5. General statistics

A. Prices received by dairy farmers

i) Milksolids

The New Zealand Dairy Board pays dairy companies based on international commodity prices, and provides for a commodity margin after deductions have been made for milk and manufacturing costs. Extra payments (above base commodity prices) are made to dairy companies for products commanding a market premium, derived as a result of the manufacturing processes (i.e. certain value added products). The change in payment system came about in June 1998 as a result of the implementation of the Commercial Pricing Model payment system. Prior to this the New Zealand Dairy Board paid dairy companies for the export products they produced according to the market returns obtained for the various products, the cost of manufacture and the composition of each product (in terms of the amount of milksolids).

Each seasonal supply dairy company passes on the Dairy Board advance payout to its suppliers in addition to its own payout which is determined by dairy company efficiency, product mix and reinvestment policies; together this is known as the total payout.

Payments to seasonal supply farmers are based upon 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 total payout increases***

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 based to June 1999.

Table 5.1: Trend in prices received for milksolids since 1973/74

Season	*NZDB advance payout ($/kg milksolids)*	*Average Dairy Company total payout ($/kg milksolids)*	*Company payout (inflation adjusted)**
1973/74	–	0.76	6.22
1974/75	0.78	0.75	5.58
1975/76	0.81	0.83	5.37
1976/77	0.88	0.87	4.83
1977/78	0.96	0.98	4.75
1978/79	0.99	1.03	4.43
1979/80	1.20	1.22	4.69
1980/81	1.52	1.52	4.93
1981/82	1.91	1.95	5.50
1982/83	2.07	2.11	5.08
1983/84	2.01	2.09	4.66
1984/85	2.28	2.33	4.96
1985/86	2.30	2.29	4.17
1986/87	1.90	2.03	3.36
1987/88	2.07	2.34	3.25
1988/89	3.05	3.28	4.28
1989/90	3.33	3.59	4.49
1990/91	2.12	2.42	2.81
1991/92	2.98	3.34	3.78
1992/93	3.25	3.66	4.09
1993/94	2.90	3.32	3.67
1994/95	3.00	3.40	3.72
1995/96	3.60	3.99	4.17
1996/97	3.18	3.63	3.72
1997/98	3.00	3.42	3.46
1998/99	3.25	3.58	3.57
1999/00	3.35	3.78	3.78

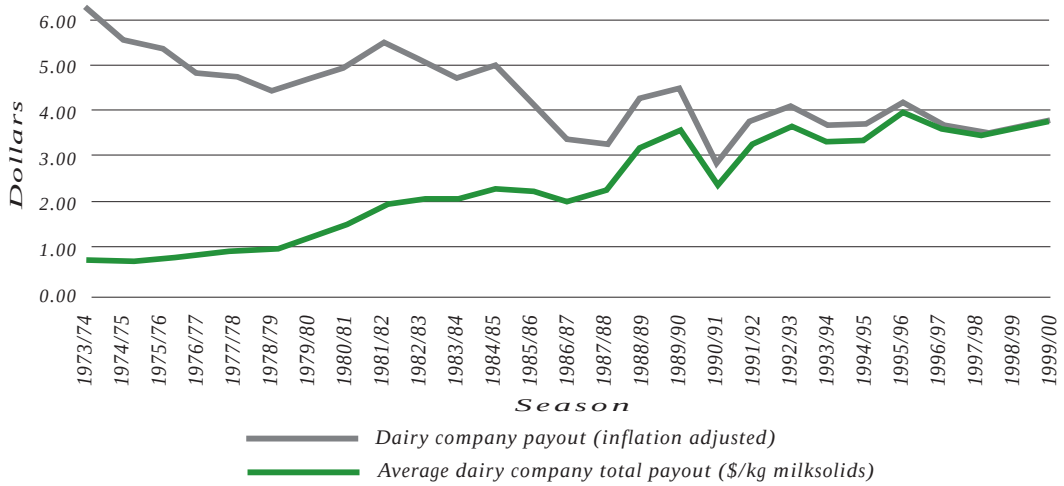
- Not available

** Weighted to give real dollar values using the Consumers Price Index (based to June 1999) for the end of the June quarter. Sourced from Statistics New Zealand*

NOTE: Average Dairy Company total actual payout for 1974/75 to 1988/89 has been derived from $/kg milkfat

- **6% increase for inflation adjusted dairy company payout**

Graph 5.1: Trend in milksolids payout to dairy farmers since 1973/74



ii) Dairy farm land sale values

- **21% increase in farms sold compared with 1998**
- **600 farms sold in 1999**

From 1992 there has generally been a decrease in the numbers of dairy farms sold in the year, although in 1999 the number of farms sold increased 21% to 600 compared with 1998. Prior to 1992 the number of dairy farms sold annually fluctuated considerably. The average dairy farm price per kilogram of milksolids was $19.00 in 1999 (Table 5.2).

Table 5.2: Trend in dairy land sale values since 1978

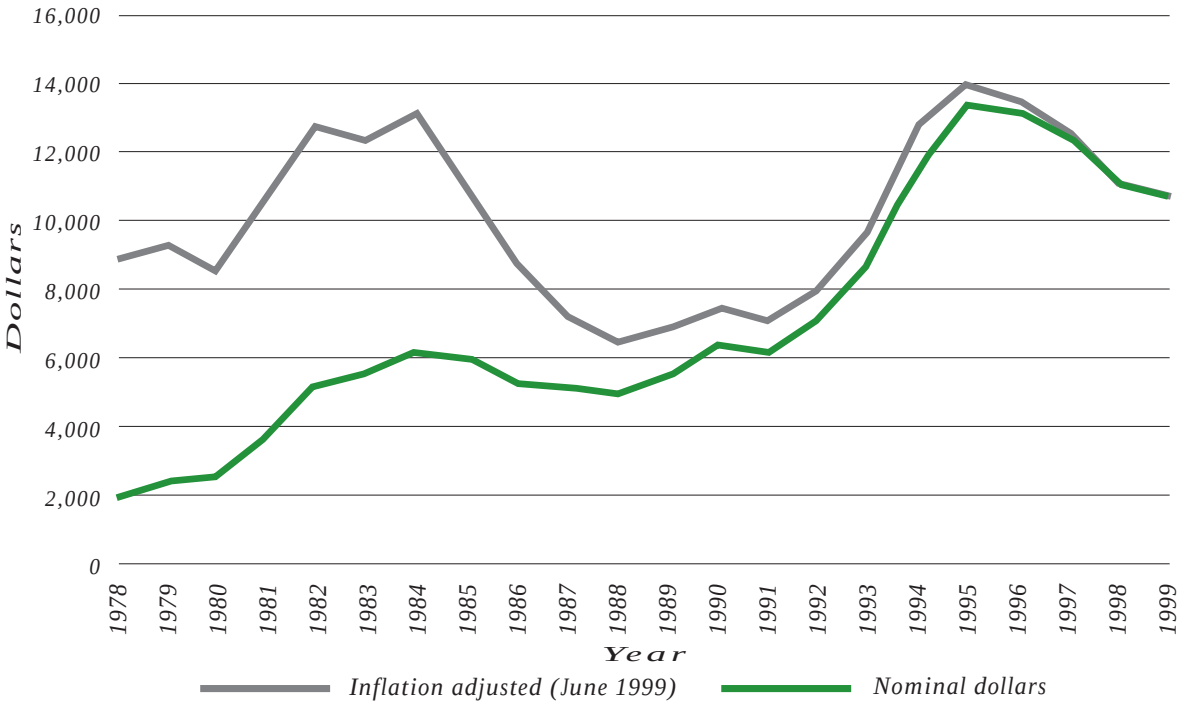
Year	Number of farms	Average sale price	Inflation adjusted average sale price **	Average hectares	Price per hectare	Inflation adjusted average price per hectare**	Price per kg milkfat	Price per kg milksolids*
1978	983	95,743	412,685	46	2,070	8,922	8.6	4.9
1979	1,245	122,661	469,966	50	2,436	9,333	9.7	5.6
1980	1,256	146,065	474,237	55	2,650	8,604	11.2	6.4
1981	1,327	208,246	588,266	55	3,783	10,686	14.8	8.5
1982	813	276,042	665,161	52	5,309	12,793	21.3	12.2
1983	527	257,373	573,214	46	5,587	12,443	20.4	11.7
1984	618	301,076	640,587	49	6,189	13,168	21.9	12.6
1985	505	298,746	545,157	49	6,044	11,029	21.0	12.1
1986	274	251,165	415,149	47	5,298	8,757	18.4	10.6
1987	504	270,180	375,250	52	5,212	7,239	16.8	9.7
1988	576	278,650	363,773	56	5,013	6,544	16.0	9.2
1989	1,013	325,847	407,309	59	5,561	6,951	17.8	10.2
1990	868	373,553	433,859	58	6,467	7,511	21.8	12.5
1991	538	362,819	409,965	58	6,283	7,099	21.7	12.5
1992	897	446,979	499,977	62	7,183	8,035	23.1	13.3
1993	834	543,984	601,087	61	8,903	9,838	31.0	17.8
1994	784	704,245	769,667	61	11,640	12,721	37.5	21.6
1995	672	775,110	809,937	58	13,400	14,002	41.9	24.1
1996	784	785,510	804,826	60	13,187	13,511	41.6#	23.9
1997	520	674,809	683,697	54	12,388	12,551	38.5#	22.1
1998	496	704,309	701,503	64	11,076	11,032	32.0#	18.4
1999	600	769,606	769,606	72	10,759	10,759	33.1#	19.0

*Source: Valuation New Zealand Rural Property Sales Statistics (Table D3). * Price per kg milksolids has been derived from price per kg milkfat. ** Adjusted using the Consumers Price Index (based to June 1999) for the end of the June quarter. # Price per kg milkfat has been derived from price per kg milksolids. NOTE: Price per milksolids for 1978 to 1995 has been derived from price per kg milkfat*

- ***Continued decrease in nominal price per hectare***

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. Since 1995 there has been a decrease in average price per hectare. These figures are based on the calendar year, not the dairy industry season.

Graph 5.2: Trend in dairy land values (price per hectare) since 1978



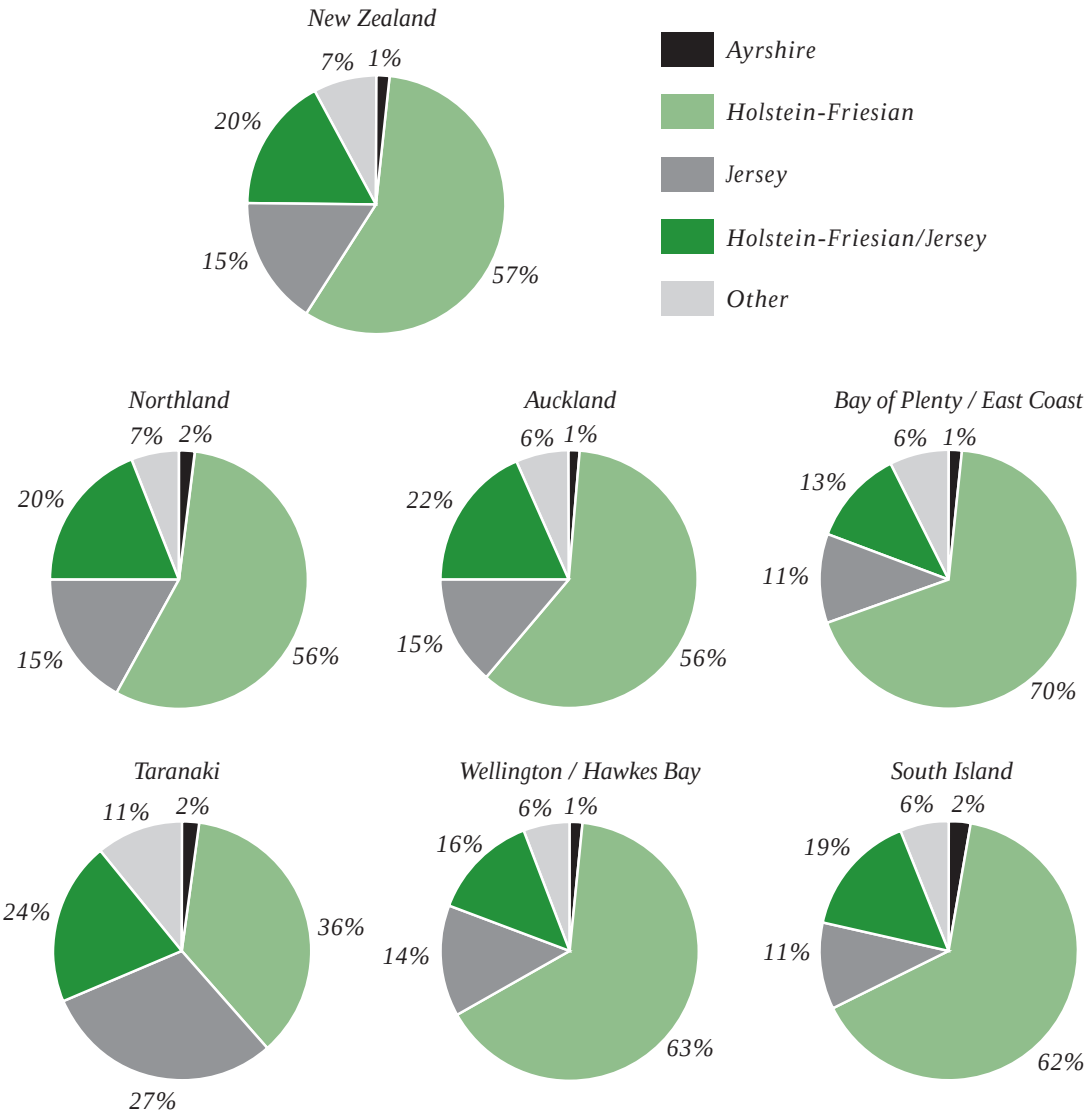
B. Breed breakdown

Three dairy breeds (Holstein-Friesian, Jersey and Ayrshire) dominate the dairy cow inseminations carried out in New Zealand, as recorded on the Livestock Improvement 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.

The percentages of the major dairy breeds in each region are shown in Graph 5.3. Percentages are given for Holstein-Friesian, Jersey, Holstein-Friesian/Jersey cross-bred and Ayrshire cows with the remaining breeds grouped into Other. Bay of Plenty/East Coast region has the highest percentage of Holstein-Friesian cows (70%), whereas Taranaki has the highest proportion of Jersey cows (27%) and Holstein-Friesian/Jersey cross-breds (24%).

Graph 5.3: **Breed percentages of cows in each region in 1999/00**



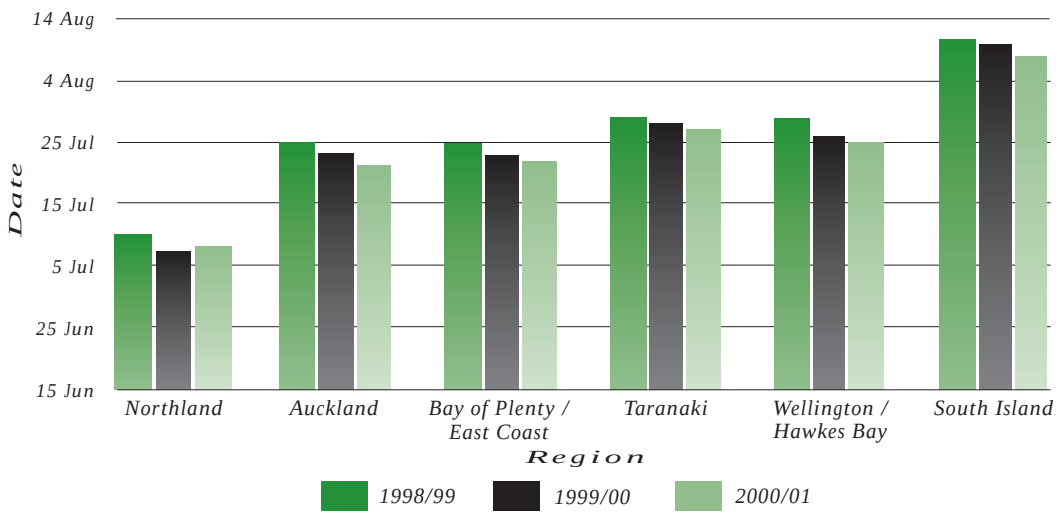
C. Planned start of calving and median calving dates

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 database for approximately 85% of all herds. Only herds that have matings or calvings recorded for at least 50% of their recorded animals are included in this analysis.

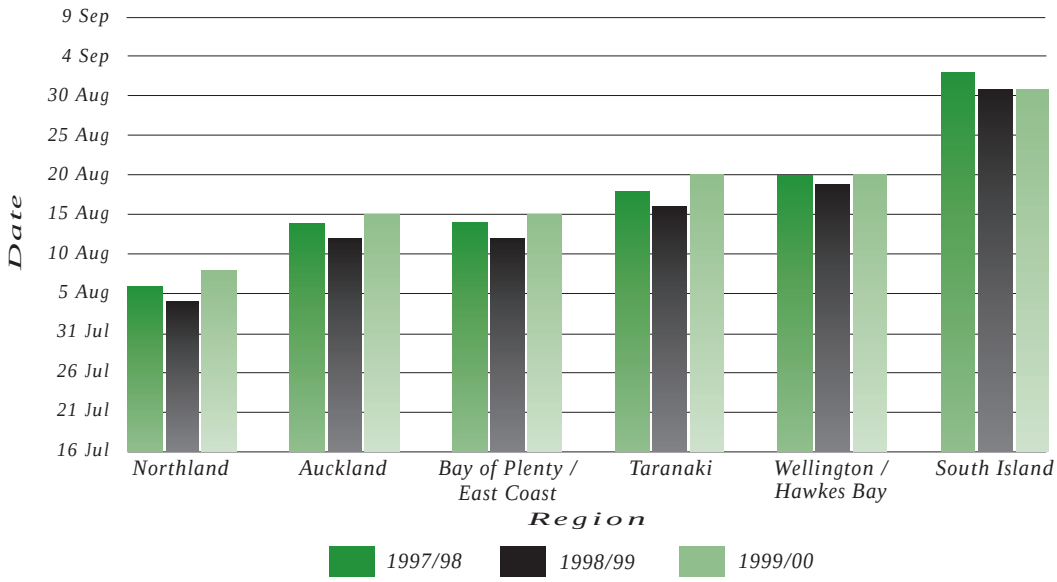
The forecast planned start of calving dates for mature cows for the 2000/01 season compared to the dates previously forecast for 1998/99 and 1999/00 seasons are shown in Graph 5.4.

Graph 5.4: Planned start of calving dates for mixed age cows by region



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 is used as an indicator of calving spread. Graph 5.5 compares median calving dates for mature cows for the 1997/98, 1998/99 and 1999/00 seasons.

Graph 5.5: Median calving dates for mixed age cows by region



D. Operating structures

The main operating structures found on New Zealand dairy farms are owner-operator, sharemilker and 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. They 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.

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 the 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 1999/00, 126 (0.9%) of New Zealand dairy farms operated under a contract milking agreement.

- **62.7% of all farm operating structures are owner operators**
- **Variable order sharemilkers show the highest per cow production level**
- **Relative percentage of farms in each operating structure has remained constant**

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 5.3. The table shows that owner-operators tend to farm smaller herds on smaller properties, while lower order sharemilkers and contract milkers tend to farm larger herds on larger properties. The table also shows that all farm operating structures have, on average, the same stocking rates.

Agreements other than the common 29%, 39% and 50% agreements are shown as combined groups in Table 5.3. In 1999/00, 36.4% of New Zealand dairy farms operated under a sharemilking agreement.

Table 5.3: 1999/00 Herd analysis by operating structure

Operating structure	Number of herds	Average herd size	Average effective hectares	Average cows per effective hectare
Owner-operators	8,694	219	87	2.7
Contract milkers	126	288	112	2.7
Sharemilkers:				
Less than 20%	162	307	121	2.7
20-28%	1,093	265	103	2.7
29%	98	219	91	2.5
30-38%	264	248	101	2.7
39%	66	181	76	2.5
40-44%	78	218	90	2.6
50/50 (45-55%)	3,280	267	105	2.7
All sharemilkers	5,041	264	104	2.7
All farms	13,861	236	93	2.7

Farm production in each of the main operating structure groups is shown in Table 5.4. The table shows that on average, contract milkers and lower order sharemilkers have higher production per farm than higher order sharemilkers, who have higher production per farm than owner operators. Lower order sharemilkers show the highest per cow production level.

Table 5.4: 1999/00 Farm production analysis by operating structure

Operating structure	Average litres per farm	Average kg milkfat per farm	Average kg protein per farm	Average kg milkfat per effective hectare	Average kg protein per effective hectare	Average kg milkfat per cow	Average kg protein per cow
Owner-operators	763,952	36,623	27,599	426	320	160	120
Contract milkers	1,060,680	50,764	38,094	464	347	173	129
Sharemilkers:							
Less than 20%	1,154,461	56,011	42,096	473	354	176	131
20 – 28%	967,293	47,051	35,217	474	354	175	130
29%	773,175	37,698	28,220	433	323	170	127
30 – 38%	883,661	42,726	32,154	452	339	168	126
39%	599,176	30,089	22,133	415	306	163	120
40 – 44%	754,551	37,167	27,798	417	312	164	122
50/50 (45-55%)	976,560	47,055	35,480	457	343	172	128
All Sharemilkers	963,073	46,558	35,027	460	344	172	129
All farms	839,066	40,365	30,396	439	329	165	123

Changes to the operating structure in the last eleven years are minimal. Table 5.5 shows the percentage of herds in each operating structure type from 1989/90 to 1999/00, whereas, Table 5.6 gives the actual number of farms.

Table 5.5: Trend in the percentage of farms in each operating structure since 1989/90

Operating structure	*1989/90*	*1990/91*	*1991/92*	*1992/93*	*1993/94*	*1994/95*	*1995/96*	*1996/97*	*1997/98*	*1998/99*	*1999/00*
Owner-operators	64.1	62.8	–	56.7	57.2	65.7	65.0	63.6	63.1	62.7	62.7
Contract milkers	3.0	0.9	–	–	0.7	0.6	0.8	1.3	1.2	1.1	0.9
Sharemilkers:											
29%	2.2	2.2	–	0.9	0.8	1.1	0.9	0.8	0.8	0.8	0.7
39%	2.5	1.0	–	0.9	0.7	0.9	0.9	0.7	0.6	0.5	0.5
50%	18.3	21.4	–	19.4	18.6	24.9	24.5	23.4	24.0	23.7	23.7
Other	1.5	3.2	–	4.0	4.0	6.8	7.8	9.3	10.2	11.2	11.5
All Sharemilkers	24.4	27.7	–	25.1	24.1	33.7	34.2	34.3	35.7	36.2	36.4
Unknown	8.5	8.6	100.0	18.2	18.0	0.0	0.0	0.9	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

– Not available

From 1989/90 owner-operators includes leased farms

Table 5.6: Trend in the number of farms in each operating structure since 1989/90

Operating Structure	*1989/90*	*1990/91*	*1991/92*	*1992/93*	*1993/94*	*1994/95*	*1995/96*	*1996/97*	*1997/98*	*1998/99*	*1999/00*
Sharemilkers											
Owner-operators	9,349	9,220	–	8,201	8,344	9,627	9,581	9,368	9,263	9,005	8,694
Contract milkers	444	130	–	–	97	84	121	195	172	154	126
Sharemilkers:											
29%	314	322	–	130	118	158	133	120	124	114	98
39%	363	146	–	126	108	138	138	108	95	76	66
50%	2,667	3,140	–	2,803	2,714	3,642	3,614	3,455	3,522	3,403	3,280
Other	220	467	–	572	583	994	1,149	1,367	1,497	1,610	1,597
All Sharemilkers	3,564	4,075	–	3,631	3,523	4,932	5,034	5,050	5,238	5,203	5,041
Unknown	1,238	1,260	14,452	2,626	2,633	6	0	128	0	0	0
Total	14,595	14,685	14,452	14,458	14,597	14,649	14,736	14,741	14,673	14,362	13,861

– Not available

From 1989/90 owner-operators includes leased farms

For the years 1984/85 to 1987/88 farm numbers in each operating type were estimated from the total number of factory supply herds and published percentages