

AN ECONOMIC SURVEY
OF NEW ZEALAND
TOWN MILK PRODUCERS

1979-80

R.G. MOFFITT

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THE AGRICULTURAL ECONOMICS RESEARCH UNIT
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PREFACE

This report is the seventh 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 invaluable assistance from Michael Clemes. The report was compiled by Russell Moffitt with some useful suggestions from Michael Rich.

P.D. Chudleigh,
Director.

August 1981

ABBREVIATIONS USED IN THIS REPORT

Assn	=	Association
C.V.	=	Capital Value
Dairy prod. ha	=	Dairy productive hectares
equip.	=	equipment
exps	=	expenses
ha	=	hectares
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 unit

SUMMARY OF 1978-79 AND 1979-80 NEW ZEALAND

SURVEY RESULTS

Characteristic	1978-79	1979-80
Farms Surveyed (no.)	152	152
Total Farm Area (ha/farm)	84.8	95.9
Dairy Productive Farm Area (ha/farm)	76.19	82.68
Daily Quota (l/farm)	768	807
Herd Size (cows/farm)	113	113
Labour Units (L.U./farm)	2.18	2.25
Milk Production (l/farm)	413,522	484,611
(l/ha)	4,877	5,052
(l/dairy prod. ha)	5,428	5,861
(l/L.U.)	189,689	215,383
(l/cow)	3,670	4,288
Total Value of All Assets (\$/farm)	296,651	356,624
Gross Revenue (\$/farm)	59,745	70,121
Total Expenditure (\$/farm)	41,245	53,412
Net Farm Income (\$/farm)	18,500	16,709
Net Income per Dairy Prod. ha (\$/ha)	243	202
Net Income per Daily Quota (\$/l)	24.1	20.7
Net Income per Cow (\$/cow)	164	148
Net Income per Litre (cents/l)	4.47	3.45
Gross Revenue per Litre (cents/l)	14.45	14.47
Total Expenditure per Litre (cents/l)	9.97	11.02

SUMMARY

Physical and Production Aspects

- . The average total area of the New Zealand farms surveyed was 95.93 ha. This was 11.14 ha greater than the 1978-79 survey figure. The average dairy productive area was 82.68 ha compared with 76.19 ha in 1978-79.
- . Thirty-nine 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 daily quota recorded on the surveyed farms was 807 litres compared with the previous 1978-79 survey estimate of 768 litres. Daily quotas on the farms surveyed ranged from 286 litres to 1,999 litres.
- . The average number of cows in the herd per farm was 113. In 1978-79 there was also 113. Herd sizes on individual farms ranged from 27 to 416 milking cows. There was little change in non-dairy stock numbers.
- . Total milk production per farm (484,611 litres) was 17 per cent higher than the 1978-79 total. North Island farms showed a 21.4 per cent increase, and South Island farms a 16.6 per cent increase.

- . The proportion of milk sold at townmilk prices was 68 per cent. This compares with 74 per cent for the 1978-79 survey. The South Island again sold a greater proportion at town milk prices (74 per cent) than the North Island (64 per cent).
- . Milk production per cow increased by 17 per cent over the 1978-79 figure to 4,288 litres. Production per labour unit also increased (up 13.5 per cent) along with milk production per dairy productive hectare (up 8 per cent to 5,861 litres).
- . The average total labour employed on survey farms (2.25 labour units) was similar to the 1978-79 figure of 2.18 labour units. In the North Island there was little change in the total labour used (2.27 from 2.28 units) but in the South Island the labour units per farm increased from 2.01 to 2.21 units.

Financial Aspects

- . Average net farm income for all surveyed farms for 1979-80 was \$16,709 compared with \$18,500 in the previous year. This represented a 9.7 per cent fall. The average for North Island farms was \$18,401 (down 12.5 per cent) while the average for South Island farms was \$14,580 (up 4.1 per cent).

- . Total gross revenue for New Zealand surveyed farms was \$70,121. This was 17.4 per cent higher than the previous year's result. The North Island farms had a 13.2 per cent increase in gross revenue whereas the South Island farms had a 29.5 per cent increase.
- . Total farm expenditure (\$53,412) was 29.5 per cent higher than for the previous survey (\$41,245). The average North Island farm had an increase in total expenditure of \$11,179 to \$54,676. The average South Island expenditure increase was \$14,573 to \$51,819. Expenditure is now a similar figure for both Islands.
- . Average net depreciation was \$4,960, an increase of 18.8 per cent compared with the 1978-79 survey estimate of \$4,176.
- . 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 12.2114 cents compared with 12.4134 cents in 1978-79.
- . Milk sales accounted for 84 per cent of gross revenue on the average farm (86 per cent in 1978-79).
- . Net farm income on a cents per litre of total milk produced basis was 3.45 cents compared with 4.47 cents in 1978-79 and 3.60 cents in 1977-78.
- . Livestock trading profit increased by over 30 per

- cent from \$5,691 in 1978-79 to \$7,429 in 1979-80.
- . The average value of farm assets was \$345,140 which represents an increase of 22.8 per cent over the figure recorded for 1978-79 (\$280,966).
 - . Total liabilities per farm were \$79,308, a 16.5 per cent increase in the survey figure of the previous year.
 - . Equity as a per cent of the value of all assets averaged 78 per cent. This was similar to the previous survey. North Island farms had a higher proportion (81.4 per cent) than South Island farms (71.6 per cent).

CHAPTER 1

BACKGROUND

1.1 Objectives of the National Farm Survey

As in previous years, the principal objective of the 1979-80 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 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 Climatic Conditions

In most parts of New Zealand the spring of 1979

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was colder and wetter than normal. This resulted in slow initial grass growth but it soon improved due to warmer conditions and above average rainfall in the summer and autumn. Production levels were up, except on the West Coast where very wet conditions affected production.

Suppliers in most regions commenced the 1980 winter with stock in good condition and with good feed reserves. However, the mild autumn and early winter weather deteriorated into cold wet conditions in some areas. On the Taieri Plains near Dunedin a major flood in early June devastated a wide area. Most of Dunedin's town milk producers were affected with a mass evacuation of stock being required. Substantial quantities of accommodation milk were required following the flood to meet Dunedin requirements. Most of this milk was supplied by Southland.

Throughout the rest of the country all but one of the local producer associations met their supply requirements.

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 average manufacturing price for whole milk for all major uses. An increase in price of one cent per kilogram of milkfat results in an increase of 0.06 cents per litre in the town milk producer price.

The initial national average advance prices based on the manufacturing price for the year commencing 1 September 1979 were fixed at 13.3161^a cents per litre for finest grade, 12.9491 cents per litre for first grade, and 12.2171 cents per litre for second grade. These prices were subsequently adjusted to take into account the Dairy Products Prices Authority's new value of 185 cents per kilogram of milk fat in whole milk for the 1979-80 season. Further increases of 10 cents and 13 cents per kilogram of milk fat occurred in June and July 1980. When translated into town milk prices the final national prices per litre for the 1979-80 milk year for the three grades of town milk were 15.1073 cents for finest, 14.7403 cents for first, and 14.0083 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

a

N.Z. Milk Board 27th Annual Report 1980, p.7.

4.

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

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Year Commencing 1st September	Finest Grade Advance Price (cents per litre)	Finest Grade Final Price (cents per litre)
1976	9.7503	10.8141
1977	11.4693	12.5643
1978	12.5517	13.3873
1979	13.8993	15.1073

=====

SOURCE: N.Z. Milk Board 27th Annual Report, p.8.

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 summarizes the national, seasonal and district town milk prices for the year ended 31 August, 1980.

TABLE 2

Town Milk Producer Prices for Year Ended

31 August 1980

Part 1:

NATIONAL AND SEASONAL PRICES

Seasonal Prices (cents per litre)					
Grade of Milk	Year ended 31 Aug.	National Town Milk Price	Spring & Summer (Sept. to Jan. incl.)	Autumn (Feb. to April incl.)	Winter (May to August incl.)
Finest	1980	15.1073	12.455	15.075	19.013
First	1980	14.7403	12.088	14.708	18.646
Second	1980	14.0083	11.356	13.976	17.914

Part 2:

ADDITIONAL LOCAL PRICES

District	Cents per litre over six autumn and winter months
1980	
(i) All South Island	0.735
(ii) Tokoroa (excluding Putaruru and Hodderville)	0.700
Rotorua	0.700
Gisborne (excluding Wairoa)	0.367
Hawke's Bay (Heretaunga Plains)	0.600
Ruapehu	2.000
Wellington 30-mile area	0.185
Christchurch	0.367 ^a
North Otago	0.735 ^a
Dunedin/Balclutha	0.250 ^a
Central Otago	1.100 ^a
Southland	0.735 ^a

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

SOURCE: N.Z. Milk Board 27th Annual Report, p.46.

6.

1.4 Town Milk Production Data

Total town milk production in the year ending 31 August 1980 was 0.07 per cent ^a 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 1978, 1979 and 1980.

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 (%)
1978	706.523	534.320	75.6
1979	722.876	535.233	74.0
1980	723.358	514.248	71.0

=====

SOURCE: N.Z. Milk Board 27th Annual Report, p.36.

Total milk sales to consumers were 375.008 m. litres ^b. This was 2.92 per cent below the 1979 figure. the decline in sales was influenced by two increases in consumer prices during the 1979-80 period. The first

^a Ibid. p.4.

^b Ibid. p.8.

increase was from ten cents to fifteen cents per 600 ml bottle as from 1 April 1979 and a further increase from fifteen cents to eighteen cents was introduced from 1 February 1980.

The decline in milk sales is reflected in the per capita consumption of milk. This showed a decline from an estimated 127.22 litres per head for the year ending 31 August 1979 to 123.76 litres per head in the following year.

For the 1979-80 milk year the nominated quantities which producer associations contract to guarantee to meet the daily liquid milk requirements in their area throughout the year were reduced by four percent^a. This was the first stage in a Government policy decision to bring back nominated quantities from the frozen 1975-76 level to a sales level situation.

1.5 Town Milk Suppliers and Quotas

There were 1540 town milk quota holders^b during the 1979-80 milk year compared with 1601 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 1979-80.

a

Ibid., p.5.

b

Ibid., p.4.

8.

TABLE 4

Town Milk Suppliers and Daily Quotas

Year Ending 31 August	Type of Quota Holders	Total Nominated Quantity (1)	No. Town Milk Suppliers	Average Daily Quota per Supplier (1)
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
1980	Total NZ Suppliers	1,246,586	1,543	807.90
	Dairy Companies	24,840	3	8,280.00
	Direct Quota Holders	1,221,746	1,540	793.34

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

TABLE 5
Quota Holding Companies 1979-80

Name of Company	Quota held (1)	Supply District	No. of sub-quota holders
East Tamaki	15,810	Auckland	61
East Tamaki	1,203	Franklin	6
Bruntwood	7,827	Hamilton	8
Total	24,840	Total	75
Proportion of Total Nominated Quota:	1.91%	Proportion of Total Nominated Suppliers:	4.86%

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

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For the next milk year (1980-81) the nominated quantities are to be reduced by an additional eight percent. By the end of the 1980-81 milk year, nominated quantities are to be reduced from the level of the 1975-76 "frozen" quantities by a total of 12 percent (four percent in 1979-80, and eight percent in 1980-81). A lesser percentage reduction may be appropriate for individual associations according to an agreed formula.

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.

For the 1979-80 year a new sample was selected. 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 8,700 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 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 a questionnaire was sent to each producer company secretary seeking information on the sharemilkers in each company. This enabled farms to be

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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 1540 farms provided by the Milk Board, the eligible population was reduced under (i), (ii) and (iv) to 1059 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 1981 and was completed by June.

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.

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

TABLE 6
Population and Sample Distribution by Strata

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
<u>North Island</u>				
201-600 litres	166	0.1722	21	0.138
601-1000 "	197	0.2145	26	0.171
1001 + "	154	0.1707	29	0.191
Total North Island	517	0.5574	76	0.500
<u>South Island</u>				
201-600 litres	153	0.1994	24	0.158
601-1000 "	120	0.1541	26	0.171
1001 + "	64	0.0891	26	0.171
Total South Island	337	0.4426	76	0.500
New Zealand	854	1.0000	152	1.000

^a See Appendix C.

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 1979-80 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.

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.

TABLE 7

Distribution of Balance Dates ^a

Percentage of Farms with Balance Date Falling on:	
March 31	60%
April 30	2%
May 31	9%
June 30	20%
July 31	2%
August 31	5%
September 30	1%
October 31	1%

Total	100%
=====	

^a Unpublished: 72 per cent return of questionnaires.

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

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. 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 98.38 hectares, for South Island farms 92.85 hectares, and for the average New Zealand farm, 95.93 hectares. Farm sizes ranged from 25.15 hectares to 282.89 hectares in the North Island, and 22.39 hectares to 237.74 hectares in the South Island.

An estimate of the total dairy productive area used for milk production appears in Table 8. This area increased compared with the 1978-79 survey for both Islands and New Zealand. The largest increase was for the average South Island farm from 69.05 hectares in 1978/79 to 80.61 hectares in 1979/80.

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TABLE 8

Average Areas of Town Supply Farms

Area per Farm	North Island	South Island	New Zealand
	(ha)	(ha)	(ha)
Freehold Area	88.66	79.45	84.59
Crown & Maori Lease	0.51	4.13	2.11
Rented Area	9.21	9.27	9.23
Total Farm Area	98.38	92.85	95.93
Less Unproductive Area	7.44	7.52	7.47
Productive Area	90.94	85.33	88.46
Less Estimated non- dairying Area	8.31	6.80	7.64
Plus Estimated 'Grazing Out' Area	1.70	2.08	1.86
Estimated Dairy Productive Area			
Utilized for Milk Production ^a	84.33	80.61	82.68

a

Hereafter abbreviated to dairy productive hectares.

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 122.89 ha in the North Island and up to 91.00 ha in the South Island.

TABLE 9
Utilization of Farm Area

	North Island	South Island	New Zealand
Proportion of Farm Area Under:	%	%	%
Dairy Pasture	82	81	81
Forage Crops	2	3	3
Sheep & Beef Cattle Pasture & Cash Crops	9	7	8
Unproductive Land	7	9	8
Total	100	100	100

20.

3.1.3 Irrigation

Forty-two per cent (32 farms) of the surveyed South Island farms used irrigation during the year compared with three per cent (two 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 (49.6 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 (38.9 per cent) followed by sole ownership at 30.1 per cent.

TABLE 10

Types of Farm Ownership

Farm Ownership	North Island	South Island	New Zealand
	%	%	%
Individual Owner	30.1	49.6	38.7
Partnership:			
(i) Husband-wife	38.9	25.5	33.0
(ii) Father-son(s)	9.2	10.5	9.8
(iii) Other family	5.6	6.0	5.7
Family Company	12.2	7.6	10.2
Trust	0.9	0.8	0.9
Other Ownership	3.1	0.0	1.7
Total	100	100	100

3.3 Labour

The average survey farm employed a total of 2.25 labour units (see Table 11) which was marginally higher than the 1978/79 figure of 2.18 labour units. An increase in labour units per farm for the South Island from 2.01 in 1978/79 to 2.21 units occurred. There was a fall in the proportion of permanent labour per New Zealand farm (from 93 per cent to 90 per cent) and also in the proportion of family labour (from 78 per cent to 70 per cent).

TABLE 11

Types of Labour Units

Type of Labour	North Island	South Island	New Zealand
Farmer	0.93	0.99	0.96
Permanent Family	0.49	0.52	0.50
Casual Family	0.09	0.14	0.12
Total Family Labour Units	1.51	1.65	1.58
Permanent Non-family	0.66	0.47	0.57
Casual Non-family	0.10	0.10	0.10
Total Non-family Labour Units	0.76	0.57	0.67
Total Labour Units	2.27	2.21	2.25
Proportion of Permanent Labour	92%	90%	90%
Proportion of Family Labour	67%	75%	70%

3.4 Milk Production

3.4.1 Milk Production Per Farm

The daily quota per surveyed farm was 807 litres (Table 12), compared with the previous New Zealand survey estimate of 768 litres.

Total annual milk production increased to 484,611 litres per farm (up 17 per cent from the previous year). The proportion of milk sold at quota prices showed a decrease of six per cent.

When the total litres produced per farm is converted to milkfat at a 4.24 per cent test^a, the average North Island townmilk farm produced 268 kg per dairy productive hectare compared with the average South Island farm at 211 kg.

The average North Island supplier produced more milk on a litres-per-cow basis than his South Island counterpart. The North Island farmer also produced more milk per hectare and per farm per day.

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.

^a Ibid., p.55.

TABLE 12

Milk Production

Milk Production Per Farm	North Island	South Island	New Zealand
Daily Quota (l)	865	734	807
Milk Production Sold at Quota Prices (l)	351,807	299,257	328,549
Milk Production Sold at Surplus Prices (l)	194,643	107,469	156,062
Total Litres Produced (l)	546,450	406,726	484,611
Proportion of Total Sold at Quota Prices (%)	64%	74%	68%
Total Litres Produced in June 1979 (l)	37,169	28,404	33,290
Total Litres Produced in Dec. 1979 (l)	50,269	41,172	46,242
Average Herd Size (No. cows including dry cows)	125.89	96.50	112.89
Average No. Milking Cows in June 1979	88.00	69.05	79.62
Average No. Milking Cows in Dec. 1979	106.28	84.10	96.46
Total Litres Converted to 4.24% Milkfat (kg)	23,194	17,245	20,561
Kg Milkfat per Dairy Prod. ha (kg)	268	211	243
Total Stock Units ^a /Farm (No.)	1,459	1,163	1,328

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

(Table 12 cont...)

(Table 12 cont...)

Milk Production Per Farm	North Island	South Island	New Zealand
Stock Units/Dairy Prod. ha (No.)	17.3	14.4	16.1
Total Litres/Average Herd Size (l)	4,341	4,215	4,293
Litres/Dec. Milking Cows (l)	5,142	4,836	5,024
Litres/Total ha (l)	5,555	4,380	5,052
Litres/Dairy Prod. ha (l)	6,480	5,046	5,861
Litres/Farm/Day (l)	1,497	1,114	1,328

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 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 \$356,624 (see Table 13). This was 20.2 per cent higher than the 1978-79 value. Part of this increase was due to the increase in the average survey farm freehold area, up from 75.12 ha in

1978-79 to 84.59 ha in 1979-80.

The average North Island farm had an all assets total of \$402,849 compared with the South Island figure of \$298,419. In 1977-78 the difference in asset value per farm between the two Islands was \$108,674, in 1978-79 it was \$113,133 and in 1979-80 it was \$104,430.

4.2.2 Value of All Liabilities

The average North Island farm had a current and fixed liabilities total of \$74,972. The South Island figure was \$84,765. The New Zealand value of all liabilities and equity both increased compared with the previous year, the former by 16.5 per cent and the latter by 21.3 per cent (see Table 13).

TABLE 13

a

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 31.12.79)	318,406	2,529	3,776	212,677	2,204	2,638	271,606	2,406	3,285
Farmer's House (1/2)	12,465	99	148	15,426	160	192	13,776	122	167
Other Farm Houses	6,206	49	73	5,554	58	69	5,917	52	72
Farm Buildings	12,040	96	143	12,682	131	157	12,324	109	159
Plant & Equipment	6,944	55	82	9,690	100	120	8,159	72	99
Farm Vehicles	12,376	98	147	12,106	125	150	12,257	108	148
Dairy Stock	20,196	160	239	15,882	165	197	18,287	162	221
Other Stock	1,078	9	13	1,186	12	15	1,126	10	14
Company Shares	1,675	13	20	1,706	18	21	1,688	15	20
Total Farm Assets	391,386	3,108	4,641	286,909	2,973	3,559	345,140	3,057	4,174
Cash at Bank	3,987	32	47	3,140	32	39	3,612	32	43
Sundry Debtors	4,506	36	54	3,814	40	47	4,200	37	51
Other Current Assets	2,970	24	35	4,556	47	57	3,672	33	44
Total all Assets	402,849	3,200	4,777	298,419	3,092	3,702	356,624	3,159	4,313

a

For the 1979-80 survey, land improvements have been transferred to the Farm Expenditure account as development expenses, working capital has been dropped and half the farmer's house has been included. These changes help bring this survey into line with other agricultural sector surveys.

(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	3,327	26	39	3,552	37	44	3,377	30	41
Sundry Creditors	4,249	34	50	4,472	46	55	4,348	39	53
Other Current Liabilities	1,628	13	19	3,237	34	40	2,340	20	28
Total Current Liabilities	9,114	73	108	11,261	117	139	10,065	89	122
FIXED LIABILITIES									
First Mortgages	38,010	302	451	45,862	475	569	41,485	367	501
Other Mortgages & Term Loans	27,848	221	330	27,642	286	343	27,758	246	336
Total Current & Fixed Liabilities	74,972	596	889	84,765	878	1,051	79,308	702	959
Equity or Proprietorship	327,877	2,604	3,888	213,654	2,214	2,651	277,316	2,457	3,354
Total	402,849	3,200	4,777	298,419	3,092	3,702	356,624	3,159	4,313

4.3 Gross Revenue

Total gross revenue in Table 14 for the average New Zealand farm increased by 17.4 per cent to \$70,121 compared with the year before.

Milk sales represented 84.4 per cent of the total gross revenue for the average farm. The New Zealand figure of \$59,178 for milk sales was above the 1978-79 figure by 15.3 per cent. The profit from livestock sales of \$7,429 per farm was 30.5 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 \$73,077 was 10.1 per cent higher than the South Island total per farm (\$66,399). The North Island was also higher in revenue per dairy productive 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 Dairy Prod. Ha	Per Farm	Per Cow	Per Dairy Prod. Ha	Per Farm	Per Cow	Per Dairy Prod. Ha
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Milk Sales	61,716	490	732	55,982	580	695	59,178	524	716
Produce Sold	239	2	3	907	9	11	535	5	6
Wool & Skins Sold	202	1	2	578	6	7	368	3	4
Contracting Fees	858	7	10	209	2	3	570	5	7
Rent & Lease Fees	245	2	3	419	4	5	322	3	4
Employee's House	669	5	8	455	5	6	575	5	7
Livestock Profit	7,887	63	94	6,852	71	85	7,429	66	90
Other Revenue	1,261	10	15	997	11	12	1,144	10	14
Gross Revenue	73,077	580	867	66,399	688	824	70,121	621	848

4.4 Expenditure

4.4.1 Farm Expenditure

For the average New Zealand farm, total expenditure increased by 29.5 per cent to \$53,412 in 1979-80 (Table 15). The largest increase was administration which rose 38.5 per cent followed by operating, overheads, depreciation and labour expenses which rose 38.2 per cent, 27.3 per cent, 18.8 per cent and 15.1 per cent respectively.

The two highest individual operating expenses for the average town milk farm were repairs and maintenance which rose by 55.9 per cent and vehicle expenses (up 26.2 per cent). Then followed feed cost which increased by 7.9 per cent. Fertilizer and seed expenses were the next highest operating expense.

A rise of 32.7 per cent in the interest paid on the average New Zealand farm was recorded. The average amount paid in the North Island increased by 21 per cent to \$6,406 per farm while in the South Island the average interest paid was up by 44.4 per cent to \$7,494.

TABLE 15
Farm Expenditure Components

Expenses	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
<u>Labour</u>	\$	\$	\$	\$	\$	\$	\$	\$	\$
Family Labour	2,149	17	26	1,658	17	20	1,932	17	23
Family Casual Labour	288	2	3	453	5	6	361	3	4
Non-Family Permanent & Casual Labour	5,773	46	68	4,090	42	51	5,028	45	61
Unpaid Family Labour	1,181	9	14	1,928	20	24	1,511	13	19
Labour Accommodation	837	7	10	585	6	7	725	6	9
Sub-total Labour	10,228	81	121	8,714	90	108	9,557	84	116
<u>Operating</u>									
Animal Health	1,298	10	15	1,256	13	16	1,280	11	16
Breeding & Herd Testing	962	8	11	480	5	6	749	7	9
Contractors	1,266	10	15	1,113	12	14	1,198	11	14
Dairy Shed Expenses	1,424	11	17	1,335	14	16	1,385	12	17
Electricity	1,625	13	19	1,530	16	19	1,583	14	19
Fertilizer & Seed	4,457	35	53	2,492	26	31	3,587	32	43
Feed	4,111	33	49	4,279	44	53	4,185	37	51
Grazing Expenses	724	6	9	334	3	4	551	5	7
Freight	341	3	4	771	8	10	532	5	6
Weed & Pest Expenses	437	3	5	362	4	4	403	4	5
Vehicle Expenses	4,446	35	53	4,892	51	61	4,643	41	56
Repairs and Maintenance	6,123	49	73	5,163	53	64	5,698	50	69
Irrigation Expenses	27	0	0	401	4	5	193	2	2
Development Expenses & Improvements	1,062	8	13	1,280	13	16	1,159	10	14
Sub-Total Operating	28,303	225	336	25,688	266	319	27,146	241	328
Total Labour & Operating	38,531	306	457	34,402	356	427	36,703	325	444

(Table 15 cont...)

TABLE 15 (cont.)
Farm Expenditure Components

Expenses	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
<u>Administration</u>	\$	\$	\$	\$	\$	\$	\$	\$	\$
Accountancy	484	4	6	483	5	6	484	4	6
Telephone	389	3	4	303	3	4	351	3	4
General Administration	818	6	10	741	8	9	785	7	10
Sub-total Administration	1,691	13	20	1,527	16	19	1,620	14	20
<u>Overheads</u>									
Insurance	777	6	9	891	9	11	828	7	10
Interest Paid	6,406	51	76	7,494	78	93	6,887	62	83
Rates	1,540	12	18	1,230	13	15	1,403	12	17
Rent	1,049	8	13	963	10	12	1,011	9	12
Sub-total Overheads	9,772	78	116	10,578	110	131	10,129	90	122
Total Cash Expenses	49,994	397	593	46,507	482	577	48,452	429	586
Net Depreciation	4,682	37	55	5,312	55	66	4,960	44	60
Total Expenditure	54,676	434	648	51,819	537	643	53,412	473	646

34.

4.4.2 Depreciation of Farm Assets

Net depreciation (Table 16) increased by 18.8 per cent from \$4,176 to \$4,960 for the average New Zealand farm. The increase was greater in the South Island (up by 22.1 per cent) compared with the North Island (up 14.8 per cent).

Total gross depreciation for New Zealand increased by 17.8 per cent. The average North Island farm had an increase of 12.6 per cent with the South Island average farm showing a more substantial increase of 23.9 per cent.

For both Islands and New Zealand increases occurred in all three groups of ordinary depreciation (plant and equipment, vehicles and buildings).

4.5 Farm Income

4.5.1 Net Farm Income

New Zealand net farm income (before taxation) averaged \$16,709 in 1979-80 (Table 17). This was a decrease of 9.7 per cent over the previous survey result of \$18,500. In 1978-79 net farm income was up by 21.8 per cent compared with the previous year. In this 1979-80 survey, development and improvement expenses were transferred from the capital account to the farm expense account. This has resulted in a lower net farm income compared with previous years results. The 1979-80 net farm income would need to be increased by the value of the development and improvement expenses of

TABLE 16
 Depreciation of Farm Assets^a

Type of Asset	North Island			South Island			New Zealand		
	Ordinary	First Year & Special	Gross Depreciation	Ordinary	First Year & Special	Gross Depreciation	Ordinary	First Year & Special	Gross Depreciation
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Plant and Equipment	908	337	1,285	975	582	1,557	938	467	1,405
Vehicles	2,081	727	2,808	2,060	997	3,057	2,071	847	2,918
Buildings	1,006	185	1,191	913	388	1,301	965	275	1,240
Gross Depreciation			5,284			5,915			5,563
Less Personal Depn on cars			261			185			228
Less Depn recovered on Plant & vehicles by Sales			341			418			375
Net Depreciation			4,682			5,312			4,960

^a First Year and Special Depreciation on buildings is now included in calculating Gross Depreciation.

36.

\$1,062 (North Island), \$1,280 (South Island) and \$1,159 (New Zealand) to allow a fair comparison with the 1978-79 net farm income.

The North Island average net farm income decreased by 12.5 per cent to \$18,401. The North Island farmer had a higher percentage increase in his total expenditure (up 25.7 per cent) than his increase in gross revenue (up 13.3 per cent). In the South Island the average farmer also had a substantial increase in his total expenditure (up 39.1 per cent) compared with a 29.6 per cent increase in gross revenue. However, the result for the average South Island farmer surveyed was a small increase in net income from \$14,008 to \$14,580 (up 4.1 per cent).

The difference between the average net farm income of the North Island farm and the South Island farm was \$3,821. In 1978-79 the difference was \$7,023.

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	73,077	580	866	66,399	688	824	70,121	621	848
Total Expenditure	54,676	434	648	51,819	537	643	53,412	473	646
Net Farm Income	18,401	146	218	14,580	151	181	16,709	148	202

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.

Cash surplus from farming fell to \$22,508. This was 9.1 per cent lower than the previous survey. The average North Island farm had a 16.5 per cent decrease compared with the South Island which showed a 4.7 per cent increase.

Cash receipts for the average New Zealand farm were up by 19.6 per cent but cash expenses increased by a higher percentage (up 39.4 per cent). In both Islands the percentage increase in cash receipts was also exceeded by the percentage rise in cash expenses.

Livestock sales showed a substantial increase over the previous year. For the average New Zealand farm, dairy cattle sales were up 33 per cent, sheep and beef sales up 116 per cent and bobby calf sales up 34 per cent.

TABLE 18
Cash Surplus from Farming
(\$ per farm)

	North Island	South Island	New Zealand
<hr/>			
1. Cash Received:	\$	\$	\$
Milk Sales	61,716	55,983	59,179
Dairy Cattle Sales	6,920	5,980	6,504
Sheep & Beef Sales	1,498	3,460	2,366
Bobby Calf Sales	1,961	1,373	1,701
Other Farm Income	2,828	3,109	2,952
<hr/>			
Total	74,923	69,905	72,702
<hr/>			
2. Cash Spent:			
Labour and Operating	36,513	31,889	34,466
Overhead & Administration	11,464	12,106	11,748
Cattle Purchases	3,148	2,013	2,646
Sheep & Beef Cattle Purchases	474	2,416	1,334
<hr/>			
Total	51,599	48,424	50,194
<hr/>			
Cash Surplus from Farming	23,324	21,481	22,508
<hr/>			

40.

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	327,877	213,654	277,316
Net Farm Income	18,401	14,580	16,709
A. Net Farm Income less Imputed Interest on Equity at Rate of:			
3.5% p.a.	6,925	7,102	7,003
5% p.a.	2,007	3,897	2,843
7% p.a.	-4,550	-376	-2,703
Total Farm Assets	391,386	286,909	345,140
Net Farm Income	18,401	14,580	16,709
Interest Paid	6,406	7,494	6,887
B. Net Farm Income plus Interest Paid less Imputed Interest on Total Farm Assets at Rate of:			
3.5% p.a.	11,108	12,031	11,517
5% p.a.	5,237	7,728	6,340
7% p.a.	-2,591	1,990	-563

4.5.4 Measures of Economic Profitability

An attempt has been made in Table 20 to allow a comparison of results from this town milk survey with those found in the N.Z. Meat & Wool Board's Economic Service survey of sheep and beef farms^a. Many 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 townmilk New Zealand farm was 4.37 per cent (Table 20). The figure for the previous year was 5.75 per cent.

The capital turnover percentage is the ratio of gross revenue to total farm capital, expressed as a percentage. In 1979-80 the average New Zealand farm had a capital turnover percentage of 21.11 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 10.0 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 -\$8,673 compared with \$1,858 for the previous survey.

^a New Zealand Meat and Wool Board's Economic Service, Sheep and Beef Farm Survey, 1978-79, p.49.

TABLE 20

a
Measures of Economic Profitability

	North Island	South Island	New Zealand
Number of Farms	76	76	152
<u>A. Return on Capital</u>	\$	\$	\$
1. Working Expenses (Labour, operating & administration less imputed costs)	38,204	33,417	36,085
2. Plus assessed Managerial Reward (\$6,938 plus 1% of Farm Capital - see 5)	10,671	9,595	10,195
3. Total adjusted Working Expenses (1+2)	48,875	43,012	46,280
4. Working Capital (8.33% of 3)	4,071	3,582	3,855
5. Farm Capital (excluding dwelling, car, shares & working capital)	373,233	265,764	325,663
6. Total Farm Capital (4+5)	377,304	269,346	329,518
7. Net Farm Income	18,401	14,580	16,709
8. Plus Interest Paid	6,406	7,494	6,887
9. Plus Rent Paid	1,049	964	1,011
10. Sub-total (7+8+9)	25,856	23,038	24,607
11. Less assessed Managerial Reward (2)	10,671	9,595	10,195
12. Economic Farm Surplus (10-11)	15,185	13,443	14,412
13. Rate of Return % (12/6)	4.02%	4.99%	4.37%
<u>B. Capital Turnover Percentage</u>			
14. Gross Revenue (less worker's house)	72,407	65,943	69,546
15. Total Farm Capital (6)	379,304	269,346	329,518
16. Capital Turnover Percentage (14/15)	19.19%	24.48%	21.11%
<u>C. Labour & Management Residual</u>			
17. Total Farm Capital (6)	377,304	269,346	329,518
18. Plus Cash at Bank	3,987	3,141	3,612
19. Sub-Total (17+18)	381,291	272,487	333,130
20. Less Fixed Liabilities	65,858	73,504	69,243
21. Less Current Liabilities	9,114	11,262	10,065
22. Total Equity Capital (19-20-21)	306,319	187,721	253,822
23. Net Farm Income (7)	18,401	14,580	16,709
24. Less 10.0% of Equity Capital (22)	30,632	18,772	25,382
25. Labour & Management Residual (23-24)	-12,231	-4,192	-8,673

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".

44.

4.6 Principal Revenue and Expenditure Components

Milk sales represented 84.4 per cent of total revenue in the current survey (Table 21). This was 1.5 per cent less than in 1978-79. This reduction was partly due to the rise in livestock profit from 9.5 per cent to 10.6 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 overheads, followed closely by labour expenses.

When comparing the North and South Islands, operating and overhead expenses 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
	%	%	%
<u>Gross Revenue</u>			
Milk Sales	84.5	84.3	84.4
Livestock Profit	10.8	10.3	10.6
Other Revenue	4.7	5.4	5.0
Total	100.0	100.0	100.0
<u>Expenditure</u>			
Labour	18.7	16.8	17.9
Operating	51.7	49.6	50.8
Administration	3.1	2.9	3.0
Overheads	17.9	20.4	19.0
Depreciation	8.6	10.3	9.3
Total	100.0	100.0	100.0
Expenditure/Revenue Ratio	74.8%	78.0%	76.2%

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 Mrs Judy Rennie.

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
 Grey District Co-op Milk Producers Assn. Ltd
 Canterbury Dairy Farmers Ltd
 Metropolitan Milk Ltd
 Ashburton Town Milk Producers Co-op Ld
 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)

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 1979-80 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 the 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 \$6,938 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 3 September 1979 of \$5,938 per annum. A further \$1,000 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 \$5,200. Of the 152 farmers surveyed, sixty paid an average annual adult wage of \$7,664 to permanent non-family workers during the 1979-80 year.

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 capital valuation for each farm was obtained. This was then updated to the 1979-80 year. Next the opening book value of each farmer's buildings was subtracted to arrive at the updated land value. For this survey a total of four land indices were obtained from the Valuation Department. This was done in order to compare the traditional townmilk survey index (the N.Z. Farmland Sale Price Index) with others which were available.

Land Value Indices

Year ended 31 Dec	NZ Farmland Sale		Dairy Farmland		Farmland Price Index			
	Price Index ^a		Price Index ^b		North Island		South Island ^c	
1975	1000	1.559	1000	1.381	1000	1.555	1000	1.463
1976	1101	1.4160	1073	1.287	1097	1.4175	1112	1.3156
1977	1238	1.2593	1155	1.1957	1212	1.2830	1220	1.1992
1978	1355	1.1506	1236	1.1173	1328	1.1709	1331	1.0992
1979	1559	1.0	1381	1.0	1555	1.0	1463	1.0

^a Report of the Valuation Department for the year ended 31 March 1980, p.8.

^b Valuation Department N.Z., Rural Real Estate Market in N.Z., 1979, Research Paper 80/2, p.28.

^c Ibid., p. 74.

(Cont...)

Land Value Indices (Cont.)

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National Valuation Statistics as at
31 March 1980, Net Valuations

Local Authority District	Date Last Revised	Equalised C.V./ Real C.V. Index
Franklin	1.10.76	1.2840
Egmont	1.7.76	1.3852
Eyre	1.10.76	1.183
Southland	1.10.76	1.6968
Cook	1.10.79	1.1826
Etc.		

=====

SOURCE: Valuation Department, pers comm.

The updated land values using the above four indices are listed in Tables 27 and 50.

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 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:

Because of the regular monthly income which occurs on town survey farms and to help bring this survey into

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line with other agricultural sector surveys, working capital has been dropped.

Development Expenditure

In previous surveys development expenditure which improved the land value was included in the farm assets as improvements. Because of the difficulty in isolating the different forms of development expenditure, any which was claimed in the current year, was listed in the expenditure account.

Quota

This was the average daily quota per farm for the farmer's 1979-80 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
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 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.

Stock Units:

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

<u>Dairy Town Supply</u>		<u>Sheep and Beef Cattle</u>	
	per head		per head
Freisian cow	8.5 s.u.	Ewe	1.0 s.u.
Heifer			
- 2 year old	6.0	Hoggets	0.6
- 1 year old	4.5	Rams	0.9
Calf	2.5		
Bull	5.5	Cattle beef	6.0
		Heifer-weaner	3.5
		Yearling beef	4.0
		2 year old beef	4.5

Milk Grades

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 other farm produce, e.g. cereals.

Contracting:

Gross proceeds from contracting work undertaken by the farmer or his employees; fencing, haybaling, 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.

EXPENDITUREFamily Permanent 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 were asked the approximate number of hours worked outside per week. The hours worked per year were then calculated and this figure was compared with any wage payment made. If the wife worked for more hours than she received payment, an imputed wage based on a 54 hour week and \$2.47/hour was assessed and noted as unpaid family labour. The maximum a wife could be paid was set at \$6,938 for the year.

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:	\$2.47 per hour
12-20 year old youths and girls:	\$1.85 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 \$6,938 per annum.

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 workers(s).

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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 on the domestic account.

Feed:

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

Fertiliser and Seed:

Includes cost of fertilizer 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.

Development Expenses:

This amount is included as an expenditure item.

Irrigation Expenses:

Repairs to irrigation equipment and imputed values for owner 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.

Interest:

The interest paid is that listed in the accounts.

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.

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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^aWorking 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 \$6,938 (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 \$4,013) and all livestock.

^a SOURCE: N.Z. Meat and Wool Boards' Economic Service, Sheep and Beef Farm Survey, 1978-79.

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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 10.0 per cent interest (similar to the Economic Service Report) is applied to his/her own equity capital, in addition to the interest already paid on borrowed capital. A sum of 10.0 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. 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 \$16,709 with a relative standard error (RSE) of 5.90 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 1.96×5.90 per cent \times \$16,709 either side of the estimated value. That is within \$16,709 \pm \$1,932. 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				South Island				New Zealand
	Quota Size (litres)				Quota Size (litres)				
	201-6001	601-10001	1001 +1	All	201-6001	601-10001	1001 +1	All	
Number of Farms	24	26	29	76	24	26	26	76	152
Herd Size									
- mean (cows)	88.38	108.02	186.21	125.89	61.40	105.31	159.81	96.50	112.89
- RSE (%)	5.51	4.47	7.47	4.10	6.14	5.49	6.84	3.26	2.91
Quota									
- mean (litres)	461	779	1,379	865	468	759	1,284	734	807
- RSE (%)	3.79	2.57	4.15	2.90	3.82	2.86	4.02	2.33	1.95
Dairy Productive Hectares									
- mean (hectares)	56.54	77.01	121.57	64.33	58.35	79.76	131.88	80.61	82.68
- RSE (%)	8.58	6.12	5.39	3.89	9.99	6.28	6.48	4.54	2.95
Total Milk Production									
- mean (litres)	341,922	456,264	871,230	546,450	261,293	437,007	679,699	406,726	484,611
- RSE (%)	6.48	6.92	7.74	4.85	5.86	4.52	5.62	3.23	3.26
Gross Revenue									
- Mean (\$)	42,844	62,864	116,420	73,077	40,825	71,014	115,626	66,399	70,121
- RSE (%)	4.63	3.99	4.84	3.30	4.95	4.77	4.74	3.02	2.28
Total Expenditure									
- mean (\$)	33,305	44,360	89,207	54,676	30,448	57,597	89,636	51,819	53,412
- RSE (%)	6.01	4.39	5.84	3.89	7.61	6.06	6.68	4.06	2.82
Net Farm Income									
- mean (\$)	9,539	18,504	27,213	18,401	10,377	13,417	25,990	14,580	16,709
- RSE (%)	23.73	11.39	10.41	7.70	18.59	12.83	15.25	9.22	5.90

a

Estimation Mathematics

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 , $N = \sum N_h$, $N^* = \sum N_h^*$
- 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.
- $\bar{\mu}_h, \sigma_h^2$ - the unknown mean and variance of the eligible farms in stratum h.

a

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

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

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

\bar{X} - $\sum \hat{\Pi}_h \bar{X}_h$, the sample estimate of $\bar{\mu}$.

Sampling Properties of Estimated Stratum Sizes:

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

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

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 .

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

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

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

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^*	$\hat{\pi}_h^*$
<u>North Island</u>						
201-600 litres	166	20	7	12	114	0.1722
601-1000 "	197	22	5	10	142	0.2145
1001 + "	154	34	17	18	113	0.1707
<u>South Island</u>						
201-600 litres	153	26	7	5	132	0.1994
601-1000 "	120	22	7	5	102	0.1541
1001 + "	64	28	6	3	59	0.0891
Total New Zealand	854	152			662	1.0000

Seventy-six farms were surveyed in each Island. The following formulae were applied to determine the optimum number to survey in each of the three quota groups for each Island. The number needed was based on the 1978-79 standard errors of the net farm income results. For both Islands the large quota groups (1,001 litres and higher) had the highest net farm income standard errors. A large sample was needed from the larger farms to help reduce this standard error.

$$\begin{aligned} \text{var } \bar{Y} &= \frac{\sum N_h^2}{N^2} \text{var } (\bar{Y}_h) \\ &= \frac{\sum N_h^2}{N^2} \left\{ \frac{N_h n_h}{N_h} \right\} \frac{S_h^2}{n_h} \end{aligned}$$

where n_h is proportional to $N_h S_h$ i.e. $n_h = \frac{n N_h S_h}{\sum N_h S_h}$

\bar{Y} = net farm income for the stratum.

S_h = the net farm income standard error for the stratum.

APPENDIX D

OTHER PHYSICAL AND PRODUCTION DATA

1. Farmers Age, Years of Management and Number of Dependants.
2. Supplementary Feed Use.
3. Types of Forage Crops.
4. Land Values Updated by Different Indices.
5. Types of Wintering Barns.
6. Herd Testing.
7. Pedigree Cow Numbers and Number of Cows Calved with a Beef Bull.
8. Bloat Control Measures.
9. Dairy Stock Balances.
10. Beef and Sheep Stock Balances.

TABLE 24

Farmers Age, Years of Management Control and Number
of Dependents

	North Island	South Island	New Zealand
Age of Farmer (principle decision-maker)	45.40	43.20	44.40
No. of Years of Management Control	22.20	18.60	20.60
Number of Dependents (including wife)	2.80	2.92	2.85

TABLE 25

Supplementary Feed Use

		North Island	South Island	New Zealand
Type of Feed:				
Hay - Home grown	(bales)	2,814	5,414	3,965
Hay - Purchased	(bales)	589	1,575	1,026
Grain - Home grown	(tonnes)	0	5.6	2.5
Grain - Purchased	(tonnes)	9.1	40.9	23.2
Dairy Meal - Purchased	(tonnes)	14.8	3.8	9.9
Proportion of Survey Farms Using Purchased Meal				
		46%	41%	43%

TABLE 26

Types of Forage Crops

	North Island	South Island	New Zealand
Proportion of farms growing:	%	%	%
Nil forage crops	60	43	53
Soft turnips	8	11	9
Green maize	11	7	9
Choumoellier	7	31	18
Fodder Beet	3	4	3
Other	11	4	8
Total	100	100	100

TABLE 27
Land Values Updated by Different Valuation
Department Indices^a

	South Island	North Island	New Zealand
Freehold Land Area (ha)	88.66	79.45	84.59
	\$	\$	\$
Land Value Updated by N.Z. Farmland Sale Price Index to 31.12.79 ^b	318,406	212,677	271,606
Land Value Updated by the Dairy Farmland Price Index to 31.12.79	296,212	198,692	253,046
Land Value Updated by the Farmland Price Index (Island) to 31.12.79	319,506	200,759	266,944
Land Value Updated by the Index of the National Valuation Statistics as at 31.3.80	300,446	217,709	263,822

^a Details of each index appear in Appendix B.

^b The index selected for the capital account for this report was the N.Z. Farmland Sale Price Index.

TABLE 28

Types of Wintering Barns

	North Island	South Island	New Zealand
Proportion of farms using:	%	%	%
No wintering barn	96	80	89
Open loafing barn	3	17	9
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	34	41
Owner sampling	42	57	49
Alternate monthly	8	9	8
Production ranking	4	0	2
Total	100	100	100

TABLE 30

Number of Pedigree Cows and Number
of Dairy Cows Calved with a Beef Bull

	North Island	South Island	New Zealand
Number of Pedigree Cows	23	29	26
Number of Dairy Cows Calved with a Beef Bull	11	8	9

TABLE 31

Types of Bloat Control Measures

	North Island	South Island	New Zealand
Proportion of farms using:	%	%	%
No Bloat Control	30	43	36
Drench	24	9	18
Water Trough Additives	13	18	15
Flank Lick	4	8	6
Pasture Spray	24	8	16
Other	1	5	3
Any two of the above measures	4	9	6
Total	100	100	100

TABLE 32
Dairy Stock Balances

Opening Stock	New Zealand		Closing Stock	New Zealand	
	Average no. per farm	Value \$		Average no. per farm	Value \$
All Cows	111.4	13,925	All Cows	114.4	14,300
Heifers-in-calf	20.4	2,040	Heifers-in-calf	21.7	2,170
Other Dairy Stock	41.9	1,931	Other Dairy Stock	45.8	2,209
Sub-total	173.7	17,896	Sub-total	181.9	18,679
Purchases:			Sales:		
Cows & in-calf Heifers	8.6	2,332	Cull cows sold	20.7	5,058
Others Purchased	2.2	314	Others Sold	7.4	1,446
Natural Increase or Calves Bred (no.)	77.5		Bobby Calves Sold	48.5	1,700
Dairy Stock Profit		6,341	Deaths, Missing, etc.	3.5	
Opening Balance	262.0	26,883	Closing Balance	262.0	26,883

TABLE 33
Beef and Sheep Stock Balances

New Zealand			New Zealand		
Opening Stock	Average no. per farm	Value \$	Closing Stock	Average no. per farm	Value \$
Sheep:			Sheep:		
Ewes	31.5	315	Ewes	29.9	299
Other Sheep	11.3	102	Other Sheep	9.5	86
Beef:			Beef:		
Cows & Mature Steers	3.2	400	Cows & Mature Steers	4.1	513
Other Beef Cattle	4.1	281	Other Beef Cattle	5.0	256
Sub-total	50.1	1,098	Sub-total	48.5	1,154
Purchases:			Sales:		
Sheep purchased	40.0	871	Sheep sold	57.5	1,164
Beef Cattle purchased	1.9	463	Beef Cattle sold	6.0	1,202
Natural Increase no.	23.1		Deaths, Missing, etc.	3.1	
Other Stock Profit		1,088			
Opening Balance	115.1	3,520	Closing Balance	115.1	3,520

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 less Imputed Interest on Equity and Total Assets.
13. Measures of Economic Profitability.
14. Farmers Age, Years of Management and Number of Dependents.
15. Supplementary Feed use.
16. Types of Forage Crops.
17. Land Values Updated by Different Indices.
18. Types of Wintering Barns.
19. Use of Herd Testing.
20. Number of Pedigree Cows and Number of Dairy Cows Calved with a Beef Bull.
21. Types of Bloat Control Measures.

TABLE 34
Average Areas of Town Supply Farms
by Region and Quota Group

	North Island			South Island		
	201-600ℓ	601-1001ℓ	1001+ℓ	201-600ℓ	601-1000ℓ	1001+ℓ
Number of Farms	21 (ha)	26 (ha)	29 (ha)	24 (ha)	26 (ha)	26 (ha)
Freehold Area	63.19	81.99	122.75	61.27	74.62	128.48
Crown & Maori Lease	0	0.06	1.58	1.19	7.17	5.47
Rented Area	5.51	12.31	9.06	9.00	7.88	12.25
Total Farm Area	68.70	94.36	133.39	71.46	89.67	146.20
Less Unproduct- ive Area	3.95	9.75	8.06	8.77	5.44	8.34
Productive Area	64.75	84.61	125.33	62.69	84.23	137.86
Less Estimated Non-dairying Area	9.14	8.05	7.82	4.87	5.65	13.10
Plus Estimated 'Grazing Out' Area	0.93	0.45	4.06	0.53	1.18	7.12
Estimated dairy Productive Area Utilised for Milk Production	56.54	77.01	121.57	58.35	79.76	131.88

TABLE 35
 Utilization of Farm Area
 By Region and Quota Group

	North Island			South Island		
	201-600%	601-1000%	1001+%	201-600%	601-1000%	1001+%
Number of Farms	21	26	29	24	26	26
Prop'n of Farm	%	%	%	%	%	%
Area Under:						
Dairy Pasture	78.9	81.1	86.4	76.6	84.8	82.9
Forage Crops	2.1	0.1	1.7	4.3	2.9	2.4
Sheep & Beef Cattle Pasture & Cash Crops	13.3	8.5	5.9	6.8	6.3	9.0
Unproductive Land	5.7	10.3	6.0	12.3	6.0	5.7
Total	100	100	100	100	100	100

TABLE 36
Types of Farm Ownership
by Region and Quota Group

	North Island			South Island		
	201-600%	601-1000%	1001+%	201-600%	601-1000%	1001+%
Number of Farms	21	26	29	24	26	26
Type of Farm Ownership	%	%	%	%	%	%
Individual owner	38	23	31	54	50	39
Partnership:						
(i) Husband-Wife	33	50	31	29	27	15
(ii) Father-son(s)	14	4	11	13	11	4
(iii) Other family	5	8	3	0	4	23
Family Company	0	15	21	4	8	15
Trust	0	0	3	0	0	4
Other Ownership	10	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 $\frac{1}{2}$	601-1000 $\frac{1}{2}$	1001+ $\frac{1}{2}$	201-600 $\frac{1}{2}$	601-1000 $\frac{1}{2}$	1001+ $\frac{1}{2}$
Number of Farms	21	26	29	24	26	26
Farmer	0.85	0.98	0.94	1.00	0.98	1.00
Permanent Family	0.63	0.38	0.50	0.49	0.41	0.72
Casual Family	0.11	0.08	0.09	0.14	0.16	0.13
Total Family Labour Units	1.59	1.44	1.53	1.63	1.55	1.85
Permanent Non-Family	0.17	0.56	1.28	0.12	0.55	1.10
Casual Non-Family	0.05	0.04	0.22	0.08	0.11	0.12
Total Non-Family Labour Units	0.22	0.60	1.50	0.20	0.66	1.22
Total Labour Units	1.81	2.04	3.03	1.83	2.21	3.07
Proportion of Permanent Labour	91%	94%	90%	88%	88%	92%
Proportion of Family Labour	88%	71%	50%	89%	70%	60%

TABLE 38

Milk Production by Region and Quota Group

Milk Production	North Island			South Island		
	201-600ℓ	601-1000ℓ	1001+ℓ	201-600ℓ	601-1000ℓ	1001+ℓ
Number of Farms	21	26	29	24	26	26
Daily Quota (ℓ)	461	779	1 379	468	759	1 284
Milk Production Sold at Quota Prices (ℓ)	186 163	320 875	562 883	190 212	307 543	528 850
Milk Production Sold at Surplus Prices (ℓ)	155 759	135 389	308 347	71 081	129 464	150 849
Total Litres Produced (ℓ)	341 922	456 264	871 230	261 293	437 007	679 699
Proportion of Total Sold at Quota Prices (%)	54	70	65	73	70	78
Total Litres Produced in June 1979 (ℓ)	22 576	31 195	59 404	18 943	28 884	48 739
Total Litres Produced in December 1979 (ℓ)	35 230	41 736	76 168	26 460	45 983	65 763
Average Herd Size (No. cows - includes dry cows)	88.38	108.02	186.21	61.40	105.31	159.81
Average No. Milking Cows in June 1979	57.76	79.12	129.69	47.13	73.81	109.85
Average No. Milking Cows in December 1979	79.48	92.35	150.83	57.25	92.46	129.69
Total Litres Converted to 4.24% Milk Fat (kg)	14 360	19 346	36 940	11 079	18 529	28 819
Kg Milk Fat/Dairy Production ha (kg)	254	251	304	190	232	219
Total Stock Units ^a /Farm (ilo.)	1 035	1 250	2 149	734	1 259	1 956
Stock Units/Dairy Production ha (No.)	18.3	16.2	17.7	12.6	15.8	14.8
Total Litres/Average Herd Size (ℓ)	3 859	4 224	4 679	4 256	4 150	4 253
Litres/December Milking Cows (ℓ)	4 302	4 941	5 776	4 564	4 726	5 241
Litres/Total ha (ℓ)	4 977	4 835	6 531	3 656	4 874	4 649
Litres/Dairy Production ha (ℓ)	6 047	5 925	7 166	4 478	5 479	5 154
Litres/Farm/Day (ℓ)	937	1 250	2 387	716	1 137	1 862

^a For a definition of Stock Units, see Appendix B.

TABLE 39

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

	North Island			South Island		
	201-600 \pounds	601-1000 \pounds	1001+ \pounds	201-600 \pounds	601-1000 \pounds	1001+ \pounds
Number of Farms	21	26	29	24	26	26
	\$	\$	\$	\$	\$	\$
<u>ASSETS</u>						
Freehold Land ^b (valued at 31.12.79)	276,210	284,525	403,565	116,339	233,385	392,380
Farmer's House ($\frac{1}{2}$)	9,630	12,245	15,604	12,705	13,919	24,118
Other Farm Houses	1,631	3,169	14,640	1,653	6,877	11,990
Farm Buildings	9,704	10,910	15,817	9,988	13,444	17,391
Plant & Equipment	3,924	6,070	11,089	4,767	14,000	13,254
Farm Vehicles	7,329	10,997	19,204	7,300	14,236	19,173
Dairy Stock	14,090	17,236	30,078	9,918	17,315	26,746
Other Stock	899	956	1,411	877	1,045	2,121
Company Shares	500	2,177	2,229	932	1,609	3,603
Total Farm Assets	323,917	348,285	513,637	164,479	315,830	510,776
Cash at Bank	2,942	5,101	3,641	2,500	1,119	8,068
Sundry Debtors	2,627	4,264	6,706	2,149	3,638	7,841
Other Current Assets	1,588	2,939	4,404	1,447	3,075	14,073
Total All Assets	331,074	360,589	528,388	170,575	323,662	540,758

^a Improvements have been transferred to the Farm Expenditure Account as Development Expenses and Working Capital have been dropped.

^b To update each farmer's Government land value four different Valuation Department indices were tried. The one chosen was the same as that used in previous surveys. Details are listed in the Appendices.

(Table 39 cont...)

TABLE 39 (cont'd)

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

	North Island			South Island		
	201-600 ¤	601-1000¤	1001+¤	201-600¤	601-1000¤	1001+¤
Number of Farms	21	26	29	24	26	26
	\$	\$	\$	\$	\$	\$
<u>CURRENT LIABILITIES</u>						
Bank Overdraft	3,447	2,511	3,938	1,595	5,299	4,912
Sundry Creditors	3,294	3,223	6,502	2,619	4,673	8,269
Other Current Liabilities	2,479	865	1,728	2,613	3,618	3,977
Total Current Liabilities	9,220	6,599	12,168	6,827	13,590	17,158
<u>FIXED LIABILITIES</u>						
First Mortgages	24,471	30,666	60,901	38,690	43,351	66,244
Other Mortgages & Term Loans	7,313	18,438	60,398	8,347	39,989	49,461
Total Current & Fixed Liabilities	41,004	55,703	133,467	53,864	96,930	132,863
Equity or Proprietorship	290,070	304,886	394,921	116,711	226,732	407,895
Total	331,074	360,589	528,388	170,575	323,662	540,758

TABLE 40

Gross Revenue 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	21	26	29	24	26	26
	\$	\$	\$	\$	\$	\$
Milk Sales	36,367	54,063	96,915	35,856	58,804	96,125
Produce Sold	322	106	322	332	1,082	1,892
Wool & Skins Sold	258	245	90	584	754	258
Contracting fees	801	692	1,123	151	314	155
Rent & Lease fees	103	289	334	19	843	581
Employee's house	194	630	1,199	62	602	1,082
Livestock Profit	4,249	5,610	14,419	3,271	7,807	13,209
Other Revenue	550	1,229	2,018	550	808	2,324
Gross Revenue	42,844	62,864	116,420	40,825	71,014	115,626

TABLE 41

Farm Expenditure Components by Region and Quota Group^a

	North Island			South Island		
	201-600£	601-1000£	1001+£	201-600£	601-1000£	1001+£
Number of Farms	21	26	29	24	26	26
	\$	\$	\$	\$	\$	\$
<u>Labour</u>						
Family Labour	2,360	1,289	3,017	1,548	1,415	2,326
Family Casual Labour	92	224	566	253	451	904
Non-family Permanent & Casual Labour	1,817	4,627	11,204	1,310	4,878	8,944
Unpaid Family Labour	1,394	1,272	852	1,715	1,582	3,000
Labour Accommodation	242	759	1,535	129	772	1,284
Sub-total Labour	5,905	8,171	17,174	4,955	9,098	16,458
<u>Operating</u>						
Animal Health	875	1,005	2,093	898	1,242	2,083
Breeding & Herd Testing	563	770	1,607	200	628	849
Contractors	1,143	730	2,063	694	1,173	1,948
Dairy Shed Expenses	1,023	1,384	1,878	954	1,407	2,065
Electricity	1,197	1,461	2,263	883	1,943	2,262
Fertiliser & Seed	1,909	3,947	7,670	1,443	2,938	4,067
Feed	2,587	3,335	6,625	2,699	4,694	7,095
Grazing Expenses	410	667	1,113	133	488	517
Freight	231	287	521	463	887	1,259
Weed & Pest Expenses	263	388	673	219	344	711
Vehicle Expenses	3,401	3,603	6,559	3,080	5,820	7,330
Repairs & Maintenance	3,277	4,985	10,424	2,476	5,640	10,359
Irrigation Expenses	5	23	55	56	573	876
Development Expenses	417	1,188	1,556	269	744	4,470
Sub-total Operating	17,301	23,773	45,100	14,467	28,521	45,891
<u>Administration</u>						
Accountancy	401	428	637	330	606	615
Telephone	272	336	574	199	372	416
General Administration	685	366	1,523	487	654	1,460
Sub-total Administration	1,358	1,130	2,734	1,016	1,632	2,491
<u>Overheads</u>						
Insurance	478	777	1,080	673	900	1,361
Interest	3,334	4,771	11,561	4,959	8,498	11,427
Rates	1,447	1,361	1,858	773	1,387	1,963
Rent	773	733	1,724	245	1,631	1,417
Sub-total Overheads	6,032	7,642	16,223	6,650	12,416	16,188
Total Cash Expenses	30,596	40,716	81,231	27,088	51,667	81,028
Net Depreciation	2,709	3,644	7,976	3,360	5,930	8,608
Total Expenditure	33,305	44,360	89,207	30,448	57,597	89,636

^a Development expenses have been included in this table. In previous surveys it was listed as improvements in the capital account.

Depreciation of Farm Assets by Region and Quota Group

	201-600ℓ			601-1000ℓ			1001+ℓ		
	Ordinary	First Yr & Special	Gross Depreciation	Ordinary	First Yr & Special	Gross Depreciation	Ordinary	First Yr & Special	Gross Depreciation
(i) <u>North Island</u>	\$	\$	\$	\$	\$	\$	\$	\$	\$
Plant & Equipment	476	128	604	749	261	1,010	1,544	775	2,319
Vehicles	1,275	453	1,728	1,639	643	2,282	3,448	1,110	4,558
Buildings	585	139	724	918	127	1,045	1,541	305	1,846
Gross Depreciation			3,056			4,337			8,723
Less Personal Depreciation on cars			184			217			395
Less Depreciation recovered on Plant & Vehicles by Sales			163			476			353
Net Depreciation			2,709			3,644			7,976
(ii) <u>South Island</u>									
Plant & Equipment	423	440	863	1,315	489	1,804	1,621	1,059	2,680
Vehicles	1,225	996	2,221	2,328	1,074	3,402	3,464	865	4,329
Buildings	607	236	843	1,099	188	1,287	1,277	1,076	2,353
Gross Depreciation			3,927			6,493			9,362
Less Personal Depreciation on cars			123			244			222
Less Depreciation recovered on Plant & Vehicles by Sales			444			319			532
Net Depreciation			3,360			5,930			8,608

TABLE 43

Net Farm Income 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	21	26	29	24	26	26
	\$	\$	\$	\$	\$	\$
Gross Farm Revenue	42,844	62,864	116,420	40,825	71,014	115,626
Total Expenditure ^a	33,305	44,360	89,207	30,448	57,597	89,636
Net Farm Income	9,539	18,504	27,213	10,377	13,417	25,990

^a In previous Town milk producer surveys, development expenses were included in the capital account as improvements. They are now listed as an expense.

TABLE 44

Cash Surplus from Farming by Region and Quota Group

	North Island			South Island		
	201-600ℓ	601-1000ℓ	1001+ℓ	201-600ℓ	601-1000ℓ	1001+ℓ
Number of Farms	21	26	29	24	26	26
	\$	\$	\$	\$	\$	\$
1. Cash Received:						
Milk Sales	36,367	54,063	96,915	35,856	58,805	96,125
Dairy Cattle Sales	4,750	5,729	10,608	2,649	7,179	11,357
Sheep and Beef Sales	1,039	1,521	1,931	1,917	5,316	3,705
Bobby Calf Sales	1,444	1,644	2,880	905	1,799	1,683
Other Farm Income	2,051	2,610	3,886	1,636	3,801	5,210
TOTAL	45,651	65,567	116,220	42,963	76,900	118,080
2. Cash Spent:						
Labour and Operating	21,569	29,913	59,887	17,579	35,265	58,065
Overhead and Administration	7,390	8,772	18,958	7,666	14,048	18,679
Cattle Purchases	3,076	3,482	2,801	1,584	2,880	1,476
Sheep and Beef Cattle Purchases	263	771	316	1,023	3,917	2,936
TOTAL	32,298	42,938	81,962	27,852	56,110	81,156
CASH SURPLUS FROM FARMING	13,353	22,629	34,258	15,111	20,790	36,924

TABLE 45

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

(\$ per farm)

	North Island			South Island		
	201-600ℓ	601-1000ℓ	1001+ℓ	201-600ℓ	601-1000ℓ	1001+ℓ
Number of Farms	21	26	29	24	26	26
	\$	\$	\$	\$	\$	\$
Equity of Proprietorship	290,070	304,886	394,922	116,711	226,732	407,895
Net Farm Income	9,539	18,504	27,213	10,377	13,417	25,990
A. Net Farm Income less Imputed Interest on Equity at rate of:						
3½%	- 613	7,833	13,391	6,292	5,481	11,714
5%	- 4,965	3,260	7,467	4,541	2,080	5,595
7%	- 10,766	- 2,838	- 432	2,207	- 2,454	- 2,563
Total Farm Assets	323,917	348,285	513,637	164,479	315,830	510,776
Net Farm Income	9,539	18,504	27,213	10,377	13,417	25,990
Interest Paid	3,334	4,771	11,561	4,959	8,498	11,427
B. Net Farm Income plus Interest Paid less Imputed Interest on Total Farm Assets at rate of:						
3½%	1,536	11,085	20,797	9,579	10,861	19,540
5%	- 3,323	5,861	13,092	7,112	6,124	11,878
7%	- 9,801	- 1,105	2,819	3,822	- 193	1,663

TABLE 46

Measures of Economic Profitability^a by Region and Quota Group

	North Island			South Island		
	201-600 ϵ	601-1000 ϵ	1001+ ϵ	201-600 ϵ	601-1000 ϵ	1001+ ϵ
Number of Farms	21	26	29	24	26	26
	\$	\$	\$	\$	\$	\$
<u>A. RETURN ON CAPITAL</u>						
1. Working Expenses (less imputed costs)	22,928	31,043	62,621	18,594	36,897	60,556
2. Plus assessed Managerial Reward	10,036	10,237	11,856	8,406	9,901	11,728
3. Total adjusted Working Expenses (1+2)	32,964	41,280	74,477	27,000	46,798	72,284
4. Working Capital	2,746	3,439	6,204	2,249	3,898	6,021
5. Farm Capital	309,774	329,850	491,791	146,829	296,289	479,042
6. TOTAL FARM CAPITAL (4+5)	312,520	333,289	497,995	149,078	300,187	485,063
7. Net Farm Income	9,539	18,504	27,213	10,377	13,417	25,990
8. Plus Interest Paid	3,334	4,771	11,561	4,959	8,498	11,427
9. Plus Rent Paid	773	733	1,724	245	1,631	1,417
10. Sub-total (7+8+9)	13,646	24,008	40,498	15,581	23,546	38,834
11. Less assessed Managerial Reward (2)	10,036	10,237	11,856	8,406	9,901	11,728
12. Economic Farm Surplus (10-11)	3,610	13,771	28,642	7,175	13,645	27,106
13. <u>Rate of Return % (12/6)</u>	1.16%	4.13%	5.75%	4.81%	4.55%	5.59%
<u>B. CAPITAL TURNOVER PERCENTAGE</u>						
14. Gross Revenue (less Worker's house)	42,650	62,234	115,221	40,763	70,412	114,544
15. Total Farm Capital (6)	312,520	333,289	497,995	149,078	300,187	485,063
16. <u>Capital Turnover Percentage (14/15)</u>	13.65%	18.67%	23.14%	27.34%	23.46%	23.61%
<u>C. LABOUR & MANAGEMENT RESIDUAL</u>						
17. Total Farm Capital (6)	312,520	333,289	497,995	149,078	300,187	485,063
18. Plus Cash at Bank	2,942	5,101	3,641	2,500	1,119	8,068
19. Sub-total (17+18)	315,462	338,390	501,636	151,578	301,306	493,131
20. Less Fixed Liabilities	31,784	49,104	121,299	47,037	83,340	115,705
21. Less Current Liabilities	9,220	6,599	12,168	6,827	13,590	17,158
22. TOTAL EQUITY CAPITAL (19-20-21)	274,458	282,687	368,169	97,714	204,376	360,268
23. Net Farm Income (7)	9,539	18,504	27,213	10,377	13,417	25,990
24. Less 10.0% of Equity Capital (22)	27,446	28,269	36,817	9,771	20,438	36,027
25. <u>Labour & Managerial Residual (23-24)</u>	- 17,907	- 9,765	- 9,604	606	- 7,021	- 10,037

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

TABLE 47
 Farmers Age, Years of Management Control and Number
 of Dependents by Region and Quota Group

	North Island			South Island		
	201-600%	601-1000%	1001+%	201-600%	601-1000%	1001+%
Number of Farms	21	26	29	24	26	26
Age of Farmer (principle decision-maker)	45	46	45	45	41	43
No. of Years of Management Control	19	25	22	18	18	21
Number of Dependents (including wife)	2.33	2.73	3.35	2.54	3.27	3.15

TABLE 48
Supplementary Feed Use 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	21	26	29	24	26	26
Type of Feed:						
Hay - Home Grown (bales)	1,855	2,958	3,602	3,988	4,815	9,639
Hay - Purchased (bales)	498	681	566	735	2,206	2,364
Grain - Home Grown (tonnes)	0	0	0	0	6.8	16.2
Grain - Purchased	16.8	8.7	1.9	70.0	2.1	42.7
Dairy Meal - Purchased (tonnes)	4.4	23.2	14.6	3.2	3.3	5.8
<u>Farms Feeding Dairy Meal</u>						
Prop'n of Survey Farms Using Purchased Meal	52%	38%	48%	29%	38%	54%

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	21	26	29	24	26	26
Proportion of Farms Growing:	%	%	%	%	%	%
Nil Forage Crops	65	61	52	42	39	54
Soft Turnips	10	4	10	17	8	4
Green Maize	10	8	17	0	15	8
Choumoellier	10	8	3	41	23	23
Fodder Beet	0	8	0	0	4	11
Other	5	11	18	0	11	0
Total	100	100	100	100	100	100

TABLE 50

Land Values Updated by Different Valuation Department Indices
by Region and Quota Group^a

	North Island			South Island		
	201-600 \pm	601-1000 \pm	1001+ \pm	201-600 \pm	601-1000 \pm	1001+ \pm
Number of Farms	21	26	29	24	26	26
Freehold Land Area (ha)	63.19	81.99	122.75	61.27	74.64	128.48
	\$	\$	\$	\$	\$	\$
Land Value Updated by N.Z. Farmland Sale Price Index to 31.12.79 ^b	276,210	284,525	403,565	116,339	233,385	392,380
Land Value Updated by the Dairy Farmland Price Index to 31.12.1979	258,138	263,700	375,493	106,939	216,852	372,543
Land Value Updated by the Farmland Price Index (Island) to 31.12.1979	279,118	285,114	403,482	107,754	220,064	375,427
Land Value Updated by the Index of the National Valuation Statistics as at 31.3.1980	255,596	266,076	388,897	121,873	240,667	392,396

^a Details of each index appear in Appendix B.

^b The index selected for the capital account for this report was the N.Z. Farmland Sale Price Index.

TABLE 51
Types of Wintering Barns by Region and Quota Group

	North Island			South Island		
	201-600 λ	601-1000 λ	1001+ λ	201-600 λ	601-1000 λ	1001+ λ
Number of Farms	21	26	29	24	26	26
Proportion of Farms Using:	%	%	%	%	%	%
No wintering barn	100	100	87	83	81	69
Open loafing barn	0	0	10	17	15	23
Cubicle type	0	0	3	0	4	8
Total	100	100	100	100	100	100

TABLE 52
Use of Herd Testing by Region and Quota Group

	North Island			South Island		
	201-600 λ	601-1000 λ	1001+ λ	201-600 λ	601-1001 λ	1001+ λ
Number of Farms	21	26	29	24	26	26
Proportion of Farms Using:	%	%	%	%	%	%
No Herd Testing	57	46	35	46	27	19
Owner Sampling	33	42	52	42	65	77
Monthly Sampling	0	0	0	0	0	0
Alternate Monthly	0	12	10	12	8	4
Production Ranking	10	0	3	0	0	0
Total	100	100	100	100	100	100

TABLE 53
 Number of Pedigree Cows and Number of Dairy Cows Calved
 with a Beef Bull 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	21	26	29	24	26	26
Number of Pedigree Cows and Pedigree Rising 2-yr old Heifers	13	8	54	13	24	75
Number of Dairy Cows with a Beef Bull	7	14	11	11	7	3

TABLE 54

Types of Bloat Control Measures by Region and Quota Group

	North Island			South Island		
	201-600 λ	601-1000 λ	1001+ λ	201-600 λ	601-1000 λ	1001+ λ
Number of Farms	21	26	29	24	26	26
Proportion of Farms Using:	%	%	%	%	%	%
No Bloat Control	38	31	21	46	42	39
Drench	19	31	21	13	8	4
Water Trough Additives	10	12	17	16	23	15
Flank Lick	10	0	3	13	0	8
Pasture Spray	23	18	31	4	8	15
Other	0	0	3	4	7	4
Any two of the above measures	0	8	4	4	12	15
Total	100	100	100	100	100	100

APPENDIX F

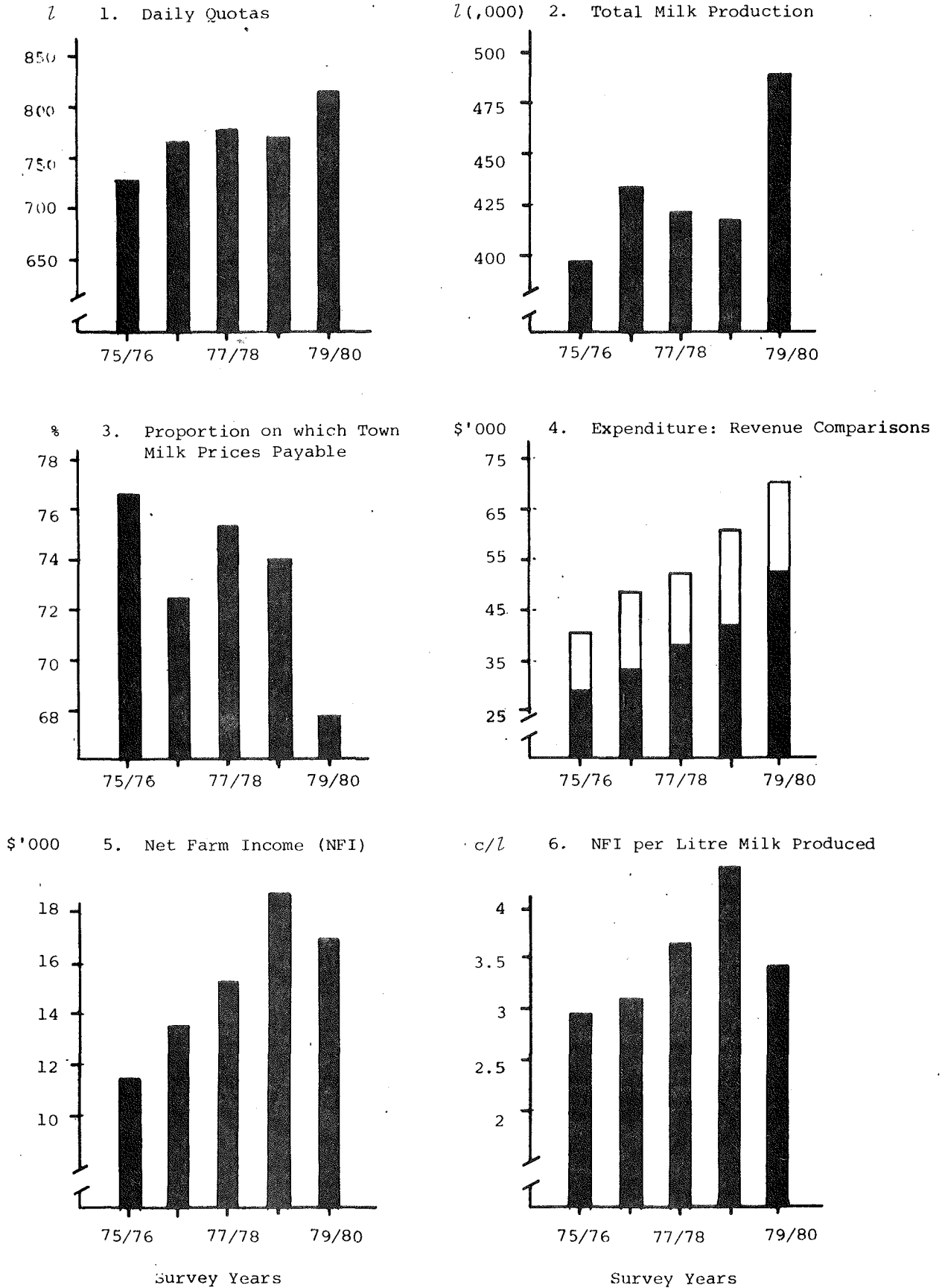
TABLE 55

Comparison with Survey Results of Previous Years^a

	1975-76	1976-77	1977-78	1978-79	1979-80
N.Z. Suppliers (no.)	1,709	1,732	1,664	1,601	1,540
Survey Sample (no.)	90	152	152	152	152
(a) <u>Physical Characteristics:</u>					
Dairy Productive Area (ha)	75.2	79.4	80.9	76.2	82.7
Daily Quota (l)	726	766	774	768	807
Herd Size (no. cows)	105	112	110	113	113
Milk Production (l/farm)	385,334	433,752	421,864	413,522	484,611
Milk Production (l/labour unit)	190,759	203,639	197,133	189,689	215,383
Milk Production (l/dairy prod. ha)	5,124	5,465	5,218	5,428	5,861
Total Labour Units Engaged (L.U.)	2.02	2.13	2.14	2.18	2.25
(b) <u>Financial Characteristics</u>					
Total Farm Assets (\$/farm)	223,081	240,247	265,483	280,966	345,140
Gross Revenue (\$/farm)	38,513	46,955	51,640	59,745	70,121
Gross Revenue (c/l)	9.99	10.83	12.24	14.45	14.47
Total Expenditure (\$/farm)	27,170	33,462	36,445	41,245	53,412
Total Expenditure (c/l)	7.05	7.71	8.64	9.97	11.02
Net Farm Income (\$/farm)	11,343	13,493	15,195	18,500	16,709
Net Farm Income (c/l)	2.94	3.11	3.60	4.47	3.45

^a Survey comparisons are also given in the form of histograms in Figure 1. The data have been taken from the last five economic surveys of New Zealand town milk producers.

FIGURE 1: SURVEY COMPARISONS WITH PREVIOUS YEARS



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