

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 still based on the "A+B-C" system, which incorporates payments for milkfat (A) and protein (B) with penalties 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 \$4.58
- 5% increase for inflation adjusted payout

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.

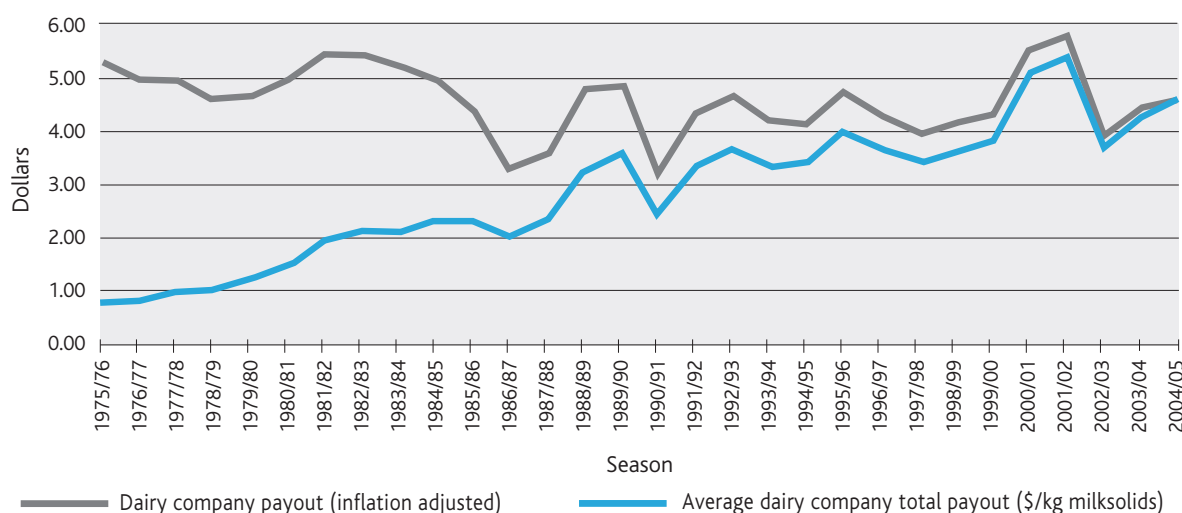
Table 5.1 *Trend in prices received for milksolids for the last 20 seasons*

Season	Average Dairy Company total payout (\$/kg milksolids)	Dairy Company payout (inflation adjusted) ^a
1985/86	2.29	4.37
1986/87	2.03	3.27
1987/88	2.34	3.53
1988/89	3.28	4.73
1989/90	3.59	4.82
1990/91	2.42	3.16
1991/92	3.34	4.32
1992/93	3.66	4.67
1993/94	3.32	4.19
1994/95	3.40	4.11
1995/96	3.99	4.73
1996/97	3.63	4.25
1997/98	3.42	3.93
1998/99	3.58	4.14
1999/00	3.78	4.28
2000/01	5.01	5.50
2001/02	5.35	5.72
2002/03	3.66	3.85
2003/04	4.25	4.37
2004/05	4.58	4.58

^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 \$1.5 million
- Substantial increase in nominal price per hectare

The average sale price of dairy farms (\$1.58 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
1984	618	301,076	720,020	49	6,189	14,801	21.9	12.6	470
1985	505	298,746	612,756	49	6,044	12,397	21.0	12.1	548
1986	274	251,165	466,627	47	5,298	9,843	18.4	10.6	605
1987	504	270,180	421,781	52	5,212	8,137	16.8	9.7	720
1988	576	278,650	408,881	56	5,013	7,356	16.0	9.2	766
1989	1,013	325,847	457,815	59	5,561	7,813	17.8	10.2	800
1990	868	373,553	487,658	58	6,467	8,442	21.8	12.5	861
1991	538	362,819	460,801	58	6,283	7,980	21.7	12.5	885
1992	897	446,979	561,974	62	7,183	9,031	23.1	13.3	894
1993	834	543,984	675,622	61	8,903	11,057	31.0	17.8	905
1994	784	704,245	865,105	61	11,640	14,299	37.5	21.6	915
1995	672	775,110	910,370	58	13,400	15,738	41.9	24.1	957
1996	784	785,510	904,624	60	13,187	15,187	41.6	23.9	976
1997	520	674,809	768,475	54	12,388	14,108	38.5	22.1	987
1998	496	704,309	788,489	64	11,076	12,400	32.0	18.4	1004
1999	600	769,606	865,037	72	10,759	12,093	33.1	19.0	1000
2000	576	856,374	943,691	80	10,740	11,835	35.3	20.3	1020
2001	941	1,032,618	1,102,244	74	13,959	14,900	41.2	23.7	1053
2002	704	1,049,939	1,090,694	72	14,658	15,227	45.6	26.2	1082
2003	728	1,354,920	1,387,004	82	16,585	16,978	50.3	28.9	1098
2004	824	1,575,882	1,575,882	84	18,666	18,666	53.8	30.9	1124

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

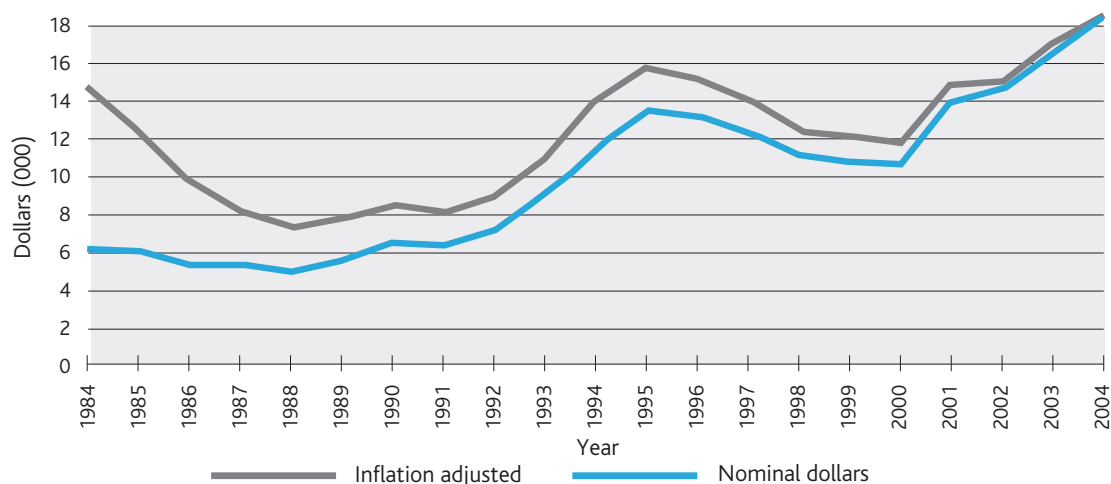
^a Adjusted using the Consumers Price Index for the end of the June quarter

^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 \$18,666. 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*



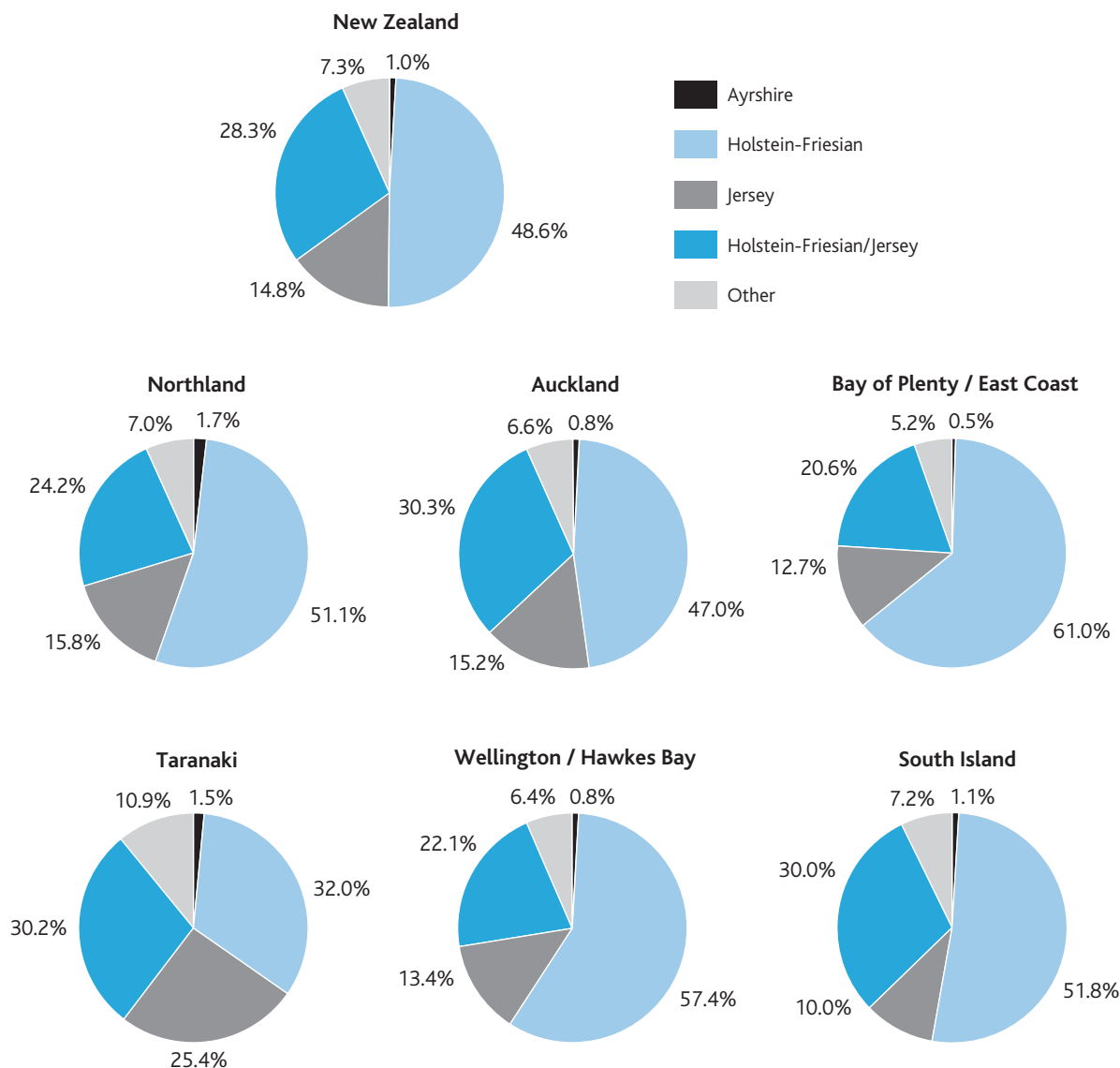
B. Breed breakdown

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 Livestock Improvement 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 (61.0%), whereas Taranaki has the highest proportion of Jerseys (25.4%) and Holstein-Friesian/Jersey Crossbreeds (30.2%).

Graph 5.3 Breed percentages of cows in each region in 2004/05



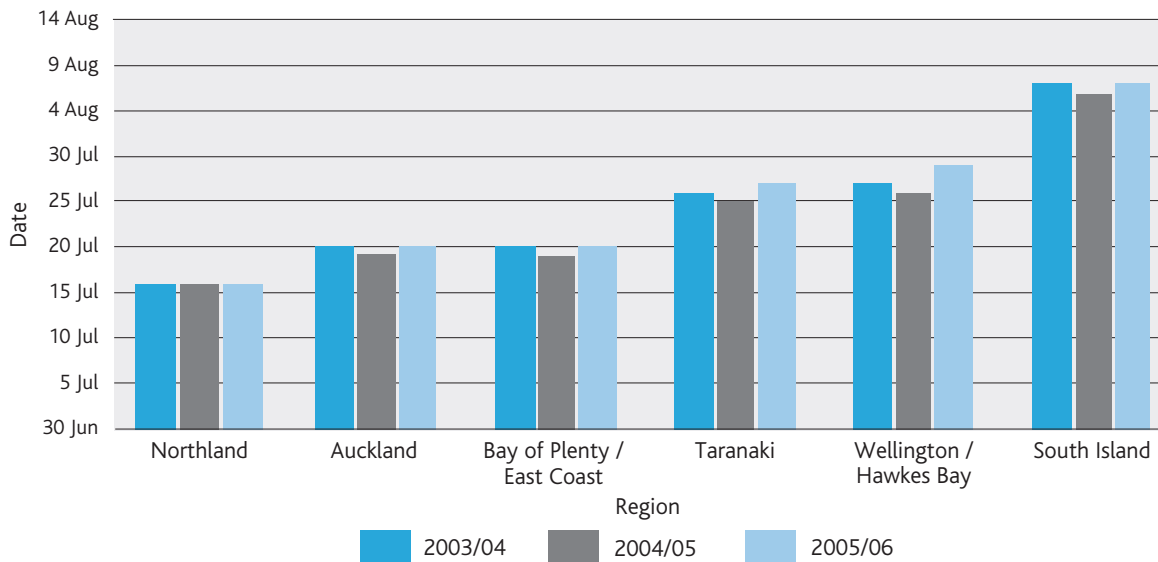
C. Calving

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 Livestock Improvement Database for approximately 85% of all herds.

The forecast planned start of calving dates for cows (excluding first calvers) for the 2005/06 season compared to the dates previously forecast for 2003/04 and 2004/05 seasons are shown in Graph 5.4.

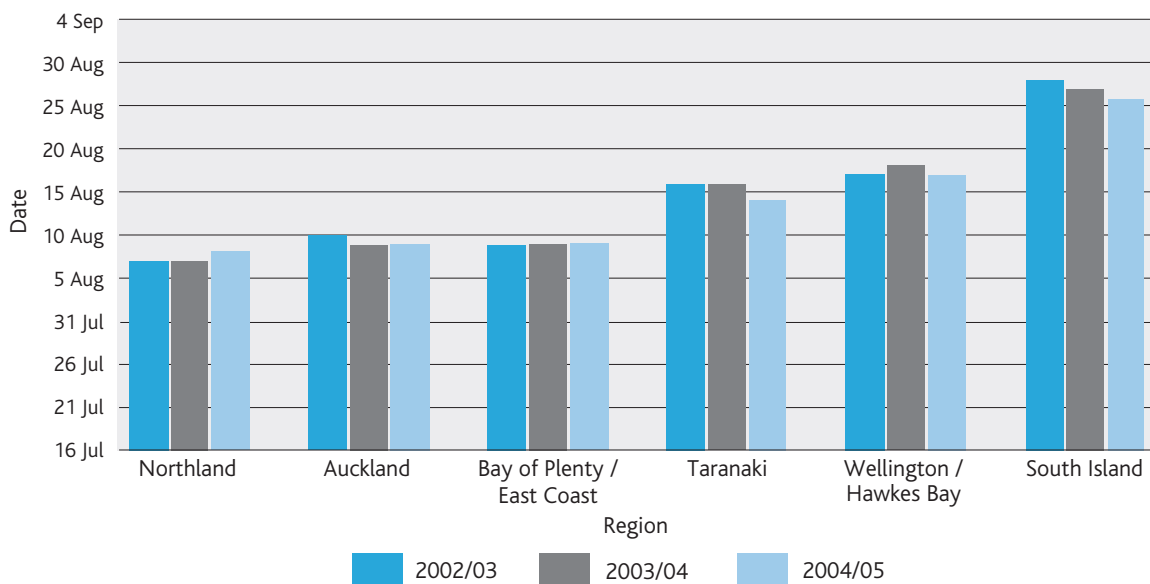
Graph 5.4 *Planned start of calving dates for cows (excluding first calvers) by region*



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

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.

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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 2004/05, 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 2004/05, 4,428 (36%) New Zealand dairy herds operated under a sharemilking agreement. Sixty-five percent (2,897) 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 2004/05

Operating structure	Number of herds	Percentage of herds	Average herd size	Average effective hectares	Average cows per effective hectare
Owner-operators	7,820	63.7	304	113	2.73
Sharemilkers:					
Less than 20%	68	0.6	505	158	3.20
20-29%	1,012	8.2	356	125	2.91
30-39%	190	1.5	268	102	2.67
40-44%	40	0.3	265	108	2.54
50/50 (45-54%)	2,897	23.6	331	118	2.86
over 54%	221	1.8	316	110	2.90
All sharemilkers	4,428	36.1	335	119	2.87
Unknown	23	0.2	306	119	2.59
All farms	12,271		315	115	2.78

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 2004/05

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	1,108,114	54,294	94,997	482.3	842	175.2	306
Sharemilkers:							
Less than 20%	2,045,560	100,046	175,677	626.9	1,096	193.8	339
20 – 29%	1,287,712	63,727	111,255	523.6	912	179.1	312
30 – 39%	893,738	44,982	78,290	453.5	788	168.5	293
40 – 44%	965,610	48,885	85,019	455.5	792	177.8	310
50/50 (45-54%)	1,208,370	59,790	104,424	513.8	895	178.7	312
over 54%	1,176,963	57,510	100,747	519.0	906	177.7	311
All Sharemilkers	1,222,099	60,460	105,599	514.9	897	178.5	311
Unknown	1,116,844	54,948	96,057	464.3	810	179.2	312
All farms	1,149,262	56,520	98,825	494.0	862	176.4	308

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	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
Owner-operators	65.0	63.6	63.1	62.7	62.7	61.8	62.1	62.5	62.7	63.7
Contract	0.8	1.3	1.2	1.1	0.9	0.8	**	**	**	**
Sharemilkers:										
29%	0.9	0.8	0.8	0.8	0.7	*	*	*	*	*
39%	0.9	0.7	0.6	0.5	0.5	*	*	*	*	*
50%	24.5	23.4	24.0	23.7	23.7	24.3	23.7	23.7	24.1	23.6
Other	7.8	9.3	10.2	11.2	11.5	13.1	14.1	13.2	13.0	12.5
All Sharemilkers	34.2	34.3	35.7	36.2	36.4	37.3	37.8	36.9	37.1	36.1
Unknown	0.0	0.9	0.0	0.0	0.0	0.0	0.1	0.5	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	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
Owner-operators	9,581	9,368	9,263	9,005	8,694	8,592	8,476	8,215	8,000	7,820
Contract	121	195	172	154	126	113	**	**	**	**
Sharemilkers:										
29%	133	120	124	114	98	*	*	*	*	*
39%	138	108	95	76	66	*	*	*	*	*
50%	3,614	3,455	3,522	3,403	3,280	3,372	3,240	3,114	3,072	2,897
Other	1,149	1,367	1,497	1,610	1,597	1,815	1,924	1,740	1,658	1,531
All Sharemilkers	5,034	5,050	5,238	5,203	5,041	5,187	5,164	4,854	4,730	4,428
Unknown	0	128	0	0	0	0	9	71	21	23
Total	14,736	14,741	14,673	14,362	13,861	13,892	13,649	13,140	12,751	12,271

** 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 2004/05*

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	787	10.1	321	7.3	209	7.3	112	7.3	1,108
Central Auckland	377	4.8	196	4.5	146	5.1	50	3.3	573
South Auckland	2,379	30.4	1,531	34.9	1,062	37.1	469	30.6	3,910
Bay of Plenty	429	5.5	215	4.9	138	4.8	77	5.0	644
Central Plateau	285	3.6	173	3.9	107	3.7	66	4.3	458
Western Uplands	46	0.6	32	0.7	22	0.8	10	0.7	78
East Coast	14	0.2	1	0.0	1	0.0	0	0.0	15
Hawkes Bay	52	0.7	13	0.3	11	0.4	2	0.1	65
Taranaki	1,185	15.2	812	18.5	465	16.3	347	22.7	1,997
Wellington	392	5.0	188	4.3	112	3.9	76	5.0	580
Wairarapa	346	4.4	181	4.1	118	4.1	63	4.1	527
North Island	6,292	80.5	3,663	83.4	2,391	83.6	1,272	83.1	9,955
Nelson/Marlborough	213	2.7	63	1.4	41	1.4	22	1.4	276
West Coast	290	3.7	89	2.0	42	1.5	47	3.1	379
North Canterbury	358	4.6	141	3.2	97	3.4	44	2.9	499
South Canterbury	98	1.3	55	1.3	30	1.0	25	1.6	153
Otago	174	2.2	147	3.3	110	3.8	37	2.4	321
Southland	395	5.1	234	5.3	150	5.2	84	5.5	629
South Island	1,528	19.5	729	16.6	470	16.4	259	16.9	2,257
New Zealand	7,820	100.0	4,392	100.0	2,861	100.0	1,531	100.0	12,212

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 2004/05*

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	36	0.5	4	0.1	3	0.1	1	0.1	40
50-99	362	4.6	41	0.9	24	0.8	17	1.1	403
100-149	1,001	12.8	241	5.4	164	5.7	77	5.0	1,242
150-199	1,429	18.3	644	14.5	461	15.9	183	12.0	2,073
200-249	1,286	16.4	873	19.7	593	20.5	280	18.3	2,159
250-299	801	10.2	572	12.9	390	13.5	182	11.9	1,373
300-349	763	9.8	538	12.1	313	10.8	225	14.7	1,301
350-399	432	5.5	316	7.1	186	6.4	130	8.5	748
400-449	351	4.5	322	7.3	200	6.9	122	8.0	673
450-499	278	3.6	198	4.5	120	4.1	78	5.1	476
500-549	247	3.2	149	3.4	98	3.4	51	3.3	396
550-599	132	1.7	114	2.6	67	2.3	47	3.1	246
600-649	142	1.8	109	2.5	68	2.3	41	2.7	251
650-699	107	1.4	59	1.3	34	1.2	25	1.6	166
700-749	73	0.9	59	1.3	43	1.5	16	1.0	132
750-799	63	0.8	30	0.7	23	0.8	7	0.5	93
800-849	60	0.8	33	0.7	22	0.8	11	0.7	93
850-899	27	0.3	25	0.6	18	0.6	7	0.5	52
900-949	46	0.6	16	0.4	12	0.4	4	0.3	62
950-999	26	0.3	10	0.2	8	0.3	2	0.1	36
1000+	158	2.0	75	1.7	50	1.7	25	1.6	233
Total/Avg	7,820	100.0	4,428	100.0	2,897	100.0	1,531	100.0	12,248

