

5. General statistics

A. Prices received by dairy farmers

i) Milksolids

Up until the end of the 2000/01 season, dairy farmers received payment from the New Zealand Dairy Board through a system of advance and final payouts via dairy companies. Seasonal supply dairy companies passed on the Dairy Board advance payout to its suppliers, in addition to a margin based on dairy company efficiency, product mix and investment policies; together known as the total payout.

The introduction of the *Dairy Industry Restructuring Act 2001* opened the way for New Zealand's largest dairy companies, Kiwi Co-operative Dairy Company (Kiwi) and New Zealand Dairy Group (NZDG) to merge with the Dairy Board to form Fonterra. Further, the Act allowed the smaller dairy companies, such as Tatua and Westland to become separate co-operatives. Consequently, the historic payment system became redundant. Tatua and Westland have now established commercial arrangements for sale of dairy products.

Payments to seasonal supply farmers are based on the "A+B±C" system, which incorporates payments for milkfat (A) and protein (B) with adjustments for milk volume (C). The payment system for suppliers to town supply dairy companies varies between companies. Some town supply payment systems are based on the milk volume only, whereas other payment systems are similar to seasonal supply payment systems, which incorporate components of milkfat, protein and volume.

- Average dairy company payout was \$4.10

The average dairy company total payout (per kilogram of milksolids) received by dairy farmers from seasonal supply dairy companies is shown in Table 5.1. The average payout is given in both nominal and inflation adjusted dollars using the Consumer's Price Index.

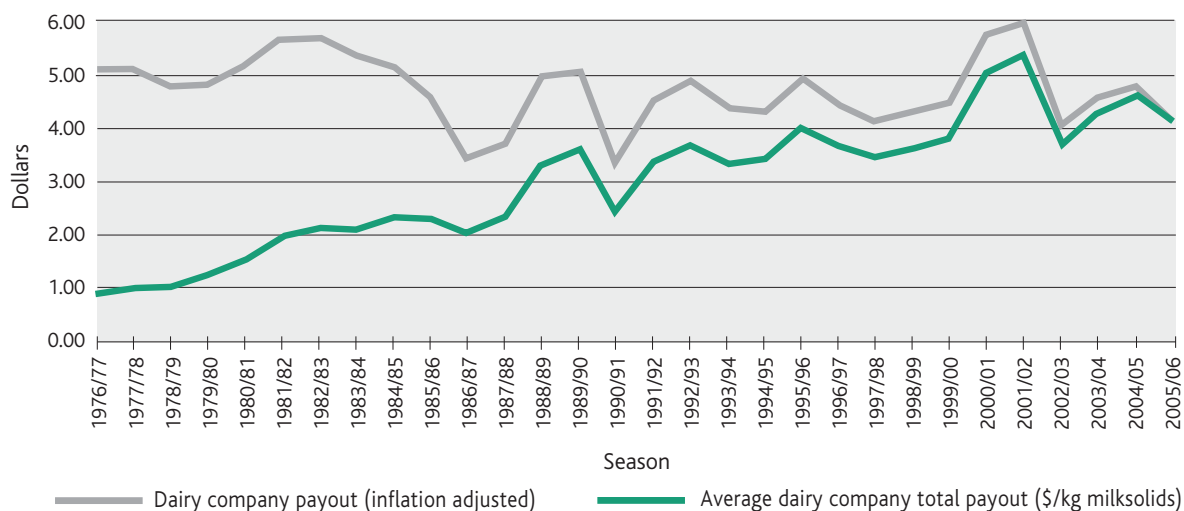
Table 5.1 **Trend in prices received for milksolids for the last 20 seasons**

Season	Average Dairy Company total payout (\$/kg milksolids)	Dairy Company payout (inflation adjusted) ^a
1986/87	2.03	3.40
1987/88	2.34	3.67
1988/89	3.28	4.92
1989/90	3.59	5.02
1990/91	2.42	3.29
1991/92	3.34	4.50
1992/93	3.66	4.86
1993/94	3.32	4.36
1994/95	3.40	4.27
1995/96	3.99	4.91
1996/97	3.63	4.42
1997/98	3.42	4.09
1998/99	3.58	4.30
1999/00	3.78	4.45
2000/01	5.01	5.72
2001/02	5.35	5.94
2002/03	3.66	4.01
2003/04	4.25	4.54
2004/05	4.58	4.76
2005/06	4.10	4.10

^a Weighted to give real dollar values using the Consumers Price Index for the end of the June quarter. Sourced from Statistics New Zealand

Note: Average Dairy Company total actual payout prior to 1989/90 has been derived from \$/kg milkfat

Graph 5.1 **Trend in milksolids payout to dairy farmers for the last 30 seasons**



ii) Dairy farm land sale values

- Average sale price of farms over \$1.8 million
- Substantial increase in nominal price per hectare

The average sale price of dairy farms (\$1.83 million) continues to increase compared with previous years (Table 5.2).

Table 5.2 **Trend in dairy land sale values for the last 20 years**

Year	Number of farms	Average sale price (\$)	Inflation adjusted average sale price ^a	Average hectares	Average price per hectare (\$)	Inflation adjusted average price per hectare ^a	Price per kg milkfat ^b	Price per kg milksolids ^c	CPI
1986	274	251,165	479,912	47	5,298	10,123	18.4	10.6	605
1987	504	270,180	433,789	52	5,212	8,368	16.8	9.7	720
1988	576	278,650	420,521	56	5,013	7,565	16.0	9.2	766
1989	1,013	325,847	470,849	59	5,561	8,036	17.8	10.2	800
1990	868	373,553	501,542	58	6,467	8,683	21.8	12.5	861
1991	538	362,819	473,920	58	6,283	8,207	21.7	12.5	885
1992	897	446,979	577,973	62	7,183	9,288	23.1	13.3	894
1993	834	543,984	694,857	61	8,903	11,372	31.0	17.8	905
1994	784	704,245	889,735	61	11,640	14,706	37.5	21.6	915
1995	672	775,110	936,288	58	13,400	16,186	41.9	24.1	957
1996	784	785,510	930,379	60	13,187	15,619	41.6	23.9	976
1997	520	674,809	790,354	54	12,388	14,509	38.5	22.1	987
1998	496	704,309	810,937	64	11,076	12,753	32.0	18.4	1004
1999	600	769,606	889,665	72	10,759	12,437	33.1	19.0	1000
2000	576	856,374	970,557	80	10,740	12,172	35.3	20.3	1020
2001	941	1,032,618	1,133,624	74	13,959	15,324	41.2	23.7	1053
2002	704	1,049,939	1,121,746	72	14,658	15,660	45.6	26.2	1082
2003	722	1,347,676	1,418,865	82	16,498	17,369	49.9	28.7	1098
2004	800	1,550,792	1,594,943	85	18,287	18,808	50.1	28.8	1124
2005	728	1,833,049	1,833,049	87	21,085	21,085	56.2	32.3	1156

Source: Quotable Value New Zealand Rural Property Sales Statistics (Table D3)

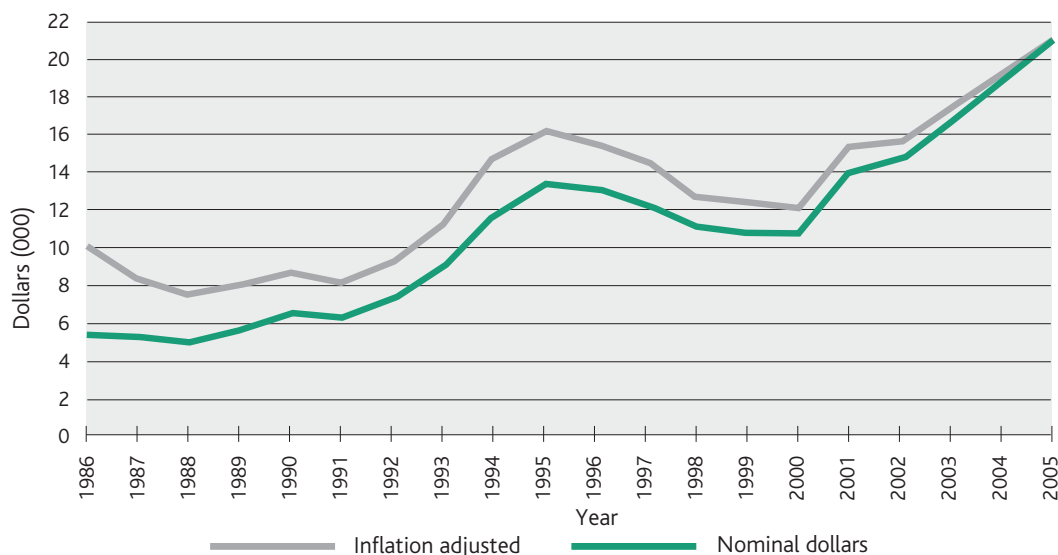
^a Adjusted using the Consumers Price Index for the end of the June quarter

^b Price per kg milkfat has been derived from price per kg milksolids (1996 to current year)

^c Price per kg milksolids has been derived from price per kg milkfat (1978 to 1995)

Prior to 1992 the average price per hectare fluctuated considerably, in both real and nominal terms, as shown in Graph 5.2. The average price per hectare rose steeply from 1992 to 1995. Between 1995 and 2000, the average price per hectare decreased. However, this trend reversed decisively in 2001 and the price per hectare is currently \$21,085. These figures are based on the calendar year (Jan – Dec), as opposed to the dairy industry season (Jun – May).

Graph 5.2 **Trend in dairy land values (price per hectare) for the last 20 years**



B. Breed breakdown

Three dairy breeds (Holstein-Friesian, Jersey, and to a lesser extent, Ayrshire) dominate the dairy cow inseminations carried out in New Zealand, as recorded on the LIC Database.

The Jersey breed dominated the national dairy herd until the late 1960s. By 1970, Holstein-Friesian was the dominant dairy breed in New Zealand, as a result of changes in farm management practices, and farmers raising larger numbers of dairy calves for beef. Of the other breeds of cattle used to inseminate dairy cows, the main beef breed currently in use is Polled Hereford. Other beef breeds used to a lesser degree include Angus, Belgian Blue, and Simmental. Other breeds of dairy cattle present in smaller numbers in New Zealand include Milking Shorthorn, Guernsey and Brown Swiss. Holstein-Friesian/Jersey Crossbreed is emerging as a breed in its own right for the insemination of dairy cows.

The percentages of the major dairy breeds for New Zealand and each region are shown in Graph 5.3. Percentages are given for Holstein-Friesian, Jersey, Holstein-Friesian/Jersey Crossbreed and Ayrshire cows with the remaining breeds grouped into "Other". Holstein-Friesian is the prevalent breed in every region, although this is less pronounced in Taranaki. Bay of Plenty/East Coast region continues to have the highest percentage of Holstein-Friesian cows (59.9%), Taranaki has the highest proportion of Jerseys (24.9%) and Auckland has the highest proportion of Holstein-Friesian/Jersey Crossbreeds (32.6%).

Graph 5.3 Breed percentages of cows in each LIC region in 2005/06



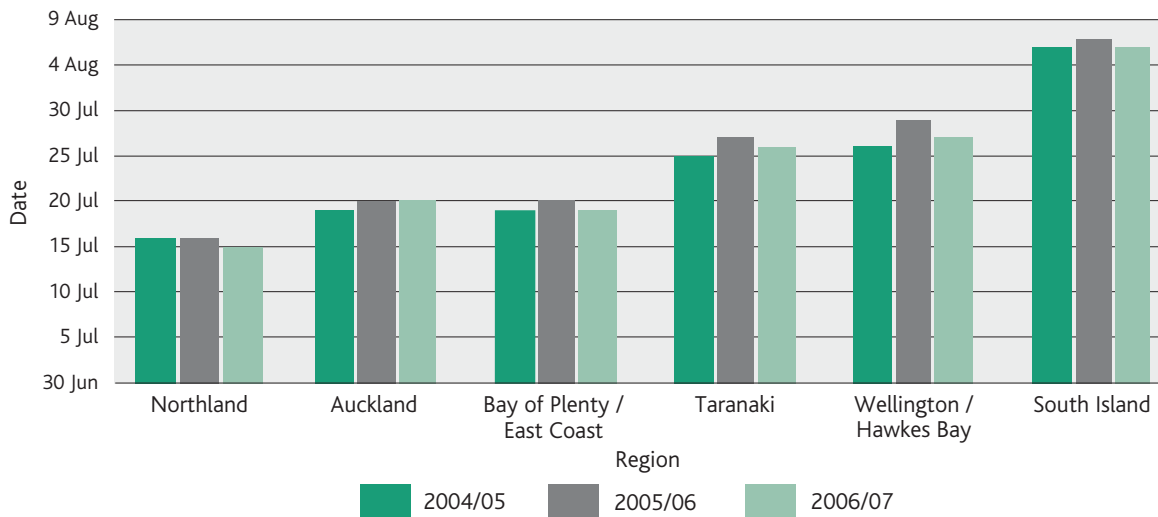
C. Calving

i) Planned start of calving dates

The trend in calving dates within and between regions is best shown by the "planned start of calving" date. The planned start of calving date is 282 days from the date mating is started in the herd. The farmer has control over, and the ability to change, the start of mating. Mating and calving information is recorded on the LIC Database for approximately 85% of all herds.

The forecast planned start of calving dates for cows (excluding first calvers) for the 2006/07 season compared to the dates previously forecast for 2004/05 and 2005/06 seasons are shown in Graph 5.4.

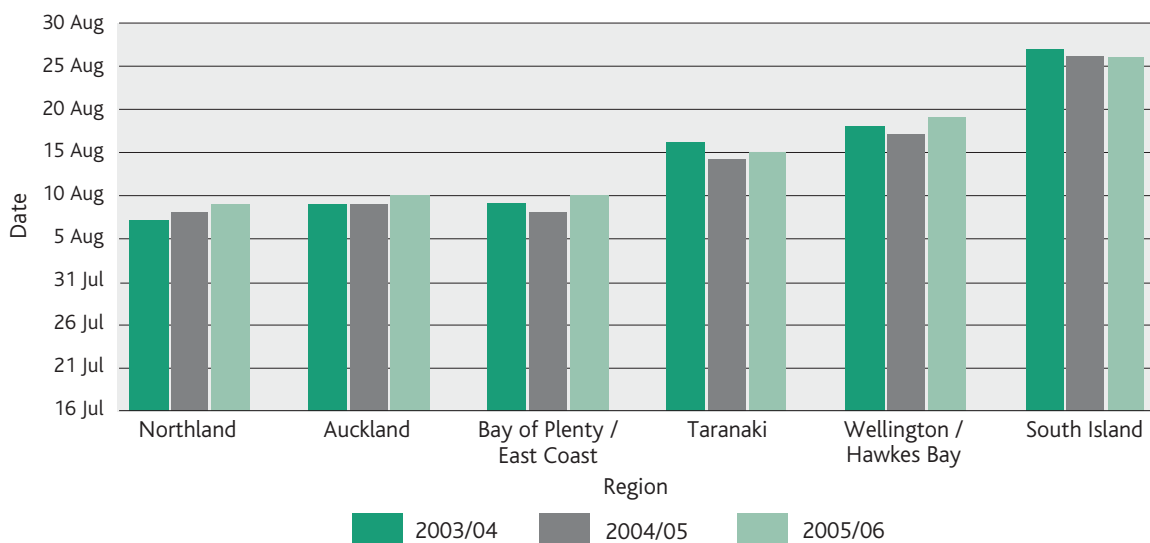
Graph 5.4 *Planned start of calving dates for cows (excluding first calvers) by region*



ii) Median calving dates

Calving spread can be controlled to some degree by farm management (for example, cow condition score at calving, level of nutrition in the four to six weeks prior to mating, and the use of CIDR devices and other reproductive technology). The actual start of calving can be meaningless, since the first calving in a herd can be premature, occurring well before the rest of the herd calves. Hence the median calving date (the date that occupies the middle position after the dates are arranged in ascending order) is used as an indicator of actual calving spread. Graph 5.5 compares median calving dates for cows (excluding first calvers) for the three most recent seasons.

Graph 5.5 *Median calving dates for cows (excluding first calvers) by region*



iii) Calving interval

The calving interval for a herd tested cow is the number of days between her calving date in the current season and her calving date in the preceding season. No interval is calculated for first-calving heifers. The average calving interval is based on all recorded calving dates for herd tested cows calving during the period from 1 June to 31 November. All records where pregnancy terminated prematurely or resulted in abortion or induction were excluded.

Table 5.3 *Mean calving interval*

	<i>All breeds</i>		<i>Holstein-Friesian</i>		<i>Jersey</i>		<i>Friesian/Jersey Cross</i>		<i>Ayrshire</i>	
	<i>Average number of days</i>	<i>Number of records</i>	<i>Average number of days</i>	<i>Number of records</i>	<i>Average number of days</i>	<i>Number of records</i>	<i>Average number of days</i>	<i>Number of records</i>	<i>Average number of days</i>	<i>Number of records</i>
2000/01	368.2	2,075,300	368.4	1,120,489	368.4	355,463	367.7	491,090	369.3	25,941
2001/02	368.3	2,093,134	368.7	1,091,334	367.8	363,278	367.7	526,610	369.7	25,572
2002/03	368.4	2,109,651	368.6	1,068,842	368.3	365,913	368.0	562,974	369.4	24,175
2003/04	369.0	2,181,103	369.4	1,067,677	368.2	375,598	368.6	620,523	368.9	23,642
2004/05	369.5	2,210,747	370.1	1,040,243	368.8	383,759	369.0	666,562	370.6	23,169

D. Operating structures

The main operating structures found on New Zealand dairy farms are owner-operator, sharemilker, and to a lesser extent, contract milker.

Owner-operators are farmers who either own and operate their own farms, or who employ a manager to operate the farm for a fixed wage. Owner-operators receive all the farm income, although they may then have to pay wages. Owner-operators comprise the largest group of all operating structures.

Sharemilking has traditionally been the first step to farm ownership. Sharemilking involves operating a farm on behalf of the farm owner for an agreed share of the farm receipts (as opposed to a set wage). Two types of sharemilking agreement are commonly used: variable order sharemilking agreement, and 50% agreements.

38

Under the 50% agreement (also called 50/50) the sharemilker owns the herd and any plant and equipment (other than the milking plant) needed to farm the property. The sharemilker is usually responsible for milk harvesting expenses, all stock related expenses, and general farm work and maintenance. The owner is usually responsible for expenses related to maintaining the property. The percentage quoted in a 50% sharemilking agreement usually refers to the proportion of milk income the sharemilker receives. While this percentage is most commonly 50%, it can range from 45% to 55%. Under the 50% agreement the sharemilker receives the agreed percentage of milk income plus the majority of income from stock sales, and the farm owner receives the remaining percentage of milk income.

Unlike the 50% agreement, where the owner may have little to do with farm management, a variable order sharemilking agreement often sees the owner heavily involved in management. The variable order sharemilking agreement involves the farm owner retaining ownership of the herd and bearing more of the farm costs, such as hay-making and animal health. The amount of farm work required by the sharemilker is determined by the individual agreement, with responsibility ranging from herd management only to carrying out all farm work.

Contract milkers are contracted to milk a herd at a set price per kilogram of milksolids produced. The rate is set according to the amount of farm work done. In 2005/06, all farms with contract milkers could not be identified, consequently, any farms with contract milkers are included with owner-operators.

- 36% of all milkers are sharemilkers
- 65% of all sharemilkers are 50/50 sharemilkers

The number of herds farmed, average herd size, effective area and number of cows per hectare for each of the main operating structures are shown in Table 5.4. In 2005/06, 4,260 (36%) New Zealand dairy herds operated under a sharemilking agreement. Sixty-five percent (2,758) of all sharemilkers have 50/50 agreements. On average, the smaller properties with smaller herds tend to be owner-operated, while the larger properties with larger herds tend to have sharemilkers.

Table 5.4 **Herd analysis by operating structure in 2005/06**

Operating structure	Number of herds	Percentage of herds	Average herd size	Average effective hectares	Average cows per effective hectare
Owner-operators	7,594	63.9	313	116	2.73
Sharemilkers:					
Less than 20%	78	0.7	543	170	3.18
20-29%	1,026	8.6	360	128	2.88
30-39%	168	1.4	277	102	2.69
40-44%	32	0.3	289	109	2.65
50/50 (45-54%)	2,758	23.2	333	119	2.85
over 54%	198	1.7	305	108	2.83
All sharemilkers	4,260	35.8	340	121	2.85
Unknown	29	0.2	287	96	3.05
All farms	11,883		322	118	2.77

Note: Contract milkers are included with owner-operators

Herd production in each of the main operating structure groups is shown in Table 5.5. The table shows that on average, sharemilkers on less than 20% agreements have the highest production per herd, per effective hectare and per cow.

Table 5.5 **Herd production analysis by operating structure in 2005/06**

Operating structure	Average litres per herd	Average kg milkfat per herd	Average kg milksolids per herd	Average kg milkfat per effective hectare	Average kg milksolids per effective hectare	Average kg milkfat per cow	Average kg milksolids per cow
Owner-operators	1,201,715	59,006	103,317	509.7	890	185.1	324
Sharemilkers:							
Less than 20%	2,303,330	113,506	199,138	669.5	1,169	210.2	367
20 - 29%	1,381,544	68,392	119,522	546.2	952	189.8	331
30 - 39%	955,611	47,869	83,458	479.6	835	178.0	310
40 - 44%	1,078,259	54,253	94,476	487.9	850	181.8	317
50/50 (45-54%)	1,274,899	63,206	110,468	536.1	934	187.2	327
over 54%	1,192,572	58,472	102,424	527.7	922	186.2	326
All Sharemilkers	1,301,519	64,484	112,713	538.0	938	187.8	328
Unknown	1,092,312	52,919	92,897	538.4	938	174.3	304
All farms	1,237,228	60,955	106,660	519.9	907	186.1	325

Note: Contract milkers are included with owner-operators

General statistics – Operating structures

Changes to the operating structure in the last ten seasons are minimal. Table 5.6 shows the percentage of herds in each operating structure type, whereas Table 5.7 gives the actual number of herds.

Table 5.6 *Trend in the percentage of herds in each operating structure for the last 10 seasons*

Operating structure	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Owner-operators	63.6	63.1	62.7	62.7	61.8	62.1	62.5	62.7	63.7	63.9
Contract	1.3	1.2	1.1	0.9	0.8	**	**	**	**	**
Sharemilkers:										
29%	0.8	0.8	0.8	0.7	*	*	*	*	*	*
39%	0.7	0.6	0.5	0.5	*	*	*	*	*	*
50%	23.4	24.0	23.7	23.7	24.3	23.7	23.7	24.1	23.6	23.2
Other	9.3	10.2	11.2	11.5	13.1	14.1	13.2	13.0	12.5	12.6
All Sharemilkers	34.3	35.7	36.2	36.4	37.3	37.8	36.9	37.1	36.1	35.8
Unknown	0.9	0.0	0.0	0.0	0.0	0.1	0.5	0.2	0.2	0.2

** Included with owner-operators

* Included in "Other"

From 1989/90 owner-operators includes leased farms

Table 5.7 *Trend in the number of herds in each operating structure for the last 10 seasons*

Operating structure	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Owner-operators	9,368	9,263	9,005	8,694	8,592	8,476	8,215	8,000	7,820	7,594
Contract	195	172	154	126	113	**	**	**	**	**
Sharemilkers:										
29%	120	124	114	98	*	*	*	*	*	*
39%	108	95	76	66	*	*	*	*	*	*
50%	3,455	3,522	3,403	3,280	3,372	3,240	3,114	3,072	2,897	2,758
Other	1,367	1,497	1,610	1,597	1,815	1,924	1,740	1,658	1,531	1,502
All Sharemilkers	5,050	5,238	5,203	5,041	5,187	5,164	4,854	4,730	4,428	4,260
Unknown	128	0	0	0	0	9	71	21	23	29
Total	14,741	14,673	14,362	13,861	13,892	13,649	13,140	12,751	12,271	11,883

** Included with owner-operators

* Included in "Other"

From 1989/90 owner-operators includes leased farms

Table 5.8 compares the number (and percentage) of owner-operators with sharemilkers by region. A greater relative percentage of owner-operators are in Northland, Nelson/Marlborough, West Coast and North Canterbury (compared with the percentage of sharemilkers). Conversely, there is a greater relative percentage of sharemilkers in South Auckland, Taranaki and Otago.

Table 5.8 *Operating structure by region in 2005/06*

Farming region	Owner-operators	Owner-operators %	All sharemilkers	All sharemilkers %	50/50 sharemilkers	50/50 sharemilkers %	Variable order sharemilkers	Variable order sharemilkers %	Total herds (excl. unknown)
Northland	739	9.7	292	6.9	188	6.8	104	6.9	1,031
Central Auckland	337	4.4	194	4.6	141	5.1	53	3.5	531
South Auckland	2,336	30.8	1,464	34.4	1,015	36.8	449	29.9	3,800
Bay of Plenty	409	5.4	216	5.1	135	4.9	81	5.4	625
Central Plateau	273	3.6	173	4.1	107	3.9	66	4.4	446
Western Uplands	50	0.7	30	0.7	20	0.7	10	0.7	80
East Coast	15	0.2	1	0.0	1	0.0	0	0.0	16
Hawkes Bay	52	0.7	13	0.3	8	0.3	5	0.3	65
Taranaki	1,137	15.0	795	18.7	463	16.8	332	22.1	1,932
Wellington	379	5.0	189	4.4	109	4.0	80	5.3	568
Wairarapa	332	4.4	164	3.8	101	3.7	63	4.2	496
North Island	6,059	79.8	3,531	82.9	2,288	83.0	1,243	82.8	9,590
Nelson/Marlborough	197	2.6	65	1.5	47	1.7	18	1.2	262
West Coast	298	3.9	77	1.8	44	1.6	33	2.2	375
North Canterbury	371	4.9	136	3.2	88	3.2	48	3.2	507
South Canterbury	102	1.3	63	1.5	33	1.2	30	2.0	165
Otago	164	2.2	158	3.7	114	4.1	44	2.9	322
Southland	403	5.3	230	5.4	144	5.2	86	5.7	633
South Island	1,535	20.2	729	17.1	470	17.0	259	17.2	2,264
New Zealand	7,594	100.0	4,260	100.0	2,758	100.0	1,502	100.0	11,854

Smaller herds (less than 200 cows) are predominantly farmed by owner-operators, while a greater relative percentage of sharemilkers operate larger herds (over 200 cows) (see table 5.9). Very large herds (over 650 cows) are operated by both owner-operators and sharemilkers in similar percentages.

Table 5.9 *Operating structure by herd size in 2005/06*

Herd size	Owner-operators	Owner-operators %	All sharemilkers	All sharemilkers %	50/50 sharemilkers	50/50 sharemilkers %	Variable order sharemilkers	Variable order sharemilkers %	Total herds (excl. unknown)
10-49	48	0.6	8	0.2	5	0.2	3	0.2	56
50-99	339	4.5	35	0.8	22	0.8	13	0.9	374
100-149	935	12.3	231	5.4	148	5.4	83	5.5	1,166
150-199	1,276	16.8	628	14.7	434	15.7	194	12.9	1,904
200-249	1,238	16.3	781	18.3	546	19.8	235	15.6	2,019
250-299	832	11.0	569	13.4	383	13.9	186	12.4	1,401
300-349	712	9.4	527	12.4	303	11.0	224	14.9	1,239
350-399	427	5.6	305	7.2	183	6.6	122	8.1	732
400-449	395	5.2	300	7.0	183	6.6	117	7.8	695
450-499	282	3.7	187	4.4	111	4.0	76	5.1	469
500-549	238	3.1	170	4.0	114	4.1	56	3.7	408
550-599	147	1.9	104	2.4	58	2.1	46	3.1	251
600-649	159	2.1	111	2.6	67	2.4	44	2.9	270
650-699	102	1.3	52	1.2	30	1.1	22	1.5	154
700-749	76	1.0	63	1.5	43	1.6	20	1.3	139
750-799	52	0.7	32	0.8	26	0.9	6	0.4	84
800-849	51	0.7	36	0.8	24	0.9	12	0.8	87
850-899	40	0.5	13	0.3	9	0.3	4	0.3	53
900-949	38	0.5	20	0.5	16	0.6	4	0.3	58
950-999	34	0.4	16	0.4	11	0.4	5	0.3	50
1000+	173	2.3	72	1.7	42	1.5	30	2.0	245
Total/Avg	7,594	100.0	4,260	100.0	2,758	100.0	1,502	100.0	11,854