

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 \$7.67*

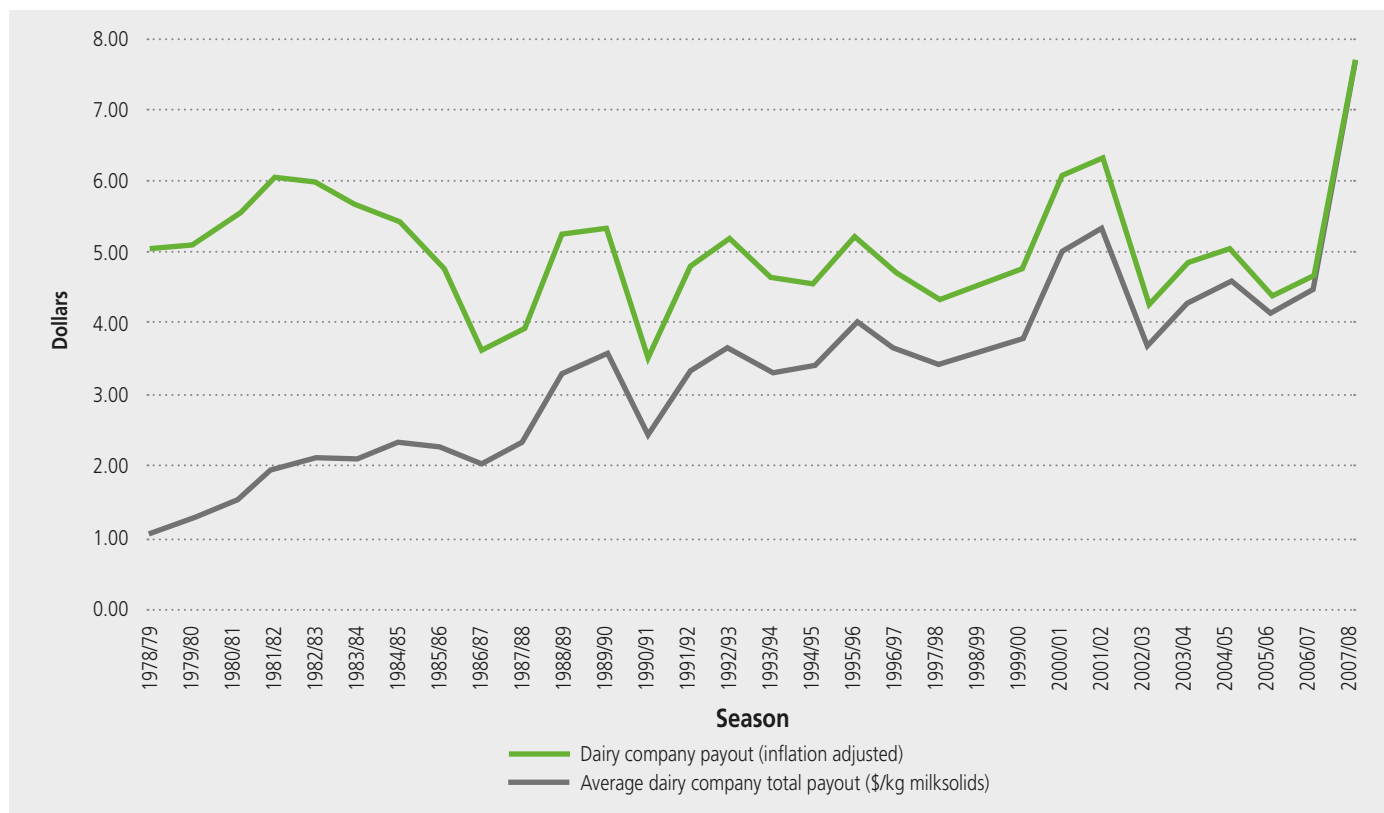
The average weighted dairy company total payout (per kilogram of milksolids) received by dairy farmers from seasonal supply dairy companies is shown in Table 5.1 (weightings are based on the number of herds supplying each dairy company). The average payout is given in both nominal and inflation adjusted dollars using the Consumers Price Index.

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

Season	Average weighted dairy company total payout (\$/kg milksolids)	Dairy company payout (inflation adjusted) ^a
1988/89	3.28	5.23
1989/90	3.59	5.32
1990/91	2.42	3.49
1991/92	3.34	4.78
1992/93	3.66	5.15
1993/94	3.32	4.62
1994/95	3.40	4.53
1995/96	3.99	5.21
1996/97	3.63	4.69
1997/98	3.42	4.34
1998/99	3.58	4.57
1999/00	3.78	4.72
2000/01	5.01	6.07
2001/02	5.35	6.31
2002/03	3.66	4.25
2003/04	4.25	4.82
2004/05	4.58	5.05
2005/06	4.10	4.35
2006/07	4.46	4.64
2007/08	7.67	7.67

^a Weighted to give real dollar values using the Consumers Price Index for the end of the June quarter. Sourced from Statistics New Zealand; Excludes dairy company retentions and deduction for DairyNZ Levy.
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 \$2.5 million
- Substantial increase in nominal price per hectare

The average sale price of dairy farms (\$2.54 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	Consumers Price Index
1988	576	278,650	446,190	56	5,013	8,027	16.0	9.2	637
1989	1,013	325,847	499,795	59	5,561	8,530	17.8	10.2	665
1990	868	373,553	532,157	58	6,467	9,213	21.8	12.5	716
1991	538	362,819	502,820	58	6,283	8,707	21.7	12.5	736
1992	897	446,979	613,619	62	7,183	9,861	23.1	13.3	743
1993	834	543,984	736,871	61	8,903	12,060	31.0	17.8	753
1994	784	704,245	943,929	61	11,640	15,602	37.5	21.6	761
1995	672	775,110	993,231	58	13,400	17,171	41.9	24.1	796
1996	784	785,510	986,724	60	13,187	16,565	41.6	23.9	812
1997	520	674,809	838,374	54	12,388	15,391	38.5	22.1	821
1998	496	704,309	860,354	64	11,076	13,530	32.0	18.4	835
1999	600	769,606	943,507	72	10,759	13,190	33.1	19.0	832
2000	576	856,374	1,028,859	80	10,740	12,903	35.3	20.3	849
2001	941	1,032,618	1,202,363	74	13,959	16,254	41.2	23.7	876
2002	704	1,049,939	1,189,931	72	14,658	16,612	45.6	26.2	900
2003	722	1,347,676	1,505,618	82	16,498	18,432	49.9	28.7	913
2004	800	1,550,792	1,691,773	85	18,287	19,949	50.1	28.8	935
2005	728	1,833,049	1,943,565	87	21,085	22,356	56.2	32.3	962
2006	576	2,208,693	2,252,867	87	25,308	25,814	65.4	37.6	1000
2007	699	2,541,870	2,541,870	91	28,035	28,035	73.6	42.3	1020

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 \$28,035. 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



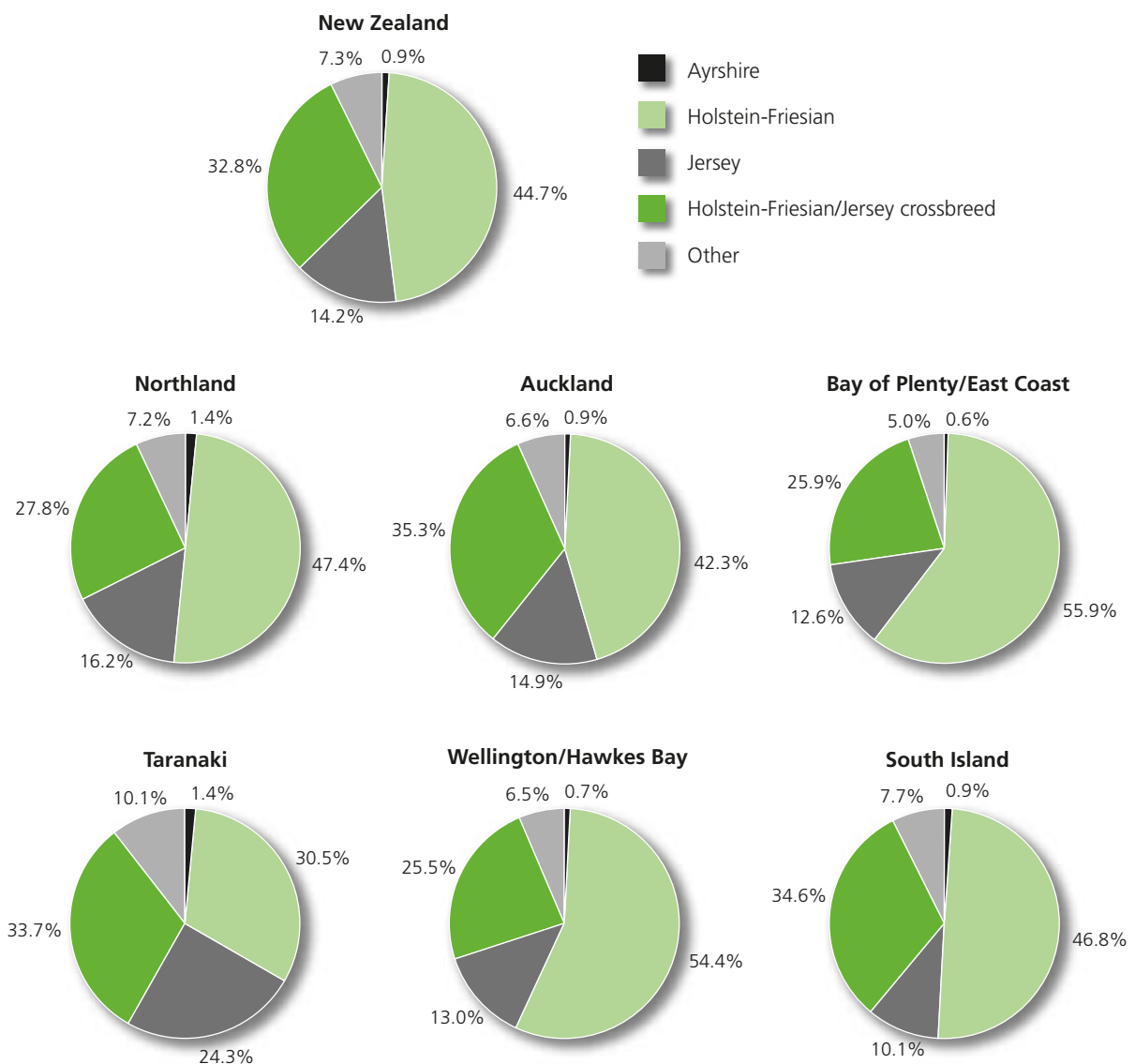
B. Breed breakdown

Three dairy breeds (Holstein-Friesian, Jersey, and Friesian/Jersey crossbreed) dominate the dairy cow inseminations carried out in New Zealand, as recorded on the LIC National 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 and crossbreeds grouped into "Other". Holstein-Friesian is the prevalent breed in every region except Taranaki, where Holstein-Friesian/Jersey crossbreed is prevalent. Bay of Plenty/East Coast region continues to have the highest percentage of Holstein-Friesian cows (55.9%), Taranaki has the highest proportion of Jerseys (24.3%) and Auckland has the highest proportion of Holstein-Friesian/Jersey crossbreeds (35.3%).

Graph 5.3: Breed percentages of cows in each LIC region in 2007/08



C. Calving

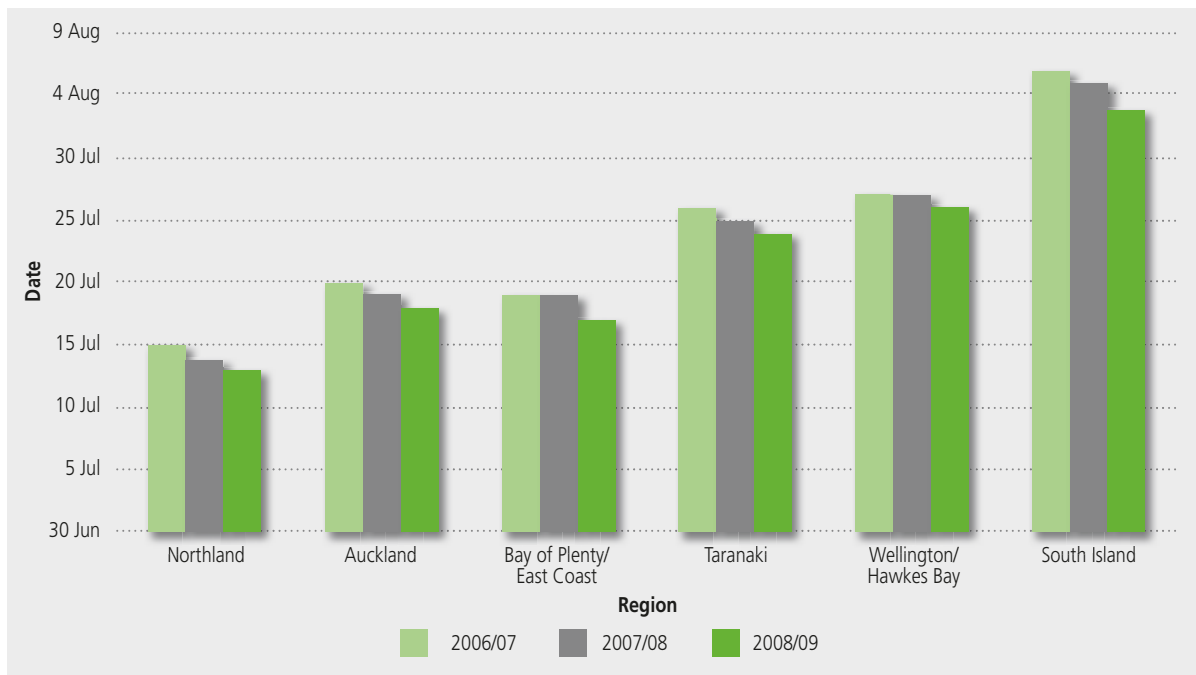
i) Planned start of calving dates

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 2008/09 season compared to the dates previously forecast for 2006/07 and 2007/08 seasons are shown in Graph 5.4.

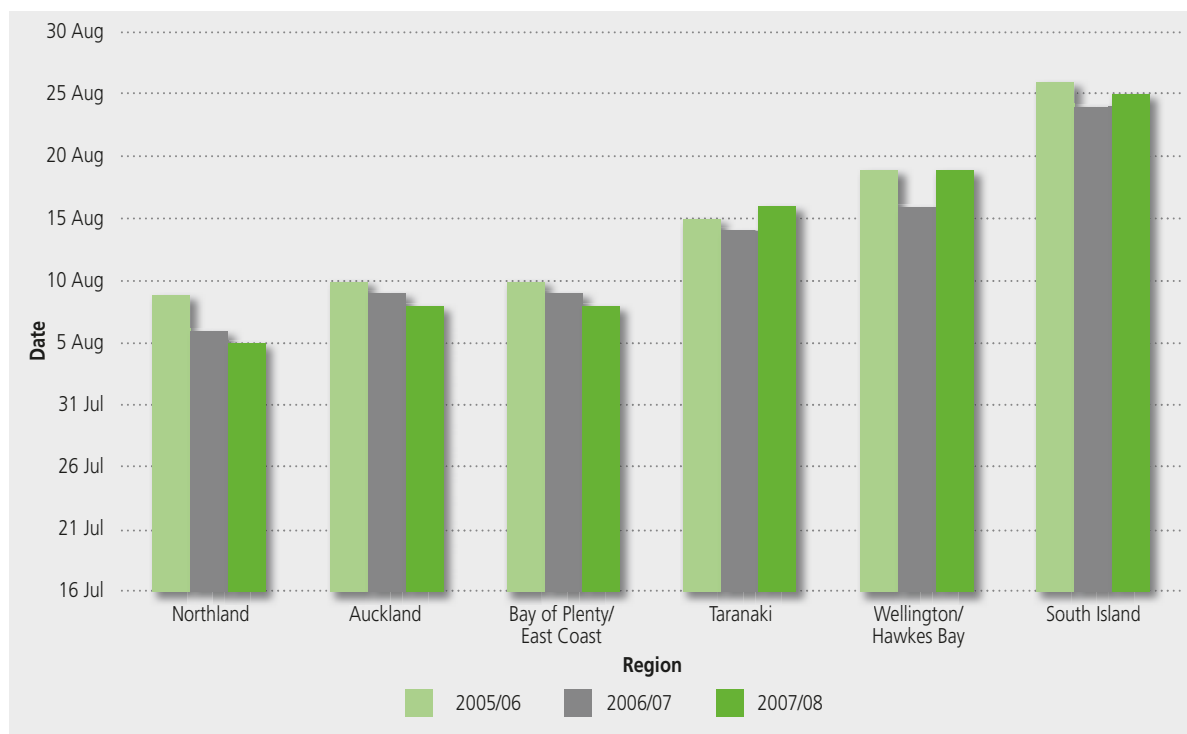
Graph 5.4: Planned start of calving dates for cows (excluding first calvers) by region



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

Season	All breeds		Holstein-Friesian		Jersey		Friesian/Jersey cross		Ayrshire	
	Average number of days	Number of records	Average number of days	Number of records	Average number of days	Number of records	Average number of days	Number of records	Average number of days	Number of records
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
2005/06	367.8	2,241,175	368.2	1,013,546	367.7	390,971	367.4	706,441	368.2	23,129
2006/07	368.9	2,260,512	369.3	1,002,099	369.0	387,357	368.2	739,493	370.4	22,785

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 pay wages. Owner operators comprise the largest group of all operating structures, being 63% of all herds.

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.

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 2007/08, all farms with contract milkers could not be identified, consequently, any farms with contract milkers are included with owner-operators.

- 35% of all milkers are sharemilkers
- 62% 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 2007/08, 4,044 (35%) New Zealand dairy herds operated under a sharemilking agreement. Sixty-two percent (2,515) 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 2007/08

Operating structure	Number of herds	Percentage of herds	Average herd size	Average effective hectares	Average cows per effective hectare
Owner-operators	7,215	63.1	341	124	2.78
Sharemilkers:					
Less than 20%	119	1.0	574	184	3.11
20-29%	1,045	9.1	387	135	2.92
30-39%	148	1.3	302	109	2.77
40-44%	25	0.2	240	96	2.56
50/50 (45-54%)	2,515	22.0	354	123	2.92
over 54%	192	1.7	321	122	2.78
All sharemilkers	4,044	35.4	365	127	2.91
Unknown	177	1.5	424	148	2.99
All farms	11,436		351	126	2.83

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 2007/08

Operating structure	Average litres per herd	Average kg milkfat per herd	Average kg milk solids per herd	Average kg milkfat per effective hectare	Average kg milk solids per effective hectare	Average kg milkfat per cow	Average kg milk solids per cow
Owner-operators	1,260,256	61,533	108,260	490.1	860	175.2	308
Sharemilkers:							
Less than 20%	2,447,721	119,797	212,156	642.9	1,133	204.7	361
20 – 29%	1,417,847	69,745	122,372	520.5	911	178.4	312
30 – 39%	1,031,667	51,015	89,442	456.8	798	163.2	285
40 – 44%	911,628	44,630	78,387	447.8	785	173.4	304
50/50 (45-54%)	1,279,839	63,126	110,779	511.3	895	174.2	305
over 54%	1,144,453	56,671	99,315	471.4	824	170.9	299
All sharemilkers	1,332,081	65,640	115,233	513.2	898	175.6	308
Unknown	1,498,169	72,672	128,131	491.9	864	160.8	283
All farms	1,289,337	63,158	111,033	498.3	873	175.2	307

Note: Contract milkers are included with owner-operators

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	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Owner-operators	62.7	62.7	61.8	62.1	62.5	62.7	63.7	63.9	63.4	63.1
Contract	1.1	0.9	0.8	**	**	**	**	**	**	**
Sharemilkers:										
29%	0.8	0.7	*	*	*	*	*	*	*	*
39%	0.5	0.5	*	*	*	*	*	*	*	*
50%	23.7	23.7	24.3	23.7	23.7	24.1	23.6	23.2	22.6	22.0
Other	11.2	11.5	13.1	14.1	13.2	13.0	12.5	12.6	12.8	13.4
All sharemilkers	36.2	36.4	37.3	37.8	36.9	37.1	36.1	35.8	35.4	35.4
Unknown	0.0	0.0	0.0	0.1	0.5	0.2	0.2	0.2	1.2	1.5

** 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	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Owner-operators	9,005	8,694	8,592	8,476	8,215	8,000	7,820	7,594	7,374	7,215
Contract	154	126	113	**	**	**	**	**	**	**
Sharemilkers:										
29%	114	98	*	*	*	*	*	*	*	*
39%	76	66	*	*	*	*	*	*	*	*
50%	3,403	3,280	3,372	3,240	3,114	3,072	2,897	2,758	2,634	2,515
Other	1,610	1,597	1,815	1,924	1,740	1,658	1,531	1,502	1,488	1,529
All sharemilkers	5,203	5,041	5,187	5,164	4,854	4,730	4,428	4,260	4,122	4,044
Unknown	0	0	0	9	71	21	23	29	134	177
Total	14,362	13,861	13,892	13,649	13,140	12,751	12,271	11,883	11,630	11,436

** 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, West Coast, North Canterbury and Wellington (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 2007/08

<i>Farming region</i>	<i>Owner-operators</i>	<i>Owner-operators %</i>	<i>All sharemilkers</i>	<i>All sharemilkers %</i>	<i>50/50 sharemilkers</i>	<i>50/50 sharemilkers %</i>	<i>Variable order sharemilkers</i>	<i>Variable order sharemilkers %</i>	<i>Total herds (excl. unknown)</i>
Northland	681	9.4	240	5.9	150	6.0	90	5.9	921
Central Auckland	298	4.1	171	4.2	112	4.5	59	3.9	469
South Auckland	2,154	29.9	1,341	33.2	911	36.2	430	28.1	3,495
Bay of Plenty	390	5.4	217	5.4	136	5.4	81	5.3	607
Central Plateau	271	3.8	170	4.2	94	3.7	76	5.0	441
Western Uplands	46	0.6	31	0.8	15	0.6	16	1.0	77
East Coast	10	0.1	2	0.0	1	0.0	1	0.1	12
Hawkes Bay	54	0.7	10	0.2	6	0.2	4	0.3	64
Taranaki	1,063	14.7	729	18.0	416	16.5	313	20.5	1,792
Wellington	380	5.3	172	4.3	97	3.9	75	4.9	552
Wairarapa	323	4.5	152	3.8	91	3.6	61	4.0	475
North Island	5,670	78.6	3,235	80.0	2,029	80.7	1,206	78.9	8,905
Nelson/Marlborough	182	2.5	66	1.6	41	1.6	25	1.6	248
West Coast	282	3.9	85	2.1	45	1.8	40	2.6	367
North Canterbury	378	5.2	159	3.9	98	3.9	61	4.0	537
South Canterbury	108	1.5	59	1.5	28	1.1	31	2.0	167
Otago	158	2.2	167	4.1	108	4.3	59	3.9	325
Southland	437	6.1	273	6.8	166	6.6	107	7.0	710
South Island	1,545	21.4	809	20.0	486	19.3	323	21.1	2,354
New Zealand	7,215	100.0	4,044	100.0	2,515	100.0	1,529	100.0	11,259

Table 5.9 shows that 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). 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 2007/08

<i>Herd size</i>	<i>Owner-operators</i>	<i>Owner-operators %</i>	<i>All sharemilkers</i>	<i>All sharemilkers %</i>	<i>50/50 sharemilkers</i>	<i>50/50 sharemilkers %</i>	<i>Variable order sharemilkers</i>	<i>Variable order sharemilkers %</i>	<i>Total herds (excl. unknown)</i>
10-49	13	0.2	0	0.0	0	0.0	0	0.0	13
50-99	264	3.7	22	0.5	11	0.4	11	0.7	286
100-149	762	10.6	182	4.5	113	4.5	69	4.5	944
150-199	1,051	14.6	513	12.7	365	14.5	148	9.7	1,564
200-249	1,177	16.3	656	16.2	444	17.7	212	13.9	1,833
250-299	776	10.8	540	13.4	357	14.2	183	12.0	1,316
300-349	741	10.3	491	12.1	263	10.5	228	14.9	1,232
350-399	429	5.9	313	7.7	173	6.9	140	9.2	742
400-449	395	5.5	320	7.9	189	7.5	131	8.6	715
450-499	291	4.0	214	5.3	125	5.0	89	5.8	505
500-549	279	3.9	173	4.3	104	4.1	69	4.5	452
550-599	158	2.2	130	3.2	77	3.1	53	3.5	288
600-649	172	2.4	123	3.0	75	3.0	48	3.1	295
650-699	122	1.7	69	1.7	46	1.8	23	1.5	191
700-749	77	1.1	65	1.6	37	1.5	28	1.8	142
750-799	83	1.2	45	1.1	26	1.0	19	1.2	128
800-849	66	0.9	29	0.7	19	0.8	10	0.7	95
850-899	50	0.7	25	0.6	17	0.7	8	0.5	75
900-949	62	0.9	22	0.5	14	0.6	8	0.5	84
950-999	39	0.5	20	0.5	12	0.5	8	0.5	59
1000+	208	2.9	92	2.3	48	1.9	44	2.9	300
Total/Avg	7,215	100.0	4,044	100.0	2,515	100.0	1,529	100.0	11,259