

## 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 on the 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.



## General statistics – Prices received by dairy farmers – Milksolids

### • 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 December 1993.

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

| Season  | NZDB advance payout<br>(\$/kg milksolids) | Average Dairy Company total<br>payout (\$/kg milksolids) | Company payout<br>(inflation adjusted)* |
|---------|---|--|---|
| 1973/74 | –   | 0.76   | 5.69                                    |
| 1974/75 | 0.78                                      | 0.75   | 5.60                                    |
| 1975/76 | 0.81                                      | 0.83   | 5.40                                    |
| 1976/77 | 0.88                                      | 0.87   | 4.85                                    |
| 1977/78 | 0.96                                      | 0.98   | 4.77                                    |
| 1978/79 | 0.99                                      | 1.03   | 4.45                                    |
| 1979/80 | 1.20                                      | 1.22   | 4.71                                    |
| 1980/81 | 1.52                                      | 1.52   | 4.95                                    |
| 1981/82 | 1.91                                      | 1.95   | 5.53                                    |
| 1982/83 | 2.07                                      | 2.11   | 5.10                                    |
| 1983/84 | 2.01                                      | 2.09   | 4.68                                    |
| 1984/85 | 2.28                                      | 2.33   | 4.98                                    |
| 1985/86 | 2.30                                      | 2.29   | 4.19                                    |
| 1986/87 | 1.90                                      | 2.03   | 3.38                                    |
| 1987/88 | 2.07                                      | 2.34   | 3.26                                    |
| 1988/89 | 3.05                                      | 3.28   | 4.29                                    |
| 1989/90 | 3.33                                      | 3.59   | 4.51                                    |
| 1990/91 | 2.12                                      | 2.42   | 2.82                                    |
| 1991/92 | 2.98                                      | 3.34   | 3.79                                    |
| 1992/93 | 3.25                                      | 3.66   | 4.11                                    |
| 1993/94 | 2.90                                      | 3.32   | 3.68                                    |
| 1994/95 | 3.00                                      | 3.40   | 3.73                                    |
| 1995/96 | 3.60                                      | 3.99   | 4.19                                    |
| 1996/97 | 3.18                                      | 3.63   | 3.73                                    |
| 1997/98 | 3.00                                      | 3.42   | 3.48                                    |
| 1998/99 | 3.25                                      | 3.58   | 3.58                                    |

– 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

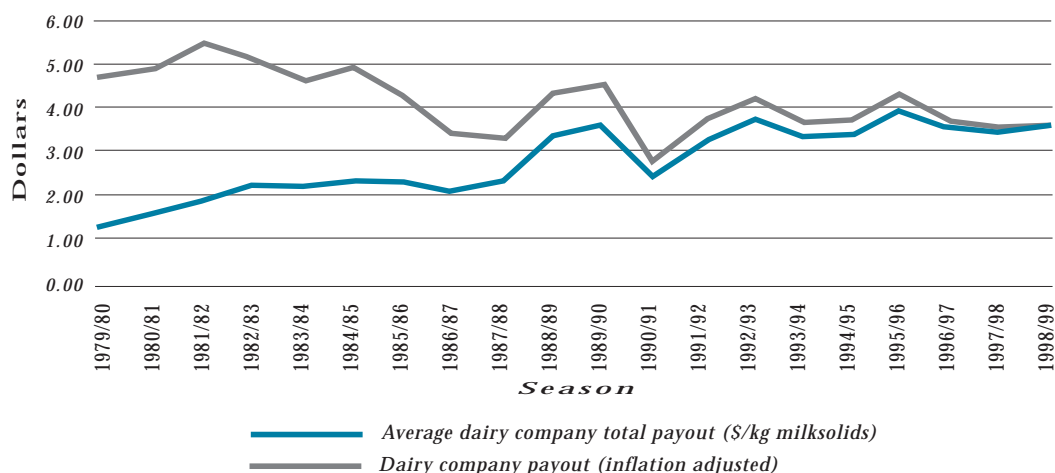
NOTE: Average Dairy Company total actual payout for 1974/75 to 1988/89 has been derived from \$/kg milkfat



## General statistics – Prices received by dairy farmers – Dairy farm land sale values

- 2.9% increase for inflation adjusted dairy company payout

**Graph 5.1: Trend in milksolids payout to dairy farmers since 1979/80**



### ii) Dairy farm land sale values

- Less farms sold annually since 1992

From 1992 there has been a decrease in the numbers of dairy farms sold in the year. 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             | 414,336                                  | 46               | 2,070             | 8,958  | 8.6                  | 4.9                      |
| 1979 | 1,245           | 122,661            | 471,845                                  | 50               | 2,436             | 9,371  | 9.7                  | 5.6                      |
| 1980 | 1,256           | 146,065            | 476,134                                  | 55               | 2,650             | 8,638  | 11.2                 | 6.4                      |
| 1981 | 1,327           | 208,246            | 590,619                                  | 55               | 3,783             | 10,729   | 14.8                 | 8.5                      |
| 1982 | 813             | 276,042            | 667,822                                  | 52               | 5,309             | 12,844   | 21.3                 | 12.2                     |
| 1983 | 527             | 257,373            | 575,507                                  | 46               | 5,587             | 12,493   | 20.4                 | 11.7                     |
| 1984 | 618             | 301,076            | 643,150                                  | 49               | 6,189             | 13,221   | 21.9                 | 12.6                     |
| 1985 | 505             | 298,746            | 547,338                                  | 49               | 6,044             | 11,073   | 21.0                 | 12.1                     |
| 1986 | 274             | 251,165            | 416,809                                  | 47               | 5,298             | 8,792  | 18.4                 | 10.6                     |
| 1987 | 504             | 270,180            | 376,751                                  | 52               | 5,212             | 7,268  | 16.8                 | 9.7                      |
| 1988 | 576             | 278,650            | 365,228                                  | 56               | 5,013             | 6,571  | 16.0                 | 9.2                      |
| 1989 | 1,013           | 325,847            | 408,938                                  | 59               | 5,561             | 6,979  | 17.8                 | 10.2                     |
| 1990 | 868             | 373,553            | 435,595                                  | 58               | 6,467             | 7,541  | 21.8                 | 12.5                     |
| 1991 | 538             | 362,819            | 411,605                                  | 58               | 6,283             | 7,128  | 21.7                 | 12.5                     |
| 1992 | 897             | 446,979            | 501,976                                  | 62               | 7,183             | 8,067  | 23.1                 | 13.3                     |
| 1993 | 834             | 543,984            | 603,492                                  | 61               | 8,903             | 9,877  | 31.0                 | 17.8                     |
| 1994 | 784             | 704,245            | 772,745                                  | 61               | 11,640            | 12,772   | 37.5                 | 21.6                     |
| 1995 | 672             | 775,110            | 813,177                                  | 58               | 13,400            | 14,058   | 41.9                 | 24.1                     |
| 1996 | 784             | 785,510            | 808,045                                  | 60               | 13,187            | 13,565   | 41.6#                | 23.9                     |
| 1997 | 520             | 674,809            | 686,432                                  | 54               | 12,388            | 12,601   | 38.5#                | 22.1                     |
| 1998 | 496             | 704,309            | 704,309                                  | 64               | 11,076            | 11,076   | 32.0#                | 18.4                     |

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

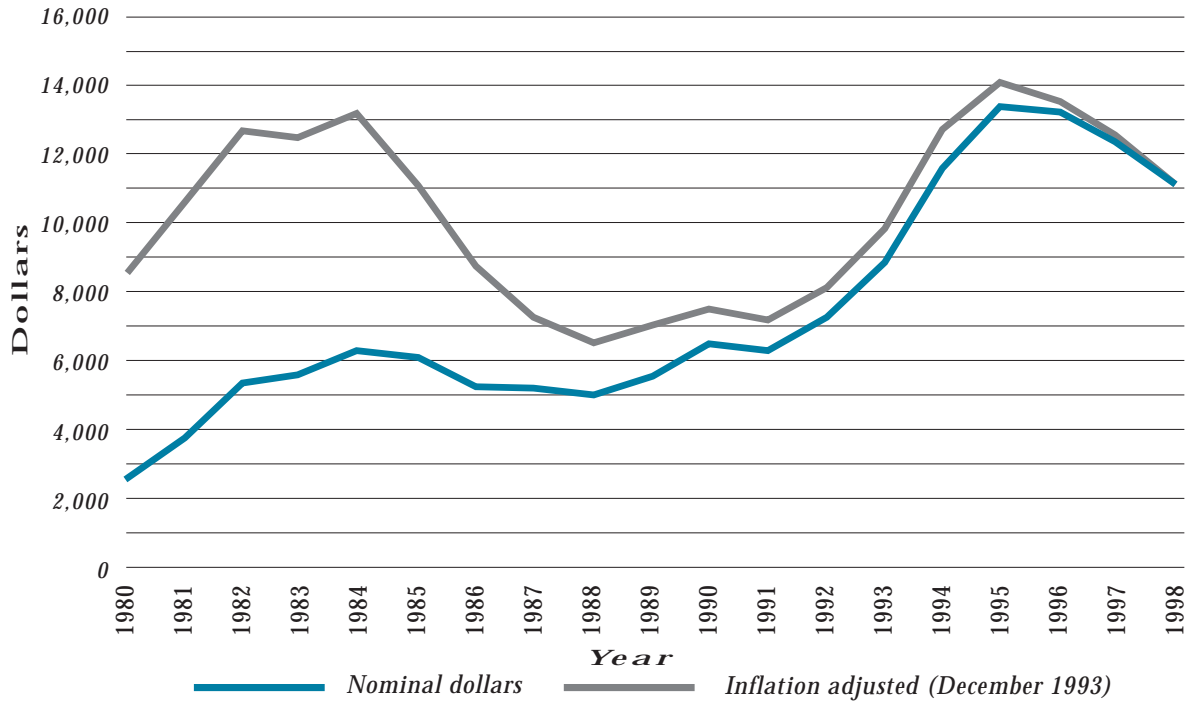
NOTE: Price per kg milksolids for 1978 to 1995 has been derived from price per kg milkfat.



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

Prior to 1992 the average price per hectare fluctuated considerably, both in 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, except for 1999 (half year to June).

**Graph 5.2: Trend in dairy land values (price per hectare) since 1980**



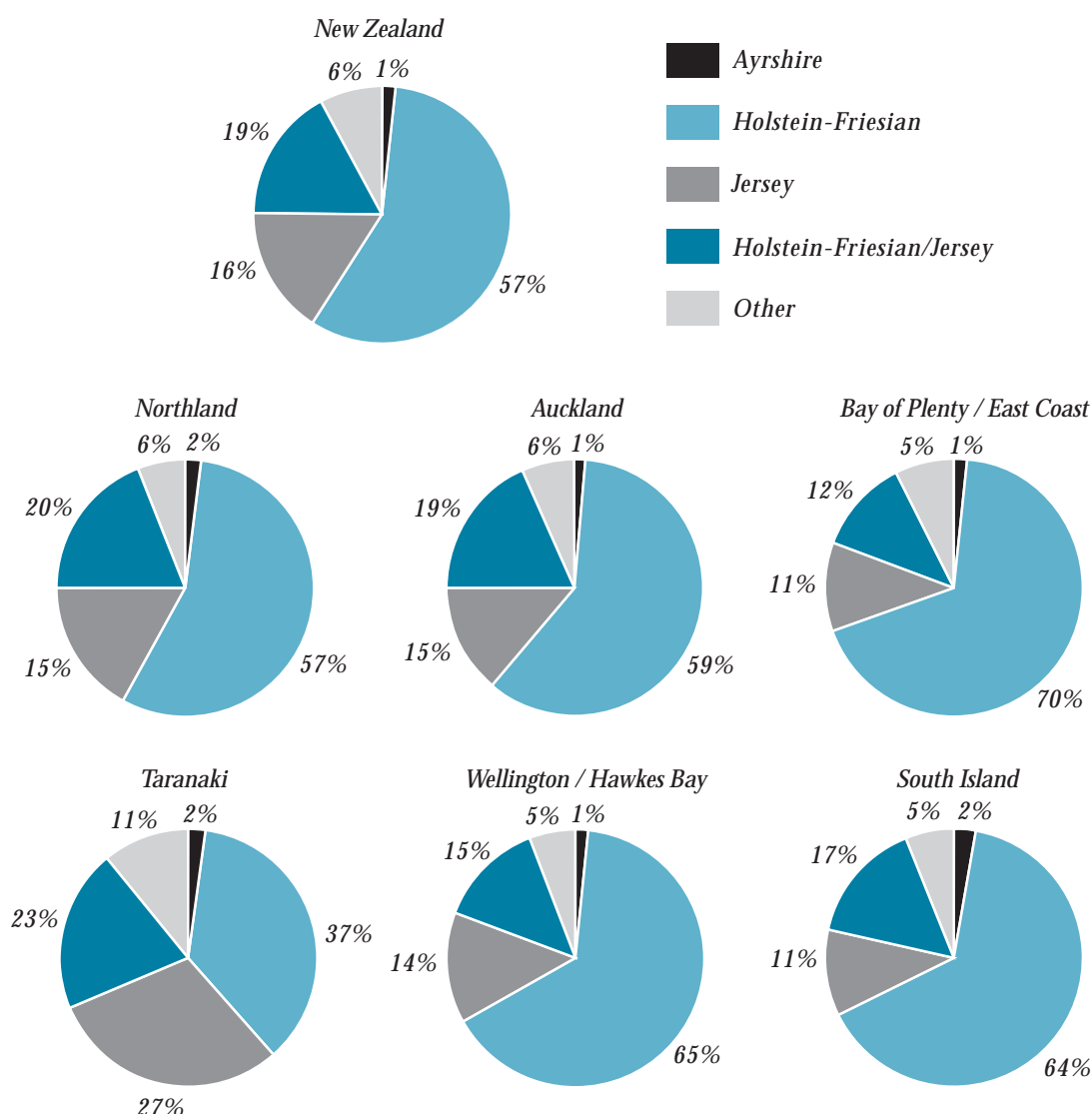
## B. Breed breakdown

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 crossbred and Ayrshire cows with the remaining breeds grouped into Other. Bay of Plenty/East Coast region has the highest percentage of Holstein-Friesian cows, whereas Taranaki has the highest proportion of Jersey cows.

**Graph 5.3: Breed percentages of cows in each region in 1998/99**

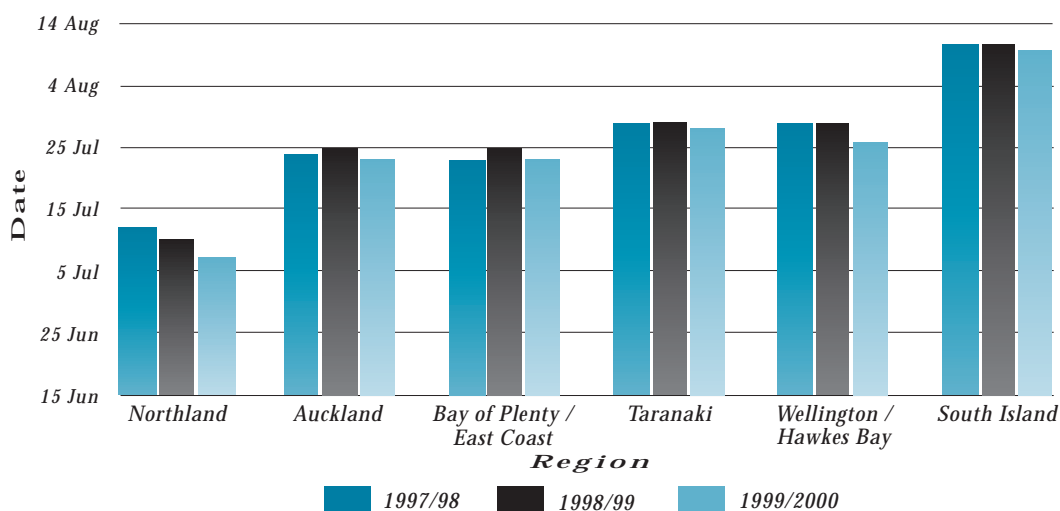


## C. Median calving and planned start of calving dates

The trend in calving dates within and between regions is best shown by the “planned start of calving”. This is the date 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 National Database for approximately 85% of all herds. Only herds which have matings or calvings recorded for at least 50% of their recorded animals are included in this analysis.

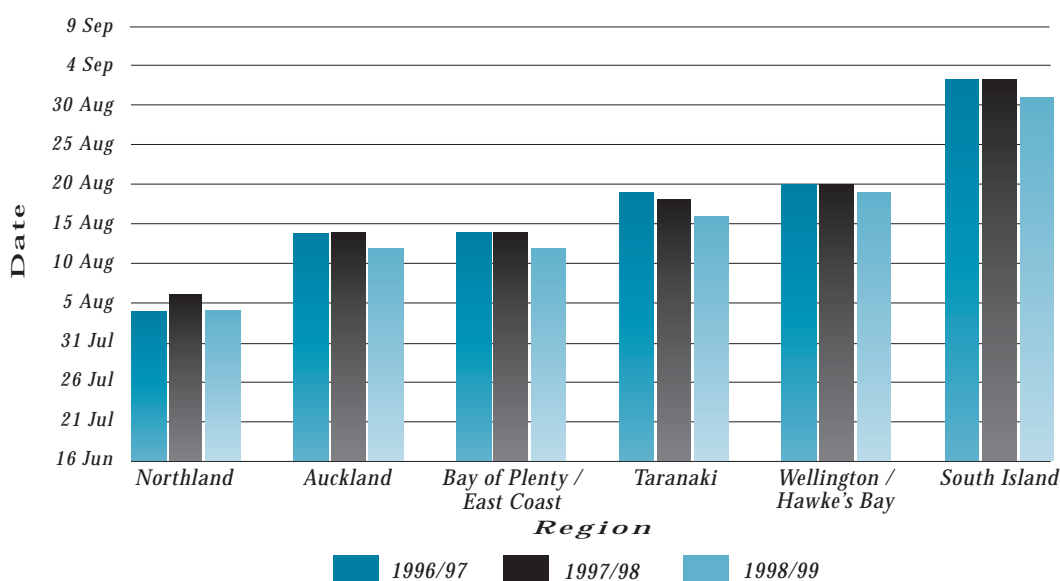
The forecast planned start of calving dates for mature cows for the 1999/2000 season compared to the dates previously forecast for 1997/98 and 1998/99 seasons are shown in Graph 5.4.

**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 1996/97, 1997/98 and 1998/99 seasons.

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



## D. Operating structures

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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. Common levels of variable order sharemilking agreements are 29% and 39%.

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 1998/99, 1.1% of New Zealand dairy farms operated under a contract milking agreement.



## General statistics – Operating structures

- **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, equal stocking rates.

Agreements other than the common 29%, 39% and 50% agreements are shown as combined groups in Table 5.3. In 1998/99, 36.2% of New Zealand dairy farms were being operated under a sharemilking agreement.

**Table 5.3: 1998/99 Herd analysis by operating structure**

| Operating structure  | Number of herds | Average herd size | Average effective hectares | Average cows per effective hectare |
|----------------------|-----------------|-------------------|----------------------------|------------------------------------|
| Owner-operators      | 9,005           | 213               | 85                         | 2.7                                |
| Contract milkers     | 154             | 273               | 109                        | 2.7                                |
| <b>Sharemilkers:</b> |                 |                   |                            |                                    |
| Less than 20%        | 158             | 299               | 115                        | 2.7                                |
| 20-28%               | 1,086           | 257               | 101                        | 2.7                                |
| 29%                  | 114             | 211               | 88                         | 2.5                                |
| 30-38%               | 286             | 244               | 99                         | 2.6                                |
| 39%                  | 76              | 189               | 80                         | 2.5                                |
| 40-44%               | 80              | 219               | 93                         | 2.6                                |
| 50/50 (45-55%)       | 3,403           | 257               | 101                        | 2.7                                |
| All sharemilkers     | 5,203           | 255               | 100                        | 2.7                                |
| <b>All farms</b>     | <b>14,362</b>   | <b>229</b>        | <b>91</b>                  | <b>2.7</b>                         |

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 have higher order sharemilkers, who have higher production per farm than have owner operators. Variable order sharemilkers show the highest per cow production level.

**Table 5.4: 1998/99 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     | 672,289                 | 31,923                      | 23,929                      | 381                                      | 284                                      | 143                        | 106                        |
| Contract milkers    | 905,862                 | 43,115                      | 32,291                      | 413                                      | 308                                      | 154                        | 115                        |
| <b>Sharemilkers</b> |                         |                             |                             |  |  |                            |                            |
| Less than 20%       | 1,024,717               | 49,388                      | 36,953                      | 435                                      | 325                                      | 160                        | 120                        |
| 20 - 28%            | 846,499                 | 40,761                      | 30,362                      | 420                                      | 312                                      | 156                        | 115                        |
| 29%                 | 662,394                 | 31,907                      | 23,727                      | 377                                      | 279                                      | 148                        | 110                        |
| 30 - 38%            | 798,073                 | 38,292                      | 28,651                      | 399                                      | 297                                      | 153                        | 114                        |
| 39%                 | 570,717                 | 28,344                      | 20,791                      | 372                                      | 272                                      | 147                        | 108                        |
| 40 - 44%            | 697,324                 | 33,721                      | 25,184                      | 378                                      | 281                                      | 149                        | 111                        |
| 50/50 (45-55%)      | 848,162                 | 40,474                      | 30,355                      | 409                                      | 305                                      | 153                        | 114                        |
| All Sharemilkers    | 839,981                 | 40,216                      | 30,099                      | 410                                      | 305                                      | 153                        | 114                        |
| <b>All farms</b>    | <b>735,544</b>          | <b>35,047</b>               | <b>26,254</b>               | <b>392</b>                               | <b>292</b>                               | <b>147</b>                 | <b>109</b>                 |



## General statistics – Operating structures

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 1988/89 to 1998/99, whereas, Table 5.6 gives the actual number of farms. The seasons 1991/92 to 1993/94 have a large proportion of farms where the operating structure is unknown, which makes comparisons difficult.

**Table 5.5: Trend in the percentage of farms in each operating structure since 1988/89**

| Operating Structure | 1988/89      | 1989/90      | 1990/91      | 1991/92      | 1992/93      | 1993/94      | 1994/95      | 1995/96      | 1996/97      | 1997/98      | 1998/99      |
|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Sharemilkers</b> |              |              |              |              |              |              |              |              |              |              |              |
| 29%                 | 2.6          | 2.4          | 2.4          | –            | 0.9          | 0.8          | 1.1          | 0.9          | 0.8          | 0.8          | 0.8          |
| 39%                 | 2.9          | 2.7          | 1.1          | –            | 0.9          | 0.7          | 0.9          | 0.9          | 0.7          | 0.6          | 0.5          |
| 50%                 | 22.4         | 20.0         | 23.4         | –            | 19.4         | 18.6         | 24.9         | 24.5         | 23.4         | 23.9         | 23.7         |
| Contract            | 2.1          | 3.3          | 1.0          | –            | 0.0          | 0.7          | 0.6          | 0.8          | 1.3          | 1.2          | 1.1          |
| Other               | 2.3          | 1.6          | 3.5          | –            | 4.0          | 4.0          | 6.8          | 7.8          | 9.3          | 10.2         | 11.2         |
| All Sharemilkers    | 32.3         | 30.0         | 31.4         | –            | 25.1         | 24.8         | 34.2         | 35.0         | 35.6         | 36.7         | 37.3         |
| Owner Operators     | 67.7         | 70.0         | 68.6         | –            | 56.7         | 57.2         | 65.7         | 65.0         | 63.6         | 62.8         | 62.7         |
| Unknown             | 0.0          | 0.0          | 0.0          | 100.0        | 18.2         | 18.0         | 0.0          | 0.0          | 0.9          | 0.0          | 0.0          |
| <b>Total</b>        | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> |

– not available

From 1989/90 owner operators includes leased farms

**Table 5.6: Trend in the number of farms in each operating structure since 1988/89**

| Operating Structure | 1988/89       | 1989/90       | 1990/91       | 1991/92       | 1992/93       | 1993/94       | 1994/95       | 1995/96       | 1996/97       | 1997/98       | 1998/99       |
|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| <b>Sharemilkers</b> |               |               |               |               |               |               |               |               |               |               |               |
| 29%                 | 354           | 314           | 322           | –             | 130           | 118           | 158           | 133           | 120           | 124           | 114           |
| 39%                 | 401           | 363           | 146           | –             | 126           | 108           | 138           | 138           | 108           | 95            | 76            |
| 50%                 | 3,079         | 2,667         | 3,140         | –             | 2,803         | 2,714         | 3,642         | 3,614         | 3,455         | 3,522         | 3,403         |
| Contract            | 290           | 444           | 130           | –             | 97            | 84            | 121           | 195           | 172           | 154           |               |
| Other               | 319           | 220           | 467           | –             | 572           | 583           | 994           | 1,149         | 1,367         | 1,497         | 1,610         |
| All Sharemilkers    | 4,443         | 4,008         | 4,205         | –             | 3,631         | 3,620         | 5,016         | 5,155         | 5,245         | 5,410         | 5,357         |
| Owner Operators     | 9,316         | 9,349         | 9,220         | –             | 8,201         | 8,344         | 9,627         | 9,581         | 9,368         | 9,263         | 9,005         |
| Unknown             | 985           | 1,238         | 1,260         | 13,899        | 2,626         | 2,633         | 6             | 0             | 128           | 0             | 0             |
| <b>Total</b>        | <b>14,744</b> | <b>14,595</b> | <b>14,685</b> | <b>13,899</b> | <b>14,458</b> | <b>14,597</b> | <b>14,649</b> | <b>14,736</b> | <b>14,741</b> | <b>14,673</b> | <b>14,362</b> |

– 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

