale 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 LABOUR: Actual wages paid to permanent family members. Does not include end of year bonuses etc.

FAMILY CASUAL LABOUR: Wages paid to all family members for casual work during the year. Wives who were only involved occasionally in farm work, but who claimed wages for taxation purposes were included in this category.

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, hay making 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:	$2.42 per hour
12-20 year old youths and girls:	$2.00 per hour
Children under 12 years:	Nil.

The time worked by family members up to a maximum of 50 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.

LABOUR ACCOMMODATION: This was calculated as the sum of the imputed rental value of farm cottage(s) per annum and $190 per annum for produce used by non-family permanent worker(s).

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, facial eczema control and various testing fees.

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.

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

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

FERTILISER AND SEED: Includes cost of fertiliser and seed, freight and spreading charges. Subsidies and rebates have been deducted.

WEED AND PEST CONTROL: This amount includes cost of materials and some spraying work. In some cases the cost of spraying work is included in contracting expenses.

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

GRAZING EXPENSES: Grazing fees incurred during the year.

REPAIRS AND MAINTENANCE: Repairs to buildings, plant, fences, water supply, races, etc.

IRRIGATION EXPENSES: Repairs to irrigation equipment and imputed values for power and vehicle costs.

ACCOUNTANCY: Accountancy fees paid on all farm accounts.

TELEPHONE: Postage, telephone rentals and tolls.

GENERAL ADMINISTRATION: Items not allocated elsewhere, e.g. farm advisory services, legal fees, subscriptions, travelling expenses and sundry items.

INSURANCE: General insurance of farm assets: accident compensation levy is included in labour expenses.

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

RENT: Fees paid for Crown lease or short-term renting. Excludes all internal rents paid to trust and companies etc.

NET DEPRECIATION: Includes all special and ordinary depreciation less personal allowances, 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.

NET CASH INCOME: This is the difference between the gross farm revenue and total cash expenses (excludes depreciation).

CAPITAL STRUCTURE:

CASH AT BANK: Average value of all current accounts held at Banks and Commercial firms for the farm's financial year.

SUNDRY DEBTORS: Average value of general sundry debts to the farm account. The majority 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.

BANK OVERDRAFT: Average balance owing on bank overdrafts.

SUNDRY CREDITORS: Average balance owing on sundry creditors.

OTHER CURRENT LIABILITIES: Average balance owing on other current liabilities.

FIRST MORTGAGES: Average balance owing on all first mortgages.

OTHER MORTGAGES AND TERM LOANS: Average balance owing on all other mortgages and term loans.

EQUITY OR PROPRIETORSHIP: 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 [a]

WORKING EXPENSES: Cash payments for labour (excludes 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/her own labour and management skill. Calculated by adding $6,286 (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 $3,631) and all livestock.

TOTAL FARM CAPITAL: This is the sum of Working and Farm Capital.

INTEREST PAID: This is the actual average interest paid.

RENT PAID: This is the actual average 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/her own labour and management, if a 8.0 per cent interest (similar to Economic Service Report) is applied to his/her own equity capital, in addition to the interest already paid on borrowed capital. A sum of 8.0 per cent of the calculated Equity Capital is subtracted from the sum of Net Farm Income and Managerial Salaries paid.

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[a] Source: N.Z. Meat and Wool Boards' Economic Service, 'Sheep and Beef Farm Survey', 1977-78.

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. 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 22 sets out the mean and relative standard error for key survey variables. For example, Table 22 shows that for New Zealand the survey estimate of average net farm income was $18,500 with a relative standard error (RSE) of 4.75 per cent. In other words, it is 95 per cent certain that the true value of average net farm income lies within the range of 1.96 x 4.75 per cent x $18,500 either side of the estimated value. That is within $18,500 $\pm$ $1,722. 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 for the individual strata.

TABLE 22

RELIABILITY OF SURVEY ESTIMATES

	North Island Quota Size (litres)				South Island Quota Size (litres)				New Zealand
	201-600ℓ	601-1000ℓ	1001 +ℓ	All	201-600ℓ	601-1000ℓ	1001 +ℓ	All	
Number of farms	26	32	18	76	35	27	14	76	152
Herd Size									
- mean (cows)	86.83	122.70	200.14	129.03	61.81	91.94	139.32	83.67	112.68
- RSE (%)	4.30	5.36	9.29	4.36	5.53	3.81	6.12	3.19	3.30
Quota									
- mean (litres)	455	807	1 421	834	452	717	1 181	651	768
- RSE (%)	3.93	2.40	6.80	3.42	4.29	1.85	3.39	2.41	2.50
Total Farm Area									
- mean (hectares)	61.87	85.52	136.98	89.79	54.98	87.72	120.00	75.92	84.79
- RSE (%)	8.13	7.51	11.74	5.71	7.26	7.09	8.99	4.84	4.14
Total Milk Production									
- mean (litres)	279 635	439 893	710 855	449 996	251 959	377 298	614 604	348 782	413 522
- RSE (%)	4.63	4.50	5.68	3.26	5.54	4.11	6.98	3.41	2.51
Gross Revenue									
- mean ($)	39,126	61,517	105,972	64,528	34,967	55,526	97,223	51,254	59,745
- RSE (%)	3.91	3.51	8.22	3.90	4.72	3.47	4.67	2.94	2.85
Total Expenditure									
- mean ($)	27,819	40,750	70,581	43,482	25,048	42,268	67,321	37,246	41,245
- RSE (%)	6.74	5.61	10.52	5.08	6.33	5.07	5.42	3.62	3.57
Net Farm Income									
- mean ($)	11,307	20,767	35,391	21,031	9,919	13,258	29,902	14,008	18,500
- RSE (%)	13.29	6.51	10.32	5.77	11.35	15.17	14.26	8.07	4.75

Estimation Mathematics[2]

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, $N = \Sigma N_h$, $N^* = \Sigma N_h^*$

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).

Π_h^* = N_h^*/N^*, the fraction of eligible farms in the total population coming from stratum h.

$\bar{\mu}h$, σ_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.

$\bar{\bar{\mu}}$ = $\Sigma \Pi_h \bar{\mu}_h$, 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 $\bar{\bar{\mu}}$.

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2 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:

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

$$\text{est. var. } \hat{W}_h = \frac{\hat{W}_h (1 - \hat{W}_h)}{n_h + c_h + m_h - 2} \quad ; \quad \text{unbiased estimator of the variance of } \hat{W}_h.$$

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. $\hat{W}_h$.

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

$$\bar{\bar{X}} = \Sigma \hat{\Pi}_h \bar{X}_h \quad \text{where } \hat{\Pi}_h = \hat{N}_h^* / \Sigma N_h^*$$

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

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 23.

TABLE 23

Estimation of Stratum Sizes

Stratum	N_h	n_h	c_h	m_h	$\hat{N}^*_h$	$\hat{\Pi}^*_h$
North Island						
201-600 ℓ	271	26	9	12	206	0.2217
601-1000 ℓ	291	32	5	7	244	0.2627
1001+ ℓ	176	18	10	6	144	0.1550
South Island						
201-600 ℓ	228	35	12	16	169	0.1819
601-1000 ℓ	137	27	4	5	117	0.1259
1001+ ℓ	65	14	2	5	49	0.0528
Total New Zealand	1,168	152			929	1.0000

APPENDIX D

OTHER PHYSICAL AND PRODUCTION DATA

1. Supplementary Feed Use
2. Silage Use and Storage
3. Types of Forage Crops
4. Shed Types
5. Types of Wintering Barns
6. Herd Testing
7. Pedigree Cow Numbers and AB
8. Bloat Control Measures
9. Dairy Stock Balances
10. Beef and Sheep Stock Balances

TABLE 24

Supplementary Feed Use

Type of Feed	North Island	South Island	New Zealand
Hay - Home grown (bales)	2 654	5 154	3 556
Hay - Purchased (bales)	562	1 902	1 045
Grain - Home grown (tonnes)	0.2	6.1	2.3
Grain - Purchased (tonnes)	3.5	26.9	11.9
Dairy Meal - Purchased (tonnes)	7.7	4.7	6.6
Proportion of Survey Farms using Meal	52%	24%	42%
Purchased Meal Fed/Farm by Farms Using Meal (tonnes)	14.8	10.7	13.3

TABLE 25

Silage Use & Storage

	North Island	South Island	New Zealand
Number of Farms Making Silage	21	14	19
Area Silage was Made from by Farms Making Silage (ha)	18.4	19.4	18.8
Silage Feeding Out:			
Self Fed (%)	1	13	6
Unloaded by Hand (%)	48	40	45
Unloaded Mechanically (%)	51	47	49
Total	100	100	100
Type of Silage Storage:			
Bun or Saucer shape (no walls) (%)	10	11	10
Ramp (2 side walls) (%)	13	7	11
Bunker or Wedge (3 walls) (%)	17	42	26
Pit or Trench (%)	60	40	53
Total	100	100	100

TABLE 26

Types of Forage Crops

	North Island	South Island	New Zealand
Proportion of farms growing:	%	%	%
Nil forage crops	67	51	61
Soft turnips	7	8	7
Green maize	15	0	9
Choumoellier	6	31	16
Fodder Beet	1	5	3
Other	4	5	4
Total	100	100	100

TABLE 27

Shed Types

	North Island	South Island	New Zealand
Proportion of farms using:	%	%	%
Walk-through	20	41	27
Herringbone (Step-up)	0	3	1
Herringbone (High-line)	61	41	54
Herringbone (Low-line)	8	5	7
Rotary (Turn-style)	6	5	6
Rotary (Herringbone)	0	1	1
All Others	5	4	4
Total	100	100	100

TABLE 28

Types of Wintering Barns

	North Island	South Island	New Zealand
Proportion of farms using:	%	%	%
No wintering barn	99	83	93
Open loafing barn	0	14	5
Cubicle type	1	3	2
Total	100	100	100

TABLE 29

Use of Herd Testing

	North Island	South Island	New Zealand
Proportion of farms using:	%	%	%
No Herd Testing	46	43	45
Owner Sampling	12	5	9
Monthly Sampling	29	47	36
Alternate Monthly	8	5	7
Production Ranking	5	0	3
Total	100	100	100

TABLE 30

Number of Pedigree Cows and
Proportion of Artificial Breeding Used

	North Island	South Island	New Zealand
Number of Pedigree Cows	16	31	21
Proportion of AB Used	72%	19%	53%

TABLE 31

Types of Bloat Control Measures

	North Island	South Island	New Zealand
Proportion of farms using:	%	%	%
No Bloat Control	49	48	48
Drench	13	1	9
Water Trough Additives	8	22	13
Flank Lick	5	5	5
Pasture Spray	19	10	16
Other	1	6	3
Any two of the above Measures	5	8	6
Total	100	100	100

TABLE 32

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	111.7	13,958	All Cows	113.5	14,188
Heifers-in-calf	16.1	1,612	Heifers-in-calf	16.5	1,650
1-2 yr Heifers	4.6	364	1-2 yr Heifers	4.9	395
Yearlings	18.4	922	Yearlings	17.6	880
Calves	18.8	369	Calves	20.0	399
Bull Calves	0.4	18	Bull Calves	0.3	13
Bulls	2.0	392	Bulls	1.9	376
Sub-total	172.0	17,635	Sub-total	174.7	17,901
Purchases:			Sales:		
Cows & in-calf Heifers	6.8	1,441	Cull cows sold	23.3	4,186
Others Purchased	0.8	137	Others Sold	3.9	662
			Bobby Calves Sold	57.6	1,269
Natural Increase or Calves Bred (no.)	82.8				
			Deaths, Missing, etc.	2.9	
Dairy Stock Profit		4,805			
Opening Balance	262.4	24,018	Closing Balance	262.4	24,018

TABLE 33

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	15.4	156	Ewes	17.3	173
Hoggets & Wethers	6.3	51	Hoggets & Wethers	5.5	44
Rams	0.5	14	Rams	0.5	16
Beef:			Beef:		
Cows & Mature Steers	3.1	379	Cows & Mature Steers	3.2	400
Calves & Yearlings	4.5	223	Calves & Yearlings	4.2	211
Bulls	0.4	74	Bulls	0.3	60
Sub-total	30.2	897	Sub-total	31.0	904
Purchases:			Sales:		
Sheep purchased	8.5	145	Sheep sold	17.1	257
Beef Cattle purchased	1.3	73	Beef Cattle sold	6.7	840
Natural Increase no.	17.0				
Other Stock Profit		886	Deaths, Missing, etc.	2.2	
Opening Balance	57.0	2,001	Closing Balance	57.0	2,001

APPENDIX E

SURVEY RESULTS BY REGION AND QUOTA GROUP

1. Average Area of Town Supply Farms
2. Utilization of Farm Area
3. Types of Farm Ownership
4. Types of Labour Units
5. Milk Production
6. Capital Structure - Value of all Assets and Liabilities
7. Gross Revenue Components
8. Farm Expenditure Components
9. Depreciation of Farm Assets
10. Net Farm Income Components
11. Cash Surplus from Farming
12. Net Farm Income at Imputed Interest on Equity and Total Assets
13. Measures of Economic Profitability
14. Supplementary Feed Use
15. Silage Use and Storage
16. Types of Forage Crops
17. Shed Types
18. Types of Wintering Barns
19. Use of Herd Testing
20. Number of Pedigree Cows and Proportion of AB Used
21. Types of Bloat Control Measures

TABLE 34

Average Areas of Town Supply Farms

by Region and Quota Group

	North Island			South Island		
	201-600 ℓ	601-1000 ℓ	1001+ ℓ	201-600 ℓ	601-1000 ℓ	1001+ ℓ
Number of Farms	26	32	18	35	27	14
	ha	ha	ha	ha	ha	ha
Freehold Area	56.22	71.50	125.98	49.24	79.61	101.66
Crown & Maori Lease	0.41	2.81	4.22	1.99	1.71	0.14
Rented Area	5.24	11.21	6.78	3.74	6.40	18.18
Total Farm Area	61.87	85.52	136.98	54.97	87.72	119.98
Less Unproductive Area	3.01	5.64	9.85	2.87	5.92	2.92
Productive Area	58.86	79.88	127.13	52.10	81.80	117.06
Less estimated non-dairying area	3.51	6.24	7.16	1.76	6.39	5.98
Plus estimated 'grazing out' area	0.62	2.70	1.45	0.74	1.11	2.12
Estimated dairy productive area utilised for milk production	55.97	76.34	121.42	51.08	76.52	113.20

TABLE 35

Utilization of Farm Area
by Region and Quota Group

	North Island			South Island		
	201-600ℓ	601-1000ℓ	1001+ ℓ	201-600 ℓ	601-1000ℓ	1001+ℓ
Number of Farms	26	32	18	35	27	14
Prop'n of Farm Area Under:	%	%	%	%	%	%
Dairy Pasture	86.91	85.80	85.75	88.71	81.96	91.09
Forage Crops	2.55	0.31	1.83	2.87	4.01	1.50
Sheep & Beef Cattle Pasture & Cash Crops	5.67	7.30	5.23	3.20	7.28	4.98
Unproductive Land	4.87	6.59	7.19	5.22	6.75	2.43
Total	100	100	100	100	100	100

TABLE 36

Types of Farm Ownership

by Region and Quota Group

	North Island			South Island		
	201-600ℓ	601-1000ℓ	1001+ℓ	201-600ℓ	601-1000ℓ	1001 + ℓ
Number of Farms	26	32	18	35	27	14
Type of Farm Ownership	%	%	%	%	%	%
Individual owner	46	28	22	68	44	50
Partnership:						
(i) Husband-wife	34	54	28	23	41	14
(ii) Father-son(s)	8	3	6	6	11	0
(iii) Other family	0	6	11	0	0	14
Family Company	8	9	33	3	4	14
Trust	0	0	0	0	0	8
Other ownership	4	0	0	0	0	0
Total	100	100	100	100	100	100

TABLE 37

Types of Labour Units per Farm by Region and Quota Group

	North Island			South Island		
	201-600 ℓ	601-1000 ℓ	1001+ ℓ	201-600 ℓ	601-1000 ℓ	1001+ ℓ
Number of Farms	26	32	18	35	27	14
Farmer	0.94	0.93	0.97	1.00	1.00	1.00
Permanent family	0.51	0.49	0.73	0.49	0.62	0.70
Casual family	0.11	0.10	0.11	0.02	0.10	0.20
Total family labour units	1.56	1.52	1.81	1.51	1.72	1.90
Permanent non-family	0.08	0.60	1.43	0.05	0.44	1.06
Casual non-family	0.06	0.05	0.06	0.02	0.06	0.04
Total non-family labour units	0.14	0.65	1.49	0.07	0.50	1.10
Total labour units	1.70	2.17	3.30	1.58	2.22	3.00
Proportion of permanent labour	90	93	95	97	93	92
Proportion of family labour	92	70	55	96	77	63

TABLE 38

Milk Production by Region and Quota Group

Milk Production	North Island 201-600 ℓ	North Island 601-1000 ℓ	North Island 1001+ ℓ	South Island 201-600 ℓ	South Island 601-1000 ℓ	South Island 1001+ ℓ
Number of Farms	26	32	18	35	27	14
Daily Quota (ℓ)	455	807	1421	452	717	1181
Milk Production Sold at Quota Prices (ℓ)	182 383	330 145	577 282	187 794	284 280	476 166
Milk Production Sold at Surplus Prices (ℓ)	97 252	109 748	133 574	64 165	93 019	138 438
Total Annual Milk Production (ℓ)	279 635	439 893	710 856	251 959	377 299	614 604
Proportion of Total Production Sold at Surplus Prices	34.78%	24.95%	18.79%	25.47%	24.65%	22.52%
Proportion of Total Production Sold at Quota Prices	65.22%	75.05%	81.21%	74.53%	75.35%	77.48%
Average Herd Size (No. of cows)	86.83	122.70	200.14	61.81	91.94	139.32
MILK PRODUCTION:						
litres/cow	3 220	3 585	3 552	4 076	4 104	4 411
ℓ/total ha	4 520	5 144	5 189	4 584	4 301	5 123
ℓ/prod. ha	4 751	5 507	5 592	4 836	4 612	5 250
ℓ/dairy prod. ha	4 996	5 762	5 854	4 933	4 931	5 429
ℓ/labour unit	164491	202 716	215 411	159 468	169 955	204 868
ℓ/farm/day	766	1 205	1 948	690	1 034	1 684

TABLE 39

Capital Structure - Value of all Assets and Liabilities

by Region and Quota Group

	North Island			South Island		
	201-600ℓ	601-1000ℓ	1001+ℓ	201-600ℓ	601-1000ℓ	1001+ ℓ
Number of Farms	26	32	18	35	27	14
ASSETS	$	$	$	$	$	$
Freehold Land (valued at 31.12.78)	191,358	224,907	414,446	112,155	156,810	289,349
Improvements	368	980	3,121	355	3,624	849
Farmer's House ($\frac{1}{4}$)	3,655	3,258	3,758	3,021	3,789	4,031
Other Farm Houses	2,127	6,123	7,588	1,183	3,330	6,623
Farm Buildings	7,305	10,284	11,686	9,650	13,693	24,753
Plant & Equipment	3,890	5,513	13,074	5,132	7,631	12,886
Farm Vehicles	6,253	11,184	12,460	6,861	10,031	17,452
Dairy Stock	13,587	19,268	30,770	9,863	15,005	23,584
Other Stock	542	1,297	1,032	435	1,041	1,169
Company Shares	826	1,884	2,158	743	1,259	1,958
Working Capital	2,120	3,079	5,302	1,828	3,131	4,961
Total Farm Assets	232,031	287,777	505,395	151,226	219,343	387,615
Cash at Bank	3,793	4,393	3,121	4,547	602	7,782
Sundry Debtors	2,208	3,164	5,494	2,120	3,416	6,708
Other Current Assets	3,664	10,805	13,426	5,948	8,214	13,318
Total All Assets	241,696	306,139	527,436	163,841	231,574	415,423

TABLE 39 (cont'd)

Capital Structure - Value of all Assets and Liabilities

by Region and Quota Group

	North Island			South Island		
	201-600 ℓ	601-1000 ℓ	1001+ ℓ	201-600 ℓ	601-1000 ℓ	1001+ ℓ
Number of Farms	26	32	18	35	27	14
CURRENT LIABILITIES	$	$	$	$	$	$
Bank Overdraft	3,806	3,874	5,155	1,556	2,621	3,211
Sundry Creditors	3,945	3,408	4,461	3,707	6,880	7,008
Other Current Liabilities	1,136	3,297	902	737	1,212	3,665
Total Current Liabilities	8,887	10,579	10,518	6,000	10,713	13,884
FIXED LIABILITIES						
First Mortgages	32,584	48,165	80,087	35,326	58,853	61,770
Other Morgages & Term Loans	8,430	4,313	11,426	5,689	17,310	21,216
Total Current & Fixed Liabilities	49,901	63,057	102,031	47,015	86,876	96,870
Equity or Proprietorship	191,795	243,082	425,405	116,826	144,698	318,553
Total	241,696	306,139	527,436	163,841	231,574	415,423

TABLE 40

Gross Revenue Components by Region and Quota Group

	North Island			South Island		
	201-600ℓ	601-1000ℓ	1001+ℓ	201-600ℓ	601-1000ℓ	1001+ℓ
Number of farms	26	32	18	35	27	14
	$	$	$	$	$	$
Milk Sales	33,381	52,497	90,561	31,491	48,390	81,117
Produce Sold	306	301	262	428	349	1,481
Wool & Skins Sold	187	358	349	47	135	182
Contracting fees	234	171	77	28	107	138
Rent & Lease fees	219	126	747	132	176	259
Employee's house	156	691	1,397	0	214	1,064
Livestock Profit	3,901	5,877	10,555	2,254	5,093	11,268
Other Revenue	742	1,496	2,024	587	1,062	1,714
Gross Revenue	39,126	61,517	105,972	34,967	55,526	97,223

TABLE 41

Farm Expenditure Components
by Region and Quota Group

	North Island			South Island		
	201-600ℓ	601-1000ℓ	1001+ℓ	201-600ℓ	601-1000ℓ	1001+ℓ
Number of Farms	26	32	18	35	27	14
	$	$	$	$	$	$
Labour						
Family Labour	1,418	939	3,995	1,117	2,077	1,793
Family Casual Labour	164	268	295	215	192	755
Non-family Permanent & Casual Labour	965	4,463	8,420	345	2,569	6,036
Unpaid Family Labour	1,812	2,150	1,913	1,858	2,329	2,833
Labour Accommodation	289	932	2,044	266	801	1,699
Sub-total Labour	4,648	8,752	16,667	3,801	7,968	13,116
Operating						
Animal Health	660	859	2,028	532	1,030	1,294
Breeding & Herd Testing	546	630	925	148	412	772
Contractors	508	776	1,111	781	1,508	1,575
Dairy Shed Exps.	525	694	1,009	591	845	1,535
Electricity	850	1,140	1,588	746	1,155	1,955
Fertiliser & Seed	2,005	3,220	6,043	1,182	2,735	2,659
Feed	2,713	3,572	5,603	3,185	3,734	7,950
Grazing Expenses	170	657	380	88	63	382
Freight	283	417	544	493	580	981
Weed & Pest Expenses	122	323	597	158	208	313
Vehicle Expenses	2,573	3,480	6,171	2,317	3,938	6,058
Repairs & Maintenance	3,283	3,879	4,968	2,378	3,196	5,746
Irrigation Expenses	13	29	217	224	236	475
Sub-total Operating	14,251	19,676	31,184	12,823	19,640	31,695
Total Labour & Operating	18,899	28,428	47,851	16,624	27,608	44,811

TABLE 41 (cont'd)

Farm Expenditure Components
by Region and Quota Group

	North Island			South Island		
	201-600 ℓ	601-1000 ℓ	1001+ ℓ	201-600 ℓ	601-1000 ℓ	1001+ ℓ
Number of Farms	26	32	18	35	27	14
Administration	$	$	$	$	$	$
Accountancy	376	410	565	285	332	558
Telephone	230	321	507	191	231	400
General Administration	387	357	727	293	546	1,032
Sub-total Administration	993	1,088	1,799	769	1,109	1,990
Overheads						
Insurance	484	663	1,056	423	979	985
Interest	3,649	4,079	9,703	3,066	6,420	8,290
Rates	882	1,065	2,092	623	944	1,719
Rent	528	1,624	1,117	428	510	1,734
Sub-total Overheads	5,543	7,431	13,968	4,540	8,853	12,728
Total Cash Expenses	25,435	36,947	63,618	21,934	37,570	59,529
Net Depreciation	2,384	3,803	6,963	3,114	4,698	7,792
Total Expenditure	27,819	40,750	70,581	25,048	42,268	67,321

TABLE 42

Depreciation of Farm Assets
by Region and Quota Group

	201-600 ℓ			601-1000 ℓ			1001+ ℓ		
	Ordinary	First Yr & Special	Gross Depreciation	Ordinary	First Yr & Special	Gross Depreciation	Ordinary	First Yr & Special	Gross Depreciation
(i) North Island	$	$	$	$	$	$	$	$	$
Plant & Equipment	584	225	809	696	494	1,190	1,123	934	2,057
Vehicles	1,051	358	1,409	1,829	672	2,501	2,622	1,818	4,440
Buildings	480	(42)[a]	480	827	(413)[a]	827	1,346	(65)[a]	1,346
Gross Dep'n			2,698			4,518			7,843
Less Personal Depn on cars			206			249			315
Less Depn recovered on Plant & Vehicles by Sales			108			466			565
Net Depreciation			2,384			3,803			6,963
(ii) South Island									
Plant & Equipment	552	471	1,023	724	435	1,159	1,914	1,068	2,982
Vehicles	1,142	705	1,847	1,636	1,481	3,117	3,224	1,147	4,371
Buildings	516	(43)[a]	516	944	(728)[a]	944	1,135	(297)[a]	1,135
Gross Dep'n			3,386			5,220			8,488
Less Personal Depn on cars			185			195			226
Less Depn recovered on Plant & Vehicles by Sales			87			327			469
Net Depreciation			3,114			4,698			7,793

[a] First Year and Special Depreciation on farm buildings has not been taken into account in calculating gross depreciation.

TABLE 43

Net Farm Income Components

by Region and Quota Group

	North Island			South Island		
	201-600 ℓ	601-1000 ℓ	1001+ℓ	201-600 ℓ	601-1000ℓ	1001+ ℓ
Number of Farms	26	32	18	35	27	14
Gross Farm Revenue	$ 39,126	$ 61,517	$ 105,972	$ 34,967	$ 55,526	$ 97,223
Total Expenditure	27,819	40,750	70,581	25,048	42,268	67,321
Net Farm Income	11,307	20,767	35,391	9,919	13,258	29,902

TABLE 44

Cash Surplus from Farming
by Region and Quota Group

	North Island			South Island		
	201-600 ℓ	601-1000 ℓ	1001+ ℓ	201-600 ℓ	601-1000 ℓ	1001+ ℓ
Number of Farms	26	32	18	35	27	14
1. Cash Received:	$	$	$	$	$	$
Milk Sales	33,381	52,497	90,561	31,491	48,390	81,117
Dairy Cattle Sales	3,671	5,294	8,124	2,263	4,294	8,853
Sheep & Beef Sales	587	1,356	1,760	350	1,589	1,392
Bobby Calf Sales	1,074	1,450	2,184	702	897	1,349
Other Farm Income	1,688	2,452	3,460	1,221	1,829	3,774
TOTAL	40,401	63,049	106,089	36,027	56,999	96,485
2. Cash Spent:						
Labour & Operating	16,798	25,345	43,894	14,500	24,478	40,280
Overhead & Admin.	6,536	8,519	15,767	5,309	9,963	14,718
Cattle Purchases	1,310	1,841	2,381	1,141	1,710	1,237
Sheep & Beef Cattle Purchases	62	383	86	99	447	317
TOTAL	24,706	36,088	62,128	21,049	36,598	56,552
CASH SURPLUS FROM FARMING	15,695	26,961	43,961	14,978	20,401	39,933

TABLE 45

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

($ per farm)

	North Island			South Island		
	201-600 ℓ	601-1000 ℓ	1001+ ℓ	201-600 ℓ	601-1000 ℓ	1001+ ℓ
Number of Farms	26	32	18	35	27	14
	$	$	$	$	$	$
Equity or Proprietorship	191,795	243,082	425,405	116,826	144,698	318,553
Net Farm Income	11,307	20,767	35,391	9,919	13,258	29,902
A. Net Farm Income less Imputed Interest on Equity at rate of:						
3½%	4,594	12,259	20,502	5,830	8,194	18,753
5%	1,717	8,613	14,121	4,078	6,023	13,974
7%	- 2,119	3,751	5,613	1,741	3,129	7,603
Total Farm Assets	232,031	287,777	505,395	151,226	219,343	387,615
Net Farm Income	11,307	20,767	35,391	9,919	13,258	29,902
Interest Paid	3,649	4,079	9,703	3,066	6,420	8,290
B. Net Farm Income plus Interest Paid less Imputed Interest on Total Farm Assets at rate of:						
3½%	6,835	14,774	27,405	7,692	12,001	24,625
5%	3,354	10,457	19,824	5,424	8,711	18,811
7%	- 1,286	4,702	9,716	2,399	4,324	11,059

TABLE 46

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

	North Island			South Island		
	201-600	601-1000	1001+	201-600	601-1000	1001+
Number of Farms	26	32	18	35	27	14
A. RETURN ON CAPITAL	$	$	$	$	$	$
1. Working Expenses (less imputed costs)	17,791	26,433	45,694	15,269	25,588	42,269
2. Plus assessed Managerial Reward	8,504	9,045	11,191	7,706	8,361	10,016
3. Total adjusted Working Expenses (1+2)	26,295	35,478	56,885	22,975	33,949	52,285
4. Working Capital	2,190	2,955	4,739	1,914	2,828	4,355
5. Farm Capital	221,799	275,925	490,546	142,003	207,533	373,034
6. TOTAL FARM CAPITAL (4+5)	223,989	278,880	495,285	143,917	210,361	377,389
7. Net Farm Income	11,307	20,767	35,391	9,919	13,258	29,902
8. Plus Interest Paid	3,649	4,079	9,703	3,066	6,420	8,290
9. Plus Rent Paid	528	1,624	1,117	428	510	1,734
10. Sub-total (7+8+9)	15,484	26,470	46,211	13,413	20,188	39,926
11. Less assessed Managerial Reward (2)	8,504	9,045	11,191	7,706	8,361	10,016
12. Economic Farm Surplus (10-11)	6,980	17,425	35,020	5,707	11,827	29,910
13. Rate of Return % (12/6)	3.12%	6.25%	7.07%	3.97%	5.62%	7.93%
B. CAPITAL TURNOVER PERCENTAGE						
14. Gross Revenue (less Worker's house)	38,970	60,826	104,575	34,967	55,312	96,159
15. Total Farm Capital (6)	223,989	278,880	495,285	143,917	210,361	377,389
16. Capital Turnover Percentage (14/15)	17.40%	21.81%	21.11%	24.30%	26.29%	25.48%
C. LABOUR & MANAGEMENT RESIDUAL						
17. Total Farm Capital (6)	223,989	278,880	495,285	143,917	210,361	377,389
18. Plus Cash at Bank	3,793	4,393	3,121	4,547	602	7,782
19. Sub-total (17+18)	227,782	283,273	498,406	148,464	210,963	385,171
20. Less Fixed Liabilities	41,014	52,478	91,513	41,015	76,163	82,986
21. Less Current Liabilities	8,887	10,579	10,518	6,000	10,713	13,884
22. TOTAL EQUITY CAPITAL (19-20-21)	177,881	220,216	396,375	101,449	124,087	288,301
23. Net Farm Income (7)	11,307	20,767	35,391	9,919	13,258	29,902
24. Less 8.0% of Equity Capital (22)	14,230	17,617	31,718	8,116	9,927	23,064
25. Labour & Managerial Residual (23-24)	−2,923	3,150	3,673	1,803	3,331	6,838

[a] For a definition of the terms used in this table refer to Appendix B.

TABLE 47

Supplementary Feed Use
by Region and Quota Group

	North Island			South Island		
	201-600ℓ	601-1000 ℓ	1001+ℓ	201-600 ℓ	601-1000ℓ	1001+ ℓ
Number of Farms	26	32	18	35	27	14
Type of Feed:	$	$	$	$	$	$
Hay - Home Grown (bales)	1 846	2 510	4 056	3 946	4 950	9 807
Hay - Purchased (bales)	491	642	528	1 437	2 300	2 555
Grain - Home Grown (tonnes)	0	0.4	0	2.9	7.1	14.5
Grain - Purchased (tonnes)	0	3.3	8.7	29.8	17.4	39.2
Dairy Meal - Purchased (tonnes)	5.1	7.2	12.1	1.1	2.7	21.9
Farms Feeding Dairy Meal						
Prop'n of Survey Farms Using Meal	54%	47%	56%	20%	30%	21%
Purchased Meal Fed/ Farm by Farms Using Meal (tonnes)	9.4	15.3	21.8	5.6	9.3	31.3

TABLE 48

Silage Use and Storage by Region and Quota Group

	North Island			South Island		
	201-600 ℓ	601-1000 ℓ	1001+ ℓ	201-600 ℓ	601-1000 ℓ	1001+ ℓ
Number of Farms	26	32	18	35	27	14
Number of Farms Making Silage	$\$$ 16	$\$$ 29	$\$$ 16	$\$$ 12	$\$$ 18	$\$$ 9
Area Silage was Made From by Farms Making Silage (ha)	11.12	17.86	29.75	13.58	23.78	29.22
Silage Feeding Out:						
Self Fed (%)	0	3	0	16	5	22
Unloaded by Hand (%)	56	52	31	42	39	33
Unloaded Mechanically (%)	44	45	69	42	56	45
Total (%)	100	100	100	100	100	100
Type of Silage Storage:						
Bun or Saucer shape (no walls) (%)	13	10	6	8	11	22
Ramp (2 side walls) (%)	18	10	13	0	6	34
Bunker or Wedge (3 walls) (%)	13	18	19	50	44	11
Pit or Trench (%)	56	62	62	42	39	33
Total (%)	100	100	100	100	100	100

TABLE 49

Types of Forage Crops by Region and Quota Group

	North Island			South Island		
	201-600 ℓ	601-1000 ℓ	1001+ ℓ	201-600 ℓ	601-1000 ℓ	1001+ ℓ
Number of Farms	26	32	18	35	27	14
Proportion of Farms Growing:	%	%	%	%	%	%
Nil forage crops	50	88	56	54	37	72
Soft Turnips	8	3	11	11	7	0
Green Maize	23	6	17	0	0	0
Choumoellier	15	3	0	20	52	21
Fodder Beet	0	0	6	6	4	7
Other	4	0	10	9	0	0
Total	100	100	100	100	100	100

TABLE 50

Shed Types by Region and Quota Group

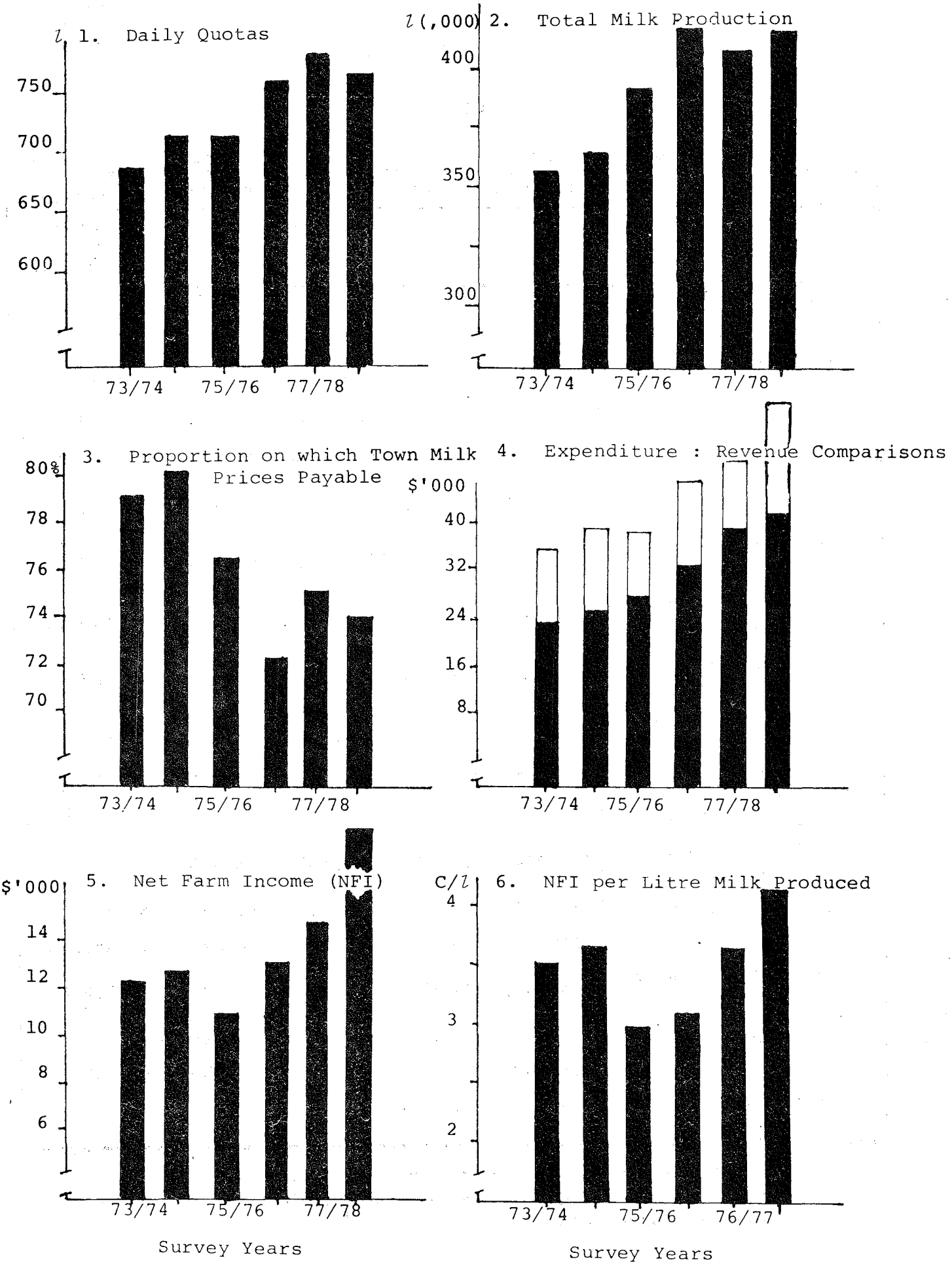
	North Island			South Island		
	201-600 ℓ	601-1000 ℓ	1001+ ℓ	201-600 ℓ	601-1000 ℓ	1001+ ℓ
Number of Farms	26	32	18	35	27	14
Prop'n of Farms Using:	%	%	%	%	%	%
Walk-through	23	22	11	60	22	21
Herringbone (Step-up)	0	0	0	6	0	0
Herringbone (High-line)	62	63	55	31	55	43
Herringbone (Low-line)	4	6	17	3	4	15
Rotary (Turn-style)	0	6	17	0	4	21
Rotary (Herring-bone)	0	0	0	0	4	0
All Others	11	3	0	0	11	0
Total	100	100	100	100	100	100

TABLE 51

Types of Wintering Barns by Region and Quota Group

	North Island			South Island		
	201-600 ℓ	601-1000 ℓ	1001+ ℓ	201-600 ℓ	601-1000 ℓ	1001+ ℓ
Number of Farms	26	32	18	35	27	14
Proportion of Farms Using:	%	%	%	%	%	%
No wintering barn	100	97	100	86	81	79
Open loafing barn	0	0	0	11	15	21
Cubicle type	0	3	0	3	4	0
Total	100	100	100	100	100	100

FIGURE 1. - SURVEY COMPARISONS WITH PREVIOUS YEARS



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