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Chapter Six

WORK RELATIONS AND FORMS OF PRODUCTION

IN DAIRY FARMING

6.1 INTRODUCTION

Dairy farming offers three important contrasts to apple orcharding for examining work relations and forms of production. Dairy farming is best described as intensive pastoralism, which, although intensive compared with other pastoral systems, generates less economic rent per unit of land than horticulture. Second, dairy farming in New Zealand is based on cows which are grass-fed on a year round basis. Production occurs therefore from the management of animal and environmental systems. Third, dairy farming has a distinctive type of work relation which is central to the structure of the industry - nearly one third of all milk production derives from sharemilking (Livestock Improvement Corporation (LIC) 1993). Sharemilking occurs when farm owners provide the land, a house on the farm, and possibly the milking herd, and sharemilkers provide the herd and the labour or just their labour in return for a share of the revenue arising from the sale of milk to cooperative dairy companies.

The major aims of this chapter are to determine the work relations and forms of production which exist in dairying, and to identify any changes which may have occurred to these since 1980. An essential part of this process is to identify whether dairy farm owners, dairy farm operators, and sharemilkers are simple commodity producers, capitalist producers, or have characteristics which do not match either prescription.

The first substantive section of this chapter concentrates on the interdependencies of the social relations of production and the biophysical systems within which they operate. It defines the system for producing milk and the necessary characteristics and flexibilities which farm labour must have in order to operate successfully the production system. The agrocommodity chain for dairy products is defined and the degree of farmer control is specified.
The second section provides an overview of dairy farming during the 1980 to 1994 period. Trends in production, farm size, herd size, productivity, regional variation, prices and the income of dairy farmers, sharemilking, and possible indicators of work relations and forms of production are reviewed. Several types of information are used including both published and unpublished data from the employment question in the Census of Agriculture from 1984 to 1990. This consists of data on the number of dairy farms which use different types of workers and the number of different types of workers on dairy farms. This data suffers from the same deficiencies as the data for pipfruit in Chapter 5.

The indicators and preliminary conclusions from Sections 6.2 and 6.3 demonstrate that the work relations and forms of production in dairy farming are fertile ground for empirical inquiry. Three sets of information are used in the analysis in the remainder of this chapter (Sections 6.4 to 6.7). One consists of a postal questionnaire sent to owners of dairy farms in Waimate West County in south Taranaki during February 1994. The questionnaire is contained in Appendix D, as well as a discussion of the methodology used and the technical aspects of the responses. The intra-farm, inter-farm and external relations of production are analysed to decode the form of production which these enterprises most resemble. The county of Waimate West in Taranaki (Figure 6.1) was selected for this work because of the dominance of dairy farming as a land use. Over ninety-five percent of farms in the county were classed as “principally dairying” farm-type in 1990, a percentage relatively unchanged for many decades (Dept. of Statistics, unpublished table). The dairy farms in this county are of average size, well-developed and highly productive. It is partly because of this level of development and productivity, and the correspondingly high price of dairying land, that Taranaki has one of the lowest relative levels of large dairy herds. It is simply too costly to purchase land on the open market to create larger units. It is therefore highly probable that dairy farms in the county are what Fairweather (1982) calls traditional family dairy farms. The selection of Waimate West County for fieldwork therefore allows analysis of the dominant work relations and forms of production in a core region for dairy production.

The second set of information consists of the case studies of two large companies involved in dairy farming. One is Apple Fields which is involved also in apple orcharding. The other is Tasman Agriculture Limited (Tasman), another public-listed company which is involved only in dairy farming and the development of dairy farms. The rationale for examining these companies and the methodology involved was described fully in sections 1.4 and 2.5. In short, Apple Fields and Tasman are examined because of the contrast in the scale of their dairy farming activities and because they are enterprises which are new to the industry. These two companies were important and remain important in the expansion in the scale of dairy farming and the expansion into new areas of the South Island. It is essential to determine whether these companies instituted new or different work relations and forms of production.
As well as other published material, Bradly's (1992) recent work on sharemilking in Waimate West County is used, along with information from the postal questionnaire, to examine the proposition that sharemilking is an example of simple commodity production. This is the third set of information. I participated in some of the fieldwork for Bradly's study and used it to test my early ideas on work relations and forms of production. Bradly's fieldwork identified 76 farms with sharemilkers in Waimate West County - about 25 percent of all the dairy farms and over 60 percent of the farms with sharemilkers in the county during that season. Forty-five of these sharemilkers were interviewed along with as many of the corresponding farm owners as it was possible to contact.

Three key indicators of work relations and forms of production are focussed upon throughout the chapter; the ownership of the means of production, the provision and organisation of labour and the ownership of the sharemilking contracts. It is again useful to refer back to Table 3.3 which lists the essential characteristics of each form of production in these respects. In attempting to define the types of work relations and forms of production found, I discuss the characteristics of these enterprises in the three groups set out in the conclusion to Chapter 3 - the internal relations of production, inter-farm relations, and the external relations of production.
6.2 DAIRY FARMING AS A SYSTEM OF PRODUCTION

New Zealand dairy farmers produce milk at a lower price than anyone else in the world (Figure 6.2). This high productivity flows from the favourable biophysical system, the efficiency of family farms as productive units, the cooperative nature of the dairy industry, and the single-exporter status of the New Zealand Dairy Board (Yerex 1989; Bradly 1992). Moran (1987) emphasises the importance of farmer control of the agrocommodity chain from producer through to wholesaler. This ownership by farmers of the systems of production, processing and marketing is efficient because the financial benefits of all transactions flow back to the farmer shareholders of the cooperative dairy companies rather than to non-farm capitals. However, the efficiency of these structures is disputed. ACIL (1992, 1994) argues that cooperatives and the monopoly on export marketing by the New Zealand Dairy Board are not the most efficient form of organisation for the industry. ACIL suggest that multiple exporters, tradeable share companies and limits on milk production would be better organisational structures. At the farm level, the efficiency of milk production in New Zealand undoubtedly derives from the grass-fed basis of production and high labour productivity per person. It is important to note that this measure is labour productivity per person. It is possible that labour productivity per hour is not better in New Zealand than elsewhere as dairy farm operators in New Zealand, be they owner-operators or sharemilkers, work between 60 and 70 hours per week on average throughout the year. The number of hours worked per week by dairy farmers in other countries was not investigated.

Figure 6.2 International comparative costs of producing milk


Note: The data in this graph reflects only the real costs of production and does not show what farmers receive in terms of farm-gate returns, subsidies or support programs.
Over 7,000 million litres of whole-milk consisting of milkfat (4.8%), solids-not-fat (9.08%) and water are collected from dairy farms by road tanker. These are then processed in 28 dairy factories into butter and cream products, skim milk powder, whole-milk powder, cheese, casein and caseinates, and buttermilk powder (Figure 6.3). Ninety-six percent of New Zealand dairy herds provide milk to the cooperative dairy companies for manufacturing into milk products. The rest is processed, packaged and sold as fresh milk. Individual dairy companies can sell their products directly in the domestic market but more than 85 percent of all production is exported under the direct control of the New Zealand Dairy Board (NZDB 1993).

Figure 6.3 Volumes of dairy products manufactured in the 1992/93 season

![Graph showing volumes of dairy products manufactured in the 1992/93 season]

Note: Data used are estimates for the 1992/93 season as at May 1 1993.

The principal inputs to dairying in New Zealand are atmospheric inputs, land, cows and buildings, seasonal working capital in the form of fertiliser, veterinary services including artificial insemination and herd-testing, labour, and other more minor but necessary inputs (Figure 6.4). These inputs combine to produce grass (standing pasture, hay, silage or haylage), which the cows convert to milk. The cows are milked twice a day from the beginning of lactation in early spring (July, August or September) through to when the cows start to dry off. This occurs in late summer or early autumn and milking becomes once-daily. Herds are dried-off completely, usually by late April although this varies by region due to climate and pasture growth. Therefore, milk for manufacturing is not supplied at a regular rate through the year (Figure 6.5). The lactation of cows is timed to make the best use of grass growth, with the spring flush of milk production coinciding with the highest rate of grass growth (Figure 6.6). There is a seasonal surplus of grass in spring and early summer which is cut for hay or made into silage or haylage. This is then given to the herd in the months of deficit in standing pasture during autumn and winter.
Figure 6.4 Milk production, manufacture and marketing

Ownership of agrocommodity chain is by dairy farmers except for distribution.
Figure 6.5  Monthly milkfat supply: 1990/91, 1991/92, 1992/93

Source: Livestock Improvement Corporation 1993.

Note: Data for May is placed at the left-hand end of the X axis to match Rennie’s diagram in Figure 6.6. It better reflects the production cycle if the cycle begins in June and ends in May.

Figure 6.6  Grass growth and feeding requirements

How pasture growth is matched to cow feed requirements in a normal season

Milking takes place twice daily for most of the lactation period, in the early morning and late-afternoon. It is generally a job involving two people. It begins with one person moving the herd to the milking shed at about five o'clock in the morning while the other prepares the shed. Milking the cows takes from one to three hours depending upon the type of milking equipment, the size of the herd and the size of the milking shed. The herd is then moved back to the paddock and the shed is cleaned. The same routine is followed from about three or four o'clock in the afternoon. Cows must be milked twice a day and seven days a week, so labour must be committed to regular twice-daily milking, effectively a split-shift at each end of the day. Other work on the farm occupies much of the time between milking. New Zealand dairy farms require that full-time workers must be prepared to work much more than the 40-hour week, commonly between 50 and 70 hours (Rennie 1988; Bradly 1992). All the other tasks on the farm must be timetabled around the twice-daily milking. These demands require that labour must be ideally located at or near the point of production, that is, living on the farm. Technology such as efficient milking machines allows a single farm family, either owner-operator families or sharemilking families, to provide most of the labour requirements on dairy farms of average size. Some specific tasks, such as ditching and hay-making, are done by specialised contractors, and other off-farm labour such as veterinarians are used as a matter of course. Other labour is hired when necessary, most often when the herd size increases or as the farmer is able (and wants) to afford the use of labour external to the farm family.

The dairy farming industry in New Zealand does not appear to be amenable to capitalist production when capitalist production is interpreted as being factory-type, industrialised production because it could not compete with the efficiency of grass-fed production. This type of dairy farming does occur in California where some herds exceed 2,000 cows on farms of less than 15 hectares, as well as in some other parts of the United States, and in some other countries (Gilbert and Akor 1988; Lyson and Geisler 1990; Grant 1991). New Zealand dairy farming is industrialised in the sense that technology and biotechnology are fully utilised, but these developments, in combination with favourable environmental conditions, allow enterprises based on the household unit to remain as the most common type of enterprise for producing milk.

6.3 THE STRUCTURE OF DAIRY FARMING IN NEW ZEALAND

In 1992/93 dairy products accounted for about 18 percent of total export receipts, up from 14.4 percent in 1987 (Dept. of Statistics 1988, 1993). These are similar proportions to the average contribution of the dairy industry over the last 25 years. Total milk production now exceeds 7,650 million litres per year, and the national herd consists of more than 2.4 million milking cows in over 14,000 herds (NZDB 1993). Dairy farms range from five hectares to over 400 (Dept. of Statistics 1991). Most are between 40 and 199 hectares (Figure 6.7). Per cow productivity increased from an average of 2,638 litres of milk in the 1962/63 season to 3,300 in the 1992/93 season (NZDB 1964, 1994). In fact, all key performance measures in dairy farming increased
significantly during the period from 1980 to 1994, except for milkfat per cow - total milkfat production, milkfat per hectare, cows per hectare, herd size and farm size (Figure 6.8 and Table 6.1).

**Figure 6.7 Dairy farm numbers and size compared to all farm-types in 1990**

![Bar chart showing dairy farm numbers and size compared to all farm-types in 1990.](image)

*Source: Department of Statistics, Census of Agriculture, 1991.*

*Note: For definitions of farm-types, refer to section 2.6 and Appendix B.*

In real terms, farm-gate returns declined by about 1.6 percent per annum during the last 24 seasons (Figure 1.3). There is some connection between the increasing productivity and scale of dairy farming, and slowly declining real prices. Dairy farmers have had to expand production and increase labour productivity to maintain real incomes. ACIL (1992) argues that it is the inability of the cooperative system to limit the supply of milk which is one of the main problems facing the industry. More likely is that barriers to free trade limit the returns which New Zealand dairy farmers receive. Either way, the increase in the scale of dairy farming is undeniable and, in theory at least, offers the possibility of more capitalist involvement in the industry. The increase in scale is quite dramatic - the number of herds of greater than 399 milking cows increased from 136 in 1988/89 to 351 in 1992/93 (LIC 1993). Of course, the overwhelming majority of dairy farms have smaller herds with 9,477 herds, or over 68% of all herds, having less than 200 cows in the 1992/93 season (LIC 1994). In the 1992/93 season, fewer than ten percent of herds had over 500
cows (Figure 6.9). It is significant that the highest proportion of large herds is in the South Island (17%), where the ability to create farms which are large enough is economically possible through the conversion of sheep farms and the availability of water to irrigate pastures. These farms are located principally in Canterbury, North Otago and Southland.

Figure 6.8 Number of dairy farms and average herd size

![Graph showing number of dairy farms and average herd size over years.]


Figure 6.9 Percentage of 1992/93 herds with greater than 500 milking cows

![Bar chart showing percentage of herds with greater than 500 milking cows by region.]

Source: Livestock Improvement Corporation (LIC), 1993.

Note: LIC regions are the regions which Livestock Improvement Corporation use (see Appendix A).
Table 6.1: Key Statistics for dairy farming in New Zealand

<table>
<thead>
<tr>
<th>Season</th>
<th>Number of cows (000s)</th>
<th>Total milk $^6$ (litres)</th>
<th>Total milkfat $^6$ (kg)</th>
<th>Average herd size</th>
<th>Average farm size (ha)</th>
<th>Real payout ($/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1967/68</td>
<td>2232</td>
<td>5988</td>
<td>256</td>
<td>86</td>
<td>n.a.</td>
<td>9.35</td>
</tr>
<tr>
<td>1972/73</td>
<td>2190</td>
<td>5881</td>
<td>247</td>
<td>106</td>
<td>n.a.</td>
<td>8.61</td>
</tr>
<tr>
<td>1977/78</td>
<td>2052</td>
<td>5238</td>
<td>251</td>
<td>120</td>
<td>n.a.</td>
<td>6.93</td>
</tr>
<tr>
<td>1982/83</td>
<td>2124</td>
<td>6096</td>
<td>290</td>
<td>137</td>
<td>64</td>
<td>7.49</td>
</tr>
<tr>
<td>1987/88</td>
<td>n.a.</td>
<td>6921</td>
<td>333</td>
<td>153</td>
<td>66</td>
<td>4.90</td>
</tr>
<tr>
<td>1992/93</td>
<td>2603</td>
<td>7629</td>
<td>373</td>
<td>180</td>
<td>74</td>
<td>6.38</td>
</tr>
</tbody>
</table>

Source: Livestock Improvement Corporation (LIC), 1993.

Note: Nominal prices are deflated to December 1992 values by Consumer Price Index.

The large herd data highlights the regional variation in the key characteristics of dairy farming. Table 6.2 compares averages for New Zealand, south Taranaki and Matamata/Piako (two of the most established dairying areas), the South Island, and for two different types of farm enterprise-owner operators and sharemilkers. Dairy farms in Taranaki and Matamata/Piako are now quite constrained in their ability to be enlarged because land development for dairy farming is substantially complete and the price of purchasing an adjoining farm is prohibitive, unlike the situation in some parts of the South Island. Matamata/Piako and South Taranaki have the highest milkfat per hectare and cows per hectare while the South Island has the lowest. This is due partly to some advantages inherent to the North Island but is attributable also to the different stages of development of dairy farming in each island. Many of the newer farms in the South Island are not yet near their potential performance, and many of the conversions in Canterbury are utilising irrigation which may eventually enable even higher per hectare production than the North Island.

In his recent study of large herd dairy farming, Fairweather (1994) took a random sample of 29 out of his estimate of 173 dairy farms in New Zealand with over 500 cows. On average, there were 895 cows per farm with six full-time labour units of which 3.7 were full-time employees. It is the scale of operations and particularly the higher number of employees which sets apart these farms from what Fairweather (1994) calls “traditional family dairy farms”. Employed labour becomes a much more significant factor in the operation of the large scale dairy farm. Because of the sheer size of the operation, tasks and work routines are more clearly defined for staff and there is, according to Fairweather, less scope for occasional family labour to participate. In addition, Fairweather (1994) argues that the increasingly sophisticated machinery used on these farms precludes the use of relatively inexperienced and necessarily casual family labour. Despite
By counties, region nationally, and type of enterprise

<table>
<thead>
<tr>
<th>By counties, region nationally, and type of enterprise</th>
<th>Average herd size</th>
<th>Average milkfat per cow (kg)</th>
<th>Average effective area (ha)</th>
<th>Ave. kg milkfat/ effective ha</th>
<th>Average cows/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matamata/Piako</td>
<td>174</td>
<td>149</td>
<td>60</td>
<td>434</td>
<td>2.9</td>
</tr>
<tr>
<td>South Taranaki</td>
<td>179</td>
<td>157</td>
<td>69</td>
<td>420</td>
<td>2.7</td>
</tr>
<tr>
<td>South Island</td>
<td>189</td>
<td>157</td>
<td>91</td>
<td>336</td>
<td>2.2</td>
</tr>
<tr>
<td>New Zealand</td>
<td>180</td>
<td>148</td>
<td>74</td>
<td>374</td>
<td>2.5</td>
</tr>
</tbody>
</table>

By type of enterprise

<table>
<thead>
<tr>
<th>By type of enterprise</th>
<th>Average herd size</th>
<th>Average milkfat per cow (kg)</th>
<th>Average effective area (ha)</th>
<th>Ave. kg milkfat/ effective ha</th>
<th>Average cows/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner-operators</td>
<td>167</td>
<td>147</td>
<td>71</td>
<td>360</td>
<td>2.4</td>
</tr>
<tr>
<td>50/50 sharemilkers</td>
<td>217</td>
<td>148</td>
<td>86</td>
<td>391</td>
<td>2.6</td>
</tr>
<tr>
<td>All sharemilkers</td>
<td>216</td>
<td>148</td>
<td>86</td>
<td>389</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Source: Livestock Improvement Corporation (LIC) 1993.

Note 1: Different spatial units are contrasted with different types of enterprise structures.

this, he notes that farm women continue to be heavily involved in calving and calf-rearing, a substantial task which requires the utmost flexibility, a flexibility that farm women can supply where it would be difficult and expensive to hire a wage worker for the task. This demonstrates that there are essential tasks which are still best provided by members of farm families - even on the large-herd dairy farms.

While Fairweather (1994) concludes that large herd dairy farming is distinctive from family farming, he leaves the reader to decide just how distinctively different it is. My reading is that these farms are the same as family farms through ownership and labour commitment and that they vary from them only in terms of the scale of the farming operation and the number of employees. Later in this chapter, I investigate this further by analysing the large herd sharemilkers who work for Tasman Agriculture Limited and Apple Fields. These sharemilkers are compared to Fairweather's sample and to traditional family dairy farms in Waimate West County in South Taranaki.

Sharemilking

Sharemilking is unique in modern New Zealand agriculture as farms milked by sharemilkers provide nearly one-third of total milk production (LIC 1993) and yet sharecropping is found infrequently in other agricultural industries. In some instances in the nineteenth century, sharecropping fulfilled the role, for one season, of a land management regime to aid the
development of new land for the sowing of pasture and crops. Both the land-holder and the sharecropper participated under this system (Evans 1969). Sharecropping was also apparently common during the period of the landed estates in New Zealand from around 1870 to the mid-1890s (Fairweather 1982), although its extent is only partly documented (eg, Scotter 1948; Evans 1969; Campbell 1972).

Sharemilking developed as an integral part of dairy farming from the industry's beginnings in the 1880s (Maughan, Lowe and Ridler 1980). It was not until 1930 that the 50/50 arrangement became more common practice (Maughan et al. 1980). Eventually, the different types of share agreements were legislated with the Sharemilker's Agreements Act of 1937. Shares were altered variously over the years by Orders in Council (Bradly 1992). Set shares were abolished in 1990 and are now a matter for consideration between the farm owner and the sharemilker (Bradly 1992). (The range of possible inputs and outputs and the allocation between farm owner and sharemilker were listed in Table 3.6). This situation reflects the current philosophical approach by central government towards enabling rather than prescriptive legislation. The key characteristics of sharemilking contracts in the 1992/93 season are shown in Table 6.3. Fifty-fifty sharemilkers were 77 percent of the total number of sharemilkers.

Table 6.3  Key statistics of sharemilking in the 1992/93 season

<table>
<thead>
<tr>
<th>Operating organisation</th>
<th>Number of herds</th>
<th>% of all dairy farms</th>
<th>% of all sharemil ked farms</th>
<th>Milkfat produced (kg)</th>
<th>% of all milkfat produced</th>
<th>Average herd size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner operators</td>
<td>8201</td>
<td>56.72</td>
<td>n.a.</td>
<td>24902</td>
<td>52.35</td>
<td>167</td>
</tr>
<tr>
<td>Sharemilkers:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;20%</td>
<td>44</td>
<td>0.3</td>
<td>1.21</td>
<td>38014</td>
<td>0.43</td>
<td>248</td>
</tr>
<tr>
<td>20 to 28%</td>
<td>269</td>
<td>1.86</td>
<td>7.41</td>
<td>37155</td>
<td>2.56</td>
<td>245</td>
</tr>
<tr>
<td>29%</td>
<td>130</td>
<td>0.9</td>
<td>3.58</td>
<td>30131</td>
<td>1</td>
<td>199</td>
</tr>
<tr>
<td>30 to 38%</td>
<td>157</td>
<td>1.09</td>
<td>4.32</td>
<td>30184</td>
<td>1.21</td>
<td>204</td>
</tr>
<tr>
<td>39%</td>
<td>126</td>
<td>0.87</td>
<td>3.47</td>
<td>25983</td>
<td>0.84</td>
<td>177</td>
</tr>
<tr>
<td>40 to 49%</td>
<td>102</td>
<td>0.71</td>
<td>2.81</td>
<td>31128</td>
<td>0.81</td>
<td>205</td>
</tr>
<tr>
<td>50/50</td>
<td>2803</td>
<td>19.39</td>
<td>77.2</td>
<td>31909</td>
<td>22.93</td>
<td>217</td>
</tr>
<tr>
<td>All sharemilkers</td>
<td>3631</td>
<td>25.11</td>
<td>100</td>
<td>32006</td>
<td>29.79</td>
<td>216</td>
</tr>
<tr>
<td>Unknown structure</td>
<td>2626</td>
<td>18.16</td>
<td></td>
<td>26533</td>
<td>17.86</td>
<td>170</td>
</tr>
<tr>
<td>All farms</td>
<td>14458</td>
<td>99.99</td>
<td></td>
<td>26982</td>
<td>100</td>
<td>180</td>
</tr>
</tbody>
</table>

Source: Livestock Improvement Corporation (LIC), 1993.
The new flexibility possible with sharemilking contracts combined with changes to the key characteristics of dairy farming discussed above caused a rearrangement of the different types of sharemilking contracts between the 1989/90 season (the last one before abolition of set shares) and the most recently completed season, 1992/93 (Figure 6.10). As most sharemilking contracts are for three years, the 1989/90 to 1992/93 spread means that most contracts have now been renewed under the new regime. The number of 50/50 contracts remained similar, increasing slightly from 75 percent of all sharemilking contracts in the 1989/90 season to 77 percent in 1992/93 (from 2,667 to 2,803). The total number of dairy farms declined by less than one percent in the same period (NZDB various years; LIC various years). Accordingly, the proportion of farms operated by 50/50 sharemilkers increased from 18 percent of all dairy farms in 1989/90 to 19 percent in 1992/93.

Bigger changes occurred in lower-order contracts. The proportion of 29% and 39% contracts dropped significantly, while those contracts of less-than-29%, 30 to 38% and 40 to 49% increased significantly. This implies that farm owners negotiated contracts in this period which were more beneficial to themselves, even though the total number of sharemilked farms increased. At the same time the overall proportion of full 50/50 contracts increased, which indicates that farm owners still considered 50/50 contracts to be of real value. There appears to be little correlation between the total relative proportions of sharemilkers (out of all dairying) and the real returns to dairy farming. Bradly (1992) pointed out that, in theory at least, the payout price may influence the relative proportion of farms using sharemilkers as when payout is higher, dairy farm owners may feel more able, or willing, to use sharemilkers simply because they are better able to afford them.

The importance of sharemilking is reason enough for its inclusion in this analysis of work relations and forms of production in dairy farming. Like Higg's study of météyage in 1894, and other studies on sharecropping (eg, Mann 1990), sharemilking agreements are effectively between farm owners and sharemilking families, the exceptions being when the agreement is with a single person, usually a man (Maughan et al. 1980; Smith 1965; Gregan 1983; Gregan and Anderson 1984; Lowe 1985; Yerex 1989; Greenwood 1990; Hjorth 1990; Bradly 1992). Sharemilking families are ideally suited to the task as they have all the flexibility which is characteristic of simple commodity producers, and the additional drive to accumulate capital because in most cases they aim to purchase their own farm as soon as possible (Lowe 1985; Bradly 1992). In general, sharemilkers attempt to own and milk the largest herd possible in pursuit of this aim. Table 6.3 demonstrated the relative characteristics of sharemilkers compared to owner-operators. Sharemilkers now have larger herds, operate on larger farms, produce similar amounts of milkfat per cow, and generate more milkfat per hectare than owner-operators (LIC 1993). This situation is slightly surprising as owner-operators, until quite recently, managed higher average productivity measures than sharemilkers. This was because owner-operators are at more mature stages of their dairy farming career with, in theory, more experience of
environmental systems on their own farms and probably more productive herds. In contrast, sharemilkers shift farms frequently and are less ruthless in culling poorer performers from their herds as they are increasing overall production and herd size.

Figure 6.10 Changes in sharemilking arrangements

Enterprises and forms of production

Unlike other farming systems in New Zealand, dairy farming had a small, family farm structure from the beginning of the industry in the last century (Fairweather 1982; Yerex 1989). Fairweather (1982) classed these small family farmers as emergent simple commodity producers, who later became fully-fledged simple commodity producers as market linkages developed and more of their produce was sold off the farm. According to Fairweather, early small-scale dairy farming was well suited to a family operation but the economics were such that unpaid family labour had to be used just to survive. The dairy industry became more important with the introduction of home dairy technology and the development of dairy exports. Doig’s study (as cited in Fairweather 1994) in 1940 painted a gloomy picture of the general standard of living of dairy farmers. Few studies since that time have concentrated on the social relations of production (Fairweather 1994).

The family-based unit was and remains the type of enterprise most ideally suited to the scale of dairy farming, whether by owner-operators or by sharemilkers (Fairweather 1994). Attempts at large-scale dairy farming were rare and consistently failed to be sustainable in the long run (Yerex 1989). Anecdotal evidence of families owning more than one dairy farm exists but there is little concrete information to support a wide claim for the existence of this practice. Data from cooperative dairy companies would clarify the situation but this information is inaccessible due to confidentiality provisions. Also, a round of investment in dairy farms by corporate entities developed during the 1980s, by companies such as the New Zealand Rural Property Trust, Tasman and Apple Fields. The latter two companies remain heavily involved in dairy farming.

Even though family farms dominate the dairying, a wide range of types of enterprises are involved in the industry. Some insight to the present structure of enterprises can be gained from data from the Census of Agriculture on farms by legal status (Figure 6.11). Legal status can be interpreted as the legal ownership structure of farm enterprises. Key features of this data are the domination of dairy farm ownership by either individual ownership or ownership by partnerships. Between them these two types represent over 90 percent of dairy farms. Individual ownership was relatively stable while farm business ownership by partnerships slowly increased between 1984 and 1990. (I acknowledge that the seven-year period from 1984 to 1990 cannot be readily interpreted as long run but it provides an indicator of change in the recent period). The majority of partnerships, registered private companies, and trusts are family-owned. The number of registered private companies, trusts, registered public companies and cooperatives all declined during the 1984 to 1990 period.
Figure 6.11  Dairy farms by legal status

Source: Department of Statistics, unpublished tables, various years.

Note: The range of data is so wide that using one graph for all types of legal status does not provide sufficient separation at all levels. Neither is an exponential scale appropriate. Data is separated into two groups and it should be noted that the scale of the y axes are different.

A indication of the range of different enterprises involved in dairy farming is demonstrated by Bradly (1992:62). He compares the business characteristics of 44 farm owners who used sharemilkers. The range of types of enterprise which farm owners have is much wider than the range which sharemilkers have (Figure 6.12). In fact, sharemilkers in this sample are either single owner-operators (5) or husband and wife partnerships (39). Husband and wife partnerships also dominate the farm owners with 20 out of the 44. Three of these own the farms purely as
investments. Two others in this group own the farms as investments while they are engaged in owning and operating other farms in the district. All the farms owned by the various trusts derive from or are family trusts. The wide range of types of trust and the large number in this sample are not considered representative of the dairy industry as a whole (Bradly 1992), but this serves to highlight the possible range of types of enterprise involved in dairy farming. Three of the five private companies in this sample were more like investments than family-operated businesses. The other two were jointly owned by groups of existing dairy farmers in the district for investment purposes. Multi-farm ownership therefore existed in this sample, both by private registered companies and by husband and wife partnerships. This sample from Waimate West demonstrates that there is a wide range of types of enterprise involved in dairy farm ownership - a range that is much more complicated than indicated by the statistics from the Census of Agriculture, especially when issues of multi-ownership are considered. Given the general lack of information available through the Census of Agriculture and other published sources, the need for field work becomes imperative if the full social relations of production in dairy farming are to be identified more comprehensively.

Figure 6.12 Types of enterprise ownership in Waimate West County, 1992

[Diagram showing the distribution of types of enterprise ownership in Waimate West County, 1992]

Work relations

This section provides some indicators of the structure of work relations in dairying and how these have or have not changed between 1984 and 1990. Data from the employment question in the Census of Agriculture is used in the same way as it was in Chapter 5 for pipfruit orchards. This data suffers from the same limitations. The farm-type used here is defined as Principally dairy farming - Factory supply: The raising of cattle for their dairy products or breeding (including stud) (other than town milk supply) so that 75 percent or more of the gross income is derived from this activity (Dept. of Statistics 1986:10-12). The use of this one category is nearly ideal for the purposes here - to examine changes in dairy farming in core regions. This category draws on data from farms where dairying is the dominant land use and probably has been for some time. The dairy farms in Waimate West County closely match this criteria. The likelihood of switches to other land uses is low in these cases, and higher where dairying contributes less than 75 percent of total farm income.

Dairy farms require full-time owner-operators, managers or permanent staff because of the daily demands of the milking schedule. The number of dairy farms with working owners, sharemilkers and leaseholders (known just as working owners from here onwards) increased by nine percent between 1984 and 1990 and, as expected, the number of full-time working owners increased by a similar figure of 7.6 percent (Figure 6.13). Full-time female working owners declined by one percent, part-time males increased by three percent and part-time females by 5.5 percent.

The number of farms using unpaid family labour declined by over 16 percent during the 1984-90 period (Figure 6.14). Large decreases occurred in both male and female part-time unpaid family workers, down over 33 percent and over 25 percent respectively. Full-time male unpaid family workers declined by nearly ten percent compared to the number of full-time women who remained at similar levels to 1984. These changes support the suggestion that labour productivity on dairy farms increased during the 1984 to 1990 period. Whatever the reason for the decline in the number of dairy farms using unpaid family workers, compared to the increase in dairy farms with working owners, and the decline in the number of unpaid family workers, it is a significant change.

The argument that labour productivity increased during the period under review is strengthened by the big declines in all types of hired workers and in the number of dairy farms which employed wage workers. Permanent full-time employees declined by the least in all respects, six percent for men, and 17 percent for women (Figure 6.15). The number of farms employing permanent full-time employees decreased by 11.4 percent.
Figure 6.13  Working owners, leaseholders and sharemilkers in dairy farming for factory supply

![Graph showing the number of farms with Working owners, etc.]

Source: Department of Statistics, unpublished tables from the employment question in the Census of Agriculture.

Figure 6.14  Unpaid family workers in dairy farming for factory supply

![Graph showing the number of farms with Unpaid family workers.]

Source: Department of Statistics, unpublished tables from the employment question in the Census of Agriculture.
The number of part-time employees more than halved. The number of farms employing permanent part-timers was down by 58 percent, male part-timers down by 53, and women down by over 60 percent (Figure 6.16). For casual workers, the decline in the number of farms and workers was as precipitous as the fall for permanent part-time workers (Figure 6.17). Much less wage labour was used in dairy farming in 1990 compared to 1984. This either confirms the thesis of increased labour productivity or is a reflection of the ability of dairy farmers to dispense with waged labour when the dairy payout drops as it did in real terms between 1984 and 1990. This is a possible explanation as the real dairy payout in 1990 was the lowest ever. The likely corollary to decreased hired labour on family farms is an increase in unpaid family labour. This did not occur.

Three points can be derived from this set of data. First, the decline in the number of workers employed represents a strategy by family farmers for maintaining their income in the face of declining returns. They have lowered their costs of production through employing less wage workers. Second, it is important to recognise the dominance of working owners, leaseholders and sharemilkers in industry, and how these proportions changed between 1984 and 1990 (Figure 6.18). In 1990, the working owners group outnumbered all employees in principally dairy farming by about four to one, and the ratio of farms with working owners outnumbered those with employees by four to one. In addition, the number of unpaid family workers is similar to the number of waged employees. Third, the male dominance of waged jobs in this industry
Figure 6.16 Permanent part-time workers in dairy farming for factory supply

Source: Department of Statistics, unpublished tables from the employment question in the Census of Agriculture.

Figure 6.17 Casual workers in dairy farming for factory supply

Source: Department of Statistics, unpublished tables from the employment question in the Census of Agriculture.
increased during the 1984 to 1990 period as the full-time male to full-time female ratio increased from 5.9:1 to 6.7:1. The ratio of permanent full-time male workers to all other permanent workers increased from 1.5:1 to 2.7:1. The movement was in the same direction, although to a smaller degree for casual workers. Fourth, the number of farms classed as dairy farms declined between 1984 and 1990. These data show that the number of principally dairy farms increased. I suggest that farms changed from the farm-type called predominantly dairying where between 75 and 51 percent of farm income is attributable to dairying, to principally dairying where over 75 percent of farm income derives from dairying. This represents an intensification of dairy farming.

**Preliminary conclusions on workers and forms of production**

Pastoral dairy farming, as an industry which is dependent upon biophysical systems for the production of milk, makes several demands on those working on farms. Workers must be flexible enough to cope with long hours of work, the split-shift involved in milking, and the necessity to often work seven days per week through the milking season. The inherent flexibility of simple commodity producers makes this form of production and its associated work relations better suited to this industry than the capitalist form of production. As I explained in Chapter 3, workers employed on capitalist farms have a different set of incentives driving their work. These incentives are much less strong than those of simple commodity producers.

Family-based dairy farms, whether operated by owner-operators or by sharemilkers, remain the most common type of enterprise involved in dairy farming in New Zealand. But changes did...
occur between 1980 and 1994. The scale of dairy farming and labour productivity continued to increase, and indeed, the rate of increase in farm size in particular has accelerated since 1989/90. Important factors in this increase in scale are the genetic improvement of herds and the continuing improvements in management and operational efficiency delivered by technology such as electric fencing and more advanced milking machines. Family farmers continue to make use of advances in technology to produce milk more efficiently. Fairweather’s 1994 study concludes that dairy farming at a large scale demands the use of more non-family labour and actually precludes the use of family labour, and he concludes that large-herd dairy farming is a qualitatively different form of production compared to the traditional family dairy farm (Fairweather’s terminology in both cases). This notion is examined later in this chapter within the context of the large corporate producers.

This expansion in the scale of dairy farming occurred during a period when real returns per kilogram to dairy farmers continued to decline by about 1.6 percent per year. As a response, it is likely that dairy farmers cut back on the amount of non-family workers they hired. At the same time, unpaid family help stayed at roughly the same level. Despite falling returns, it appears that dairy farmers were able to adjust their farming operations (mostly through expanding production) and survive.

6.4 DAIRY FARMS IN WAIMATE WEST COUNTY

Intra-farm relations 1: Farm ownership

The postal survey of dairy farmers in Waimate West County resulted in a sample size of 28, ten percent of the total number of dairy farms in the county. Milkfat production for 1992/93 is used to stratify the sample into eight classes (Figure 6.19). Five of the respondents owned or farmed two dairy farms and these ten farms are aggregated in Figure 6.19 to provide a picture of total production per dairy farm owner. Average production per farm owner in 1992/93 was 37,306 kilograms, and production per farm owner ranged from less than 10,000 to nearly 100,000 kilograms of milkfat. The one farm which is under 10,000 kilograms is one of only two in the sample which has another land use as well as dairying. This farm has a large herd of milking goats and earns more from the goats than from the cows, so the level of its dairy milkfat production does not correspond to that expected from the size of the farm.

Between them, the 28 farm owners own 33 herds - effectively 33 farms as each is operated as a separate business. Using the data in this way provides a more accurate picture of production per enterprise. In these terms, average production per herd was 31,654 kilograms for the 1992/93 season and the range of production per herd was up to 70,000, rather than just under 100,000 kilograms (Figure 6.20). This compares to average New Zealand production per herd of 26,982 kilograms in 1992/93 (LIC 1993). The multi-owned farms, where five farm owners each own two
farms, averaged 33,042 kilograms of milkfat in the 1992/93. So both single and multi-farm owners are operating at similar per-farm levels of production.

Figure 6.19  Postal sample of dairy farm owners in Waimate West County, 1992/93

![Bar chart showing milkfat production by farms]

- Kg milkfat
  - 70,000+
  - 60,000 to 69,999
  - 50,000 to 59,999
  - 40,000 to 49,999
  - 30,000 to 39,999
  - 20,000 to 29,999
  - 10,000 to 19,999
  - <10,000

n = 28

Source: 1994 postal survey of dairy farmers in Waimate West County.

Figure 6.20  Sample of dairy herds in Waimate West County, 1992/93

![Bar chart showing milkfat production by herds]

- Kg milkfat per herd
  - 70,000+
  - 60,000 to 69,999
  - 50,000 to 59,999
  - 40,000 to 49,999
  - 30,000 to 39,999
  - 20,000 to 29,999
  - 10,000 to 19,999
  - <10,000

n = 33

Source: 1994 postal survey of dairy farmers in Waimate West County.
All farm owners in the postal sample are family groupings or single owners, regardless of the scale of the farming operation (Figure 6.21). Husband and wife partnerships are the most common type of enterprise with 25 out of the 33. Three owners are sole proprietors. The other five are a mix of different types of family arrangements; a father and son partnership, a partnership between two brothers and a sister, a husband and wife and father partnership, one family trust, and a family trust partnership. All of the farm owners in this sample are families. I now examine under what arrangements they operate their farms as part of the process of deciding whether or not they fulfil the criteria of simple commodity production. This includes both farm owners and farm operators.

**Figure 6.21 Types of enterprise used by farm owners in owning the farms**

![Pie chart showing types of enterprise used by farm owners in owning the farms]

Sole proprietors 9%
Father & Son partnership (1)
Partnership with Brother & Sister (1)
Husband & Wife & Father (1)
Family trust (1)
Husband & Wife & Family trust (1)

Source: 1994 postal survey of dairy farmers in Waimate West County.

**Intra-farm relations 2: Farm operatorship**

Nearly two thirds of the farms are operated by the farm owners (Figure 6.22). Fifty-fifty sharemilkers and lower order sharemilkers are the next most common with four each out of the 33, followed by managers with two, and a single 70/30 sharemilker. The sharemilkers used by the farm owners in this sample are differentiated by their shares, by familial relations, and the nature of their contracts (Table 6.4). There are four 50/50 sharemilkers, one 70/30, one 22 percent, and three 20 percent. Half of the share contracts can be considered as standard contracts; three of the 50/50s and the 22%. The three 20% contracts represent a lower level of share than standard for the sharemilker, as does the 55/45 split for one of the 50/50 sharemilkers. In this latter case, the farm owner pays for all fertiliser, urea and grazing-off which adjusts the contract to close to an effective 50/50 split. Three sharemilkers work on the farm owned by their family, two of these are 50/50 and the third is the single 70/30 sharemilker who has a beneficial contract. None of the
lower order 22% or 20% sharemilkers are related to the farm owner. Four sharemilkers work on single-owned farms. Five sharemilkers, three 50/50 and two 20% sharemilkers work on multiple-owned farms. Production is lower on the farms where the sharemilkers are related to the farm owners. Higher order contracts of 70/30 and above are more common on the farms where the sharemilker is the son of the dairy farm owner(s). And contracts are more beneficial to the sharemilker family when the family are related to the farm owner. This small sample therefore confirms Bradly's work in 1992. It also confirms one of Lem's (1988) specifications of simple commodity production - that family members are given assistance by their family in order to facilitate the long-run reproduction of the family farm through intergenerational transfer.

Figure 6.22 Types of enterprise used by farm owners to operate the farms

![Diagram showing types of enterprise used by farm owners to operate the farms]

n = 33

Source: 1994 postal survey of dairy farmers in Waimate West County.

Fifty-fifty contracts are most common on the second farms of owners with more than one farm. In all three cases, the owner operates the first farm and the 50/50 contract is the most beneficial way to operate the second farms - the sharemilker provides the herd and all the labour, and takes care of the day-to-day management of the farm. This allows the farm owner to concentrate on the home farm and means that capital is not required to purchase a herd for the second farm. The farm owners who use a 20 percent sharemilker to operate their second farm do so again because this is the most beneficial to the owners. In this case, they are able to fund the herd and all expenses, provide other farm labour, and therefore require only a contract milker. But even this sharemilker has a vested interest in the amount of milk produced - the higher is total production on the farm, the higher is the sharemilker's income. These examples demonstrate the flexibility of sharemilking as a way of bringing together, in a mutually beneficial way, farm owners and
sharemilkers with disparate assets of capital and labour which they are able or choose to supply, as established in Chapter 3 for the general case of sharecropping.

Table 6.4  Sharemilkers, their shares, their family connections, and the contracts

<table>
<thead>
<tr>
<th>Share</th>
<th>Number</th>
<th>Single or multiple farm</th>
<th>Familial connection</th>
<th>Nature of contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>50/50</td>
<td>4</td>
<td>1 * Single</td>
<td>Yes</td>
<td>Standard contract</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 * multiple (ranked lowest production to highest)</td>
<td>Yes No No</td>
<td>1. Standard contract. It was previously more beneficial to give the sharemilker son more opportunity to accumulate. 2. Standard contract “to give any family the chance to build-up assets” 3. 55/45 with owner paying all fertiliser, urea and extra grazing-off</td>
</tr>
<tr>
<td>70/30</td>
<td>1</td>
<td>single</td>
<td>Yes</td>
<td>Contract more beneficial to son than would otherwise be the case</td>
</tr>
<tr>
<td>22%</td>
<td>1</td>
<td>single</td>
<td>No</td>
<td>Standard lower order contract where the owner rears all calves and manages the young stock on the runoff</td>
</tr>
<tr>
<td>20%</td>
<td>3</td>
<td>1 * single</td>
<td>No</td>
<td>Owner considers it “fair and rewarding to a young sharemilker” 1. Standard contract 2. Standard contract</td>
</tr>
</tbody>
</table>

* Source: 1994 postal survey of dairy farmers in Waimate West County.

Farm owners and farm operators as simple commodity producers

Although the farms in this sample are all owned by family enterprises, the different ways of organising production brings into question the status of these families. Farms which are owned and operated by the same family are family farms and are here classified as simple commodity producers. These present little difficulty to classification as simple commodity producers, and the later analysis in this section serves to reinforce this conclusion. For the others in this sample, it is necessary to extend this analysis of ownership and types of enterprise by considering the relationships between the farm owners and the farm operators. Table 6.5 specifies the ownership/operatorship relations for the singly-owned farms and stratifies them by production classes. Farm owners must participate in farm management in some meaningful way, otherwise they are no different from any non-farm investor, even though farm owners technically own the production from the farm as they alone have the right to supply dairy companies. Those farm
owners who use 50/50 sharemilkers are a difficult category - they must contribute to certain costs and they can oversee the management of their farm. The extent of this involvement is one important factor. Another is whether the farm is in the process of intergenerational transfer. A third is whether the owners reside on the farm. And still another is whether the current owners previously operated the farm. In the cases in Table 6.5, each of these factors reinforce all these single farm owners as simple commodity producers. In the 50/50 case, the owners still live on the farm and the son previously operated the farm through a more-beneficial-than-standard contract. In the other cases, a 70/30, a 22 percent and a 20 percent contract, the farm owners retain a substantial say in the operation of the farm and provide the herd and nearly all machinery as well as being responsible for all feed and fertiliser. These three sharemilkers are problematic to assess as simple commodity producers because the main input they provide is their labour. These issues are addressed more fully later in the chapter as Bradly's (1992) bigger sample of sharemilkers is used to offer more comprehensive conclusions on sharemilkers as simple commodity producers.

Table 6.5 Relations of ownership and production used by single farm owners

<table>
<thead>
<tr>
<th>Range of production</th>
<th>Type of enterprise</th>
<th>Operatorship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 29,999</td>
<td>2 Sole proprietors</td>
<td>All Owner-operators</td>
</tr>
<tr>
<td></td>
<td>11 Husband and Wife partnership</td>
<td></td>
</tr>
<tr>
<td>30,000 and over</td>
<td>Husband and Wife partnership</td>
<td>Sharemilker 70/30</td>
</tr>
<tr>
<td></td>
<td>Sole proprietor</td>
<td>Sharemilker 50/50</td>
</tr>
<tr>
<td></td>
<td>6 Husband and Wife partnership</td>
<td>Owner-operators</td>
</tr>
<tr>
<td></td>
<td>2 Husband and Wife partnership</td>
<td>Sharemilkers: 20%, 22%</td>
</tr>
</tbody>
</table>

Source: 1994 postal survey of dairy farmers in Waimate West County.

Table 6.6 does the same for the multi-owned farms as Table 6.5 did for the single-owned farms. All of the five owners of more than one farm are family-based but the range of operatorships is varied (Table 6.6). (Primary and secondary were defined by the respondents themselves, ie, the primary farm was the first they wrote down on the questionnaire form). There are three owner-operators, three 50/50 sharemilkers, two 20 percent sharemilkers, and two managers. The farms with managers should be the easiest to deal with but actually possess several characteristics of simple commodity production. The two farms which employ farm managers on salary are owned by the same family. These could be construed as capitalist enterprises as the managers are effectively waged employees with no control over ownership and no rights to the proceeds of production. Even so, the owners still work on the farm for an average of 10 to 15 hours per week each throughout the year. She handles mostly the calf-rearing in the spring and he handles the accounts and general overseeing duties. The family lives on the family farm which was
previously operated by the family, so it could possibly be argued that even in this example the farm owners are simple commodity producers. In contrast, the use of wage labour to operate the farms and the owners' identification of the farms as investments classify these as capitalist forms of production.

Table 6.6  Relations of ownership and production used by farm owners and farm operators of multi-owned farms

<table>
<thead>
<tr>
<th>Range of production</th>
<th>Type of enterprise</th>
<th>Operatorship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined production of under 60,000 kgs</td>
<td>Family partnership</td>
<td>Owner-operators</td>
</tr>
<tr>
<td></td>
<td>Family/Partnership/Trust</td>
<td>50/50, owner-operator</td>
</tr>
<tr>
<td>Combined production of 60,000 kgs and over</td>
<td>Husband and Wife partnership</td>
<td>20%, 50/50</td>
</tr>
<tr>
<td></td>
<td>Family/Partnership/Trust</td>
<td>Manager, Manager</td>
</tr>
<tr>
<td></td>
<td>Husband and Wife partnership</td>
<td>50/50, 20%</td>
</tr>
</tbody>
</table>

Source: 1994 postal survey of dairy farmers in Waimate West County.

Each of the other multi-owned farms has a different set-up. One uses another member of the extended family as an owner-operator which makes both farms sites of simple commodity production. Another multi-farm owner is an owner-operator who uses his son as a 50/50 sharemilker to operate the second farm. Again, both sides of the equation resemble strongly the necessary conditions for simple commodity production. The arrangements under which the other multi-owned farms are operated are less clear-cut. On one, the son of the farm owners is a 50/50 sharemilker, and he uses a contract milker to operate the other farm his parents own. Another similar case concerns the last family in this group. It uses a 55/45 sharemilker to operate their first farm and a 20% contract milker on the second farm. They may be simple commodity producers on their second farm as they provide the land, the herd and all other inputs except labour, but again, they use a 50/50 sharemilker to operate their first farm. A 50/50 sharemilker is argued to be a simple commodity producer in theoretical terms, so the farm is a site of simple commodity production for the sharemilker.

Based on the evidence so far, very few of the farm owners in this sample from Waimate West County could be classed as capitalist farmers. The majority are owner-operators which makes them simple commodity producers. The others, particularly the farms operated by managers, are less convincing as simple commodity producers but are certainly family-based. A wide range of contracts exists in this sample, which reinforces the idea of sharemilking as a flexible system for the efficient management of dairy farms.
Intra-farm relations 2 and External relations 1 and 2: Work relations, pluriactivity, and debt-to-asset ratios

Nineteen of the farm owners used no non-family labour apart from contractors in 1992/93. The seven farm owners who did employ non-family workers owned most of the largest farms in terms of production (Figure 6.23). Only two of the five farm owners who own two farms use non-family workers. Full-time managers and wage workers were used to operate two farms which were owned by one family. In the other, the farms are operated by 20% and 45% sharemilkers who each share one full-time worker. Of the seven farm owners who use non-family workers, six of the male owners also work full-time, and in one of these cases both the husband and wife work full-time. The average hours worked per year by family members is greater on the farms where non-family workers are employed, 4,123 compared to 2,812. The contribution by children on the farms where non-family workers are used is twice that on the farms where only family labour is used (111 hours per year versus 53), although both are small. These data reflect the higher labour requirements of these larger farms.

Figure 6.23 Family workers and non-family workers

The nature of dairy farming allows less scope for pluriactivity than in other farming systems such as sheep and beef farming where the incidence is comparatively high (Benediktsson, Manning, Moran and Anderson 1990). The only relatively free period of the year for dairy farmers is when the cows have dried-off and the mature stock are off the farm, that is, sometimes

Source: 1994 postal survey of dairy farmers in Waimate West County.
as early as April in some regions, but usually May, June and part of July. Pluriactivity can be undertaken due to economic necessity, for other reasons not related to farm economics, or for a mixture of both sets of reasons. One would expect that a full-time job such as operating a dairy farm should return sufficient income for the farmer so that pluriactivity is not required, especially when the majority of dairy farmers in this sample work much more than a 40 hour week.

This is the case in Waimate West as only eight people from eight different farms participated in pluriactivity in 1992/93, five men and three women. The range is from 22 hours to 50 hours per week, and from 16 to 50 weeks per year (Figure 6.24). Four of these people (three men and one women) work in jobs related to dairying. One man is a full-time company director who offsets his 25 hours per week in this honorarium position by employing on wages two permanent, full-time men. He still works a 50 hour week on the farm, so there are three full-time workers on this farm, the highest producing farm in the sample. The other three people have AB runs which account for about 16 weeks per year. Work relations on these farms are not altered as a consequence of this pluriactivity. Each of the other four are nearly full-time in their pluriactive work with the men working 30 hours per week and all year, and the women working 40 hours per week for 40 weeks of the year. Two of the men are company directors, one woman is a librarian, and the other is a kindergarten headmistress. Where the male owner is pluriactive, different work relations are in place on their farms. For the full-time men, one has a full-time manager on their two farms, and the other has a 22% sharemilker. For the farms with full-time, pluriactive women owners, one is a small owner-operated farm, and the other uses a 20% sharemilker with the male farm owner also providing 40 hours per week including help with the milking.

Figure 6.24  Pluriactivity in the 1994 sample of Waimate West dairy farms

Source: 1994 postal survey of dairy farmers in Waimate West County.
Twenty-three of the 26 farm owners used contractors during the 1992/93 season. These farm owners used contractors for an average of eight days per year. Veterinary and insemination services are additional to the tasks recorded in Figure 6.25.

**Figure 6.25  Farm contractors in Waimate West County**

![Bar chart showing number of days worked by contractors](chart)

Source: 1994 postal survey of dairy farmers in Waimate West County.

Intuitively, one would expect the more indebted farmers to be either working longer hours, employing less labour external to the family to save money, and/or to be operating at a larger than average scale. On the farms in this sample which employ non-family workers, the average debt to asset ratio is 0.24 compared to 0.05 for those farm owners who do not. The discussion above identified that the number of hours worked by family members, both working owners and their children, is nearly fifty percent higher on farms where non-family workers are employed and that this occurred on the biggest farms in the sample. Therefore a larger scale of farming is associated with higher levels of debt, more farm work by all family members and the employment of non-family workers. (In one case, there is low debt, and non-family labour is employed because of the farm owner's pluriactivity in the dairy industry).

**Intra-farm relations 3 and External relations 3: Intergenerational transfer and farm finance**

Simple commodity producers may obtain a cost advantage over capitalist producers by using money from their family to lower the cost of financing farm purchase, capital expenditure and seasonal finance. To investigate this, sources of finance for farm purchase and intergenerational transfer are considered here. Fourteen of these farm owners purchased their farms from their
family and 11 did not. (n = 25 because the two farms which were not principally dairying were excluded and one other farm owner did not give information on sources of finance). The average milkfat production in 1992/93 of those that did was 38,554 kilograms compared to 34,973 for those that did not. Only four out of the 14 farms which had been transferred within the family did not use some family finance, whereas only three of the non-family group used this source of farm finance. The principal source for the non-family group was banks (8), own money (1), private sources (1), and vendor finance (1) (Figure 6.26). Intra-family transfers had a different pattern with banks and family each providing the principal source of finance for six transfers, own money for four, and private sources for one. Their own money was the second most important source of finance for six farm owners in both groups. Family finance was the first or second most important source of finance for 20 out of the 26 farm owners. If the assumption is made that this source of finance is cheaper and more flexible than using open market transactions, then this source of finance provides an advantage for those who make use of it compared to those that do not. Capitalist producers do not have access to this type of finance, but have other alternatives.

Figure 6.26  Intergenerational transfer and finance for farm purchase

<table>
<thead>
<tr>
<th>Principal source of finance for farm purchase</th>
<th>Number of farm owners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendor</td>
<td>0 1 2 3 4 5 6 7 8</td>
</tr>
<tr>
<td>Private</td>
<td>Family transfer, n = 14</td>
</tr>
<tr>
<td></td>
<td>Non-family transfer, n = 11</td>
</tr>
<tr>
<td>Family</td>
<td>Banks</td>
</tr>
<tr>
<td></td>
<td>Own</td>
</tr>
</tbody>
</table>

Source: 1994 postal survey of dairy farmers in Waimate West County.

Inter-farm relations 1: Labour and machinery exchange

Another indicator of simple commodity production is the presence of labour and machinery exchange among farmers. This acts to save the farmers money because they do have to participate in market relations for some of the tasks and machinery they require. Fourteen out of the 26 farm owners who derive more than 75 percent of farm income from dairying engage in labour and machinery exchange to some degree. The average amount which these farm owners
estimate they save is $1,800 per annum, although one who participates says that it costs him about $2,000. (This person is included in the calculation of the average saving). Again intuitively, one would expect that the larger farms are more likely to be more self-contained than the smaller ones and their participation in labour and machinery sharing is likely to be lower. This is not the case in this sample as the average production of those that participate in labour and machinery exchange was higher at 36,870 kilograms of milkfat in 1992/93 compared to 33,951 kilograms for those who did not participate.

A possible indicator of a need to share labour and machinery is again the debt to asset ratio. The average debt to asset is higher at 21 percent for the group who participate compared to six percent for those that do not. Farm owners were not asked for the reasons why they did or did not participate in labour and machinery exchange so this evidence is not conclusive. There are no patterns to the differentiation between farm owners who do and do not participate in labour and machinery exchange by the types of operatorship they use on their farms. This sample provides sufficient evidence to conclude that labour and machinery sharing is common between the dairy farm owners in Waimate West County and that it provides them with an avenue for cutting their costs. The average saved through participation is roughly one percent of gross farm income.

**Inter-farm relations 2 and External relations 4: Cooperative processing and marketing**

Another indicator of simple commodity production is the existence of joint marketing through cooperatives. All dairy production in New Zealand is by cooperatives so there is no scope for differentiating between forms of production by membership of cooperatives. But, as was demonstrated with Apple Fields in the apple industry, farmers may prefer to market their own produce or another alternative to the NZDB. In the postal questionnaire, the farm owners were asked if they supported the New Zealand Dairy Board as sole New Zealand dairy exporter, and what they thought of Apple Fields Limited and that company’s actions against the New Zealand Apple and Pear Marketing Board. All 28 responses to the first question considered that the New Zealand Dairy Board was the most suitable structure for marketing export dairy products, and that cooperative processing and marketing was essential for the well-being of the industry.

The second question focussed on the present disputes in the apple industry. These disputes relate to the very existence of producer marketing boards and are therefore relevant to the dairy industry as the Dairy Board has very similar powers to the Apple and Pear Marketing Board. In addition, Apple Fields is a major participant in both industries. The responses fell into five groups (Table 6.7). (A full list of these responses can be found in Appendix L). Twelve farm owners did not comment either because they did not feel informed enough to do so (5), or because they just ignored the question (7). Of the remaining 18, one said it was nothing to do with him what happened in the apple industry, three thought the actions by Apple Fields were all right and 13 considered the actions to be to the detriment of the whole industry. One farm
owner thought that Apple Fields should be able to export if it did not prejudice the operations of the APMB. The combined answers to both questions leave little doubt that the farm owners from this core dairy farming region consider the present processing and marketing system for dairy products and apples to be the best for these industries and for their own enterprises.

Table 6.7  Responses to the question on Apple Fields action against the New Zealand Apple and Pear Marketing Board

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>No comment received</td>
<td>7</td>
</tr>
<tr>
<td>Not enough knowledge to comment</td>
<td>5</td>
</tr>
<tr>
<td>Nothing to do with me</td>
<td>1</td>
</tr>
<tr>
<td>Action by Apple Fields is O.K.</td>
<td>3</td>
</tr>
<tr>
<td>Apple Fields' action is to the detriment of the industry</td>
<td>13</td>
</tr>
<tr>
<td>NZAPMB should be in full control but allow Apple Fields to export subject to this not having a detrimental effect on the NZAPMB’s marketing</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

*Source: 1994 postal survey of dairy farmers in Waimate West County.*

*Dairy farming in Waimate West County as simple commodity production*

Waimate West County is a core dairy farming region where the farms are at a high stage of development. This sample of dairy farms reflects the idea of the *traditional family dairy farm*, and provides clear insights to the social relations of production for this scale of operation within this farming system. Each individual farm in the sample is a site of simple commodity production where either the farm owner is the operator or a sharemilking family operates the farm for the owners. In almost all cases the farm owners can themselves be classified as simple commodity producers. For the average sized farms, contractors of specialised services are the only non-family labour used, so mainstream dairying remains a largely full-time enterprise based on the family unit. As such, dairy farming at this scale is simple commodity production. As the scale of farming operations increase, the owners and their families work longer hours and some of them hire non-family workers. Increasing the scale of farming often means the purchase of an additional farm or runoff, so the level of relative indebtedness also increases. However, farm owners, even when they use sharemilkers, remain in control of their enterprises. Even in the only example which may not be simple commodity production, where managers are used to operate the two farms owned by the family, the male farm owner still works 15 hours per week throughout the year on farm business.
6.5 DAIRY FARMING AT A LARGE SCALE

Two public-listed companies, Tasman and Apple Fields, have been instrumental in the recent growth in dairy farming in the South Island. Both companies expanded their interests in dairy farming through purchase of existing dairy farms, and more commonly, through conversion of sheep and mixed crop/livestock farms into multiple dairy farms. The significance of their operations is demonstrated by the proportion of total milkfat which each company supplied to the two largest dairy processing cooperatives in the South Island, Alpine Cooperative Dairy Company and Southland Cooperative Dairy Company (Table 6.8). The decline in the proportions supplied in 1992/93 was because Tasman and Apple Fields have developed very few new farms since then, while the total number of suppliers to these dairy company has continued to increase.

Table 6.8 Tasman and Apple Fields supply to Alpine and Southland dairy cooperatives

<table>
<thead>
<tr>
<th>Cooperative dairy company/Supplier</th>
<th>Percentage of total milk supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1991/92 season</td>
</tr>
<tr>
<td>Alpine Dairy Products Limited:</td>
<td></td>
</tr>
<tr>
<td>Apple Fields</td>
<td>n.a.</td>
</tr>
<tr>
<td>Tasman Agriculture</td>
<td>n.a.</td>
</tr>
<tr>
<td>Southland Dairy Cooperative Limited</td>
<td></td>
</tr>
<tr>
<td>Apple Fields</td>
<td>11.8</td>
</tr>
<tr>
<td>Tasman Agriculture</td>
<td>5.7</td>
</tr>
</tbody>
</table>

Source: Personal communication with dairy company representatives.

Note: 1992/93 and 1993/94 figures are estimates given by the respective dairy companies.

Tasman and Apple Fields virtually withdrew from the land market because of increases in land prices above what each company considered prudent purchase levels for conversion to dairying. However, the momentum in farm sales for conversion to dairying continued in the 1993/94 season. For example, the Southland Dairy Cooperative approved 66 new suppliers (pers. com. McEvoy). Only six of these new suppliers were corporate farmers. The Southland Dairy Cooperative recently increased its manufacturing capacity by commissioning a new bulk milk drier, and has been very active in seeking to attract dairy farmers to Southland through such promotions as a stand at the Agricultural Field Days at Mystery Creek.

The increase in the scale of dairy farming identified in Section 6.3 and the expansion in the geographical scope of dairy farming is most notable in the South Island. Good quality farmland
became available for conversion to dairying because the low real returns to sheep and mixed crop/livestock farmers were translated into historically low, real prices for farmland. The lowland in Southland and Otago, and around Waimate, Ashburton, Rakaia and Culverden in Canterbury demonstrated the greatest potential for change of land use to dairy farming. Irrigation schemes made conversion to dairying a viable proposition. A transformation in land use occurred in these areas, and all the key production characteristics of dairy farming in the South Island have increased significantly within a short period (Table 6.9). The proportion of herds located in the South Island increased from 8.38 to 10.57 percent of all New Zealand dairy herds, the number of cows in the South Island amount to over 11 percent of all cows in New Zealand in 1992/93 compared to just over eight percent in 1988/89 and the average herd size in the South Island is now greater than the average national herd size where before it was less. The South Island now has more than 15 percent of herds over 500 cows, by far the greatest proportion of all the Livestock Improvement Corporation regions. (A map showing the Livestock Improvement Corporation regions is in Appendix A). The change to the structure of suppliers to Alpine Dairy Cooperative demonstrate the degree of change - 18 of the 20 largest suppliers to the company in the 1993/94 season were new suppliers (Larking pers. com.). This increase is a new phase for dairy farming in New Zealand. The companies instrumental in this increase provide a vivid contrast to the traditional family dairy farms found in most of the country and exemplified by the sample in Waimate West County. But the actual production system remains the same - it is the scale of dairying which is altering. The remainder of this section examines the operations of Tasman and Apple Fields to determine whether or not these new companies instituted new or different social relations of production as part of their entry into dairy farming, their development of new farms and their expansion into new regions.

Table 6.9 Changes to South Island dairy farming

<table>
<thead>
<tr>
<th>Indicators</th>
<th>1988/89</th>
<th>1992/93</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>% of NZ</td>
</tr>
<tr>
<td>Herds</td>
<td>1139</td>
<td>8</td>
</tr>
<tr>
<td>Cows</td>
<td>172,084</td>
<td>8</td>
</tr>
<tr>
<td>Herd size</td>
<td>151</td>
<td>96</td>
</tr>
</tbody>
</table>


**Tasman Agriculture Limited (Tasman)**

Tasman was formed specifically to invest in the historically low real prices for good quality farmland suitable for dairy production which occurred in the late 1980s. Now, five years after obtaining sharemarket listing as a public company Tasman remains involved only in dairy farming and the development of dairy farms. Tasman grew rapidly during this period and is now
the largest dairy farmer in New Zealand (Figure 6.27). As of August 1994, Tasman owned 53 dairy farms in the South Island of which 42 were conversions, nine in Tasmania, and was in the process of converting 10,000 hectares of land in north west Tasmania into dairy units for its own use. Tasman purchased existing dairy units or developed new dairy farms by converting sheep farms at the low entry price of under $13 a kilogram of milkfat (Tasman pers. com.). This compares with at least $30 per kilogram for dairy farms traded on the open market in the first six months of 1994. The company’s performance so far demonstrates that it has been a very successful asset play as shareholders’ funds increased through asset revaluations by $23 million (Tasman 1993).

**Figure 6.27  Growth of Tasman as a dairy farmer**

![Graph showing the growth of Tasman as a dairy farmer from 1989/90 to 1993/94.]

*Source: Annual Reports of Tasman Agriculture Limited, various years.*

Tasman has a shallow management and operating structure (Figure 6.28). Head office in Dunedin consists of a general manager and four staff. Two directors are employed on contract, one as the farm acquisition director and the other as the farming director. In addition, there are two field officers to oversee the New Zealand farming operations and one to do the same in Tasmania. Each farm operates as a subsidiary company. Up to and including the 1991/92 season, Tasman owned a significant number of cows and operated half its farms with either contract milkers or lower-order sharemilkers. Company philosophy is now to own no cows and to use 50/50 sharemilkers on all farms. In a presentation to the New Zealand Society of Investment Analysts on August 18 1992, Tasman cited the advantages of using 50/50 sharemilkers as promoting ‘... ease of management [of the company's assets], no livestock risk, [better performance because] the farms are run by highly motivated, incentivised, high calibre people, and no capital requirement for livestock’ [For the 1992/93 season Tasman would have required extra funding of $10 million if it owned all its cows]. [My additions].
Tasman Agriculture Ltd:

BIL = 35%; Top 20 shareholders = 85%; Directors <4%

Board (6 members)

- Farm acquisition director (on board of directors)
- Farming director (on board of directors)

Tasmania:
9 dairy farms organised as subsidiaries of Tasman Agriculture and operated by 50/50 sharemilkers, and a 10,000 hectare conversion

South Island New Zealand:
52 dairy farms organised as subsidiary companies of Tasman Agriculture and mostly operated by 50/50 sharemilkers

Source: Annual Reports of Tasman Agriculture Limited, various years.

Tasman quickly implemented its objective of using 50/50 sharemilkers on most of its farms (Figure 6.29). As the number of farms it owned increased from 29 in 1991/92 to 50 for the 1992/93 season, the proportion of farms with 50/50 sharemilkers increased from 55 percent to 92 percent. With the shift towards almost total reliance on 50/50 sharemilkers, Tasman acknowledges that this is the best arrangement for the company. Their 50/50 sharemilkers provide Tasman with a seasonal budget and then they are left to get on with the job of running the farms with maximum autonomy. This policy flows from the company’s operational objectives which are to increase the value of assets. This is pursued in two ways. The first is by developing new dairy farms to enable entry to dairy farming at a low cost. This is one part of Tasman’s business operations and is separate from the operation of the dairy farms. The second is that getting the farms up to their full potential output has a direct result on the value of the farm. For sharemilkers, maximum production is clearly their raison d’etre. The aims of both the company and the sharemilkers therefore lie in increased production per hectare, which is in accordance with the discussions on sharecropping in Chapter 3 (Reid 1976; Bradley 1992), and the analysis of sharemilking earlier in this chapter. As part of the process of moving towards using 50/50 sharemilkers on all their farms, Tasman purchased several smaller farms to
accommodate sharemilkers with a lower level of assets. These sharemilkers can then step-up the agricultural ladder within the company.

**Figure 6.29  Tasman's shift towards 50/50 sharemilkers**

![Bar chart showing farm types and their percentages in 1991/92 and 1992/93.

Source: *Annual Reports of Tasman Agriculture Limited, various years.*

**Apple Fields**

Apple Fields began its corporate life involved primarily in the establishment of apple orchards, but dairy farming has contributed more to the company in terms of turnover and profits since the shift was first made into dairy farming in the 1987/88 season (Figure 6.30). This result is to be expected as most of the orchards produced their first apples in only the 1989/90 season. However, Apple Fields derived profits from its apple orchards in the early years through lease payments by the apple orchard partnerships and income from Canterbury Orchard Services Limited as the developer and manager of the orchards owned by the partnerships.

The company’s involvement in dairy farming added significantly to assets, turnover and profits and resulted in quicker growth for Apple Fields than was forecast in its prospectus for listing as a public company in 1986. Apple Fields now owns 35 dairy farms according to their 1993 annual report after beginning in dairying by purchasing eight farms during the 1987/88 season. More than half these dairy farms are conversions from sheep or mixed livestock/cropping farms. Two reasons are given for implementing conversions rather than buying existing units. First, the cost of buying established dairy farms was greater than converting, and second, conversions allowed Apple Fields to increase the scale of its dairy production. These are similar to the reasons given by Tasman.

Apple Fields expects the number of cows which it owns to drop from the 11,300 reported in the 1993 Annual Report. This coincides with its policy of using more 50/50 sharemilkers than previously (No information was provided by Apple Fields for seasons previous to 1993/94).
Apple Fields began dairy farming with some direct management systems. The early, more direct management style involved central bulk purchasing of inputs and instructions to sharemilkers and contract milkers about how to operate the farms, for example, on when to fertilise. Facets of this style remain. Most important and useful according to the sharemilkers I interviewed, are data reporting by the farm operators, analysis of this data by staff at head office, and the return of a report to each farm operator within a few days of them sending the data to head office. This process allows the company and its farm operators to keep a close watch on key performance indicators on the farm and in the farm dairy. The sharemilkers and contract milkers are signed-up for varying periods, most commonly for three year terms, but some are on one-year contracts.

Figure 6.30  Turnover and profits of Apple Fields' dairy farming and apple orcharding

Turnover and Profits ($millions)

Source: Annual Reports of Apple Fields Limited, various years.

Note 1: Turnover data is by "Industry segments" - Apple Fields definition and data.

Note 2: Profits are again by industry segments and are profit (or loss) before interest expense, lease fee and tax.

Apple Fields and Tasman - large-scale, capitalist dairy farmers

The average dairy farm owned by Tasman and Apple Fields is dramatically larger than the New Zealand average. In 1993/94, Tasman's herds averaged 375 milking cows and Apple Fields' averaged 320, much larger than the New Zealand average (Figure 6.31). At an average effective size of 129 hectares, the dairy farms owned by Apple Fields are over 80 percent larger than the average size of dairy farms in New Zealand and only a little smaller than those owned by Tasman which average over 140 hectares (Figure 6.32). In the 1992/93 season, Apple Fields
Figure 6.31  Comparative herd size

![Bar chart showing comparative herd size for different regions and groups.]

Source: Interview with Tasman Agriculture Limited; Annual Reports of Apple Fields Limited; and Livestock Improvement Corporation 1993.

Figure 6.32  Comparative farm size

![Bar chart showing comparative farm size for different regions and groups.]

Source: Interview with Tasman Agriculture Limited; Annual Reports of Apple Fields Limited; and Livestock Improvement Corporation 1993.
owned 11,300 cows, had an average of 323 cows per farm, produced an average of 48,000 kilograms of milkfat per farm (Figure 6.33), and produced an overall total of 2,162,660 kilograms of milkfat (Apple Fields 1993). Tasman averaged an even higher output of over 56,000 kilograms per farm in 1992/93 (Figure 6.33). The lower than average milkfat per hectare figures for Tasman and Apple Fields are partly because many of their conversions are still in various early stages of development. This productivity measure will move towards the national average of 349 kilograms of milkfat per hectare as pastures mature.

**Figure 6.33  Comparative average production of milkfat per farm**

Apple Fields and Tasman, as public-listed companies, are capitalist dairy farming enterprises because of the separation of ownership (by shareholders) and labour (by people contracted to operate their farms), and by the modus operandi of the companies - to produce wealth for their shareholders. Both companies entered dairy farming when real land values were at one of their low points. Their aim is to improve the value of assets for their shareholders. The motivation for both companies is therefore a mixture of profits and asset-growth. Each company now owns a substantial number of dairy farms, 35 and over 52 respectively, which cost much less than current market value of over $30 per kilogram of milkfat. For Tasman, the entry cost of these farms was less than $13 per kilogram of milkfat. Few of the opportunities for avoiding the full cost of market relations exist for these capitalist dairy farmers. However, those avenues that are
available, such as funding through the sharemarket and economies of scale developed through their conversions to dairy farms, are not available to simple commodity producers.

One area in which the attitude of the two forms of production coincide appears to be in contentment with the present structure of the dairy industry in New Zealand. The simple commodity producers of Waimate West County are emphatic about their support of cooperative processing companies, and the virtual export monopoly of the NZDB. Both Tasman and Apple Fields appear to support these structures, if the annual reports of both companies are considered as evidence. Apple Fields is continuing to expend resources in fighting the export monopoly of the NZAPMB. It is, in contrast, quiet about the NZDB. Indeed, the only comment in the company’s annual reports about the NZDB during the last few years are on the general need to restructure the producer marketing boards. The Dairy Board does not get criticised specifically at any point by either company in their 1993 annual reports. This situation is somewhat surprising as the dominant shareholding in Tasman is by Brierley Investments Limited whose chief executive is a member of the New Zealand Business Roundtable, an organisation which espouses markets and free competition as the best way forward for the New Zealand economy. Similarly, the chief executive of Apple Fields is a member of the Business Roundtable and Apple Fields is clearly intent on dismantling the monopoly powers of the NZAPMB.

Alternatively, Apple Fields has much to gain by a deregulation of the NZAPMB compared to the NZDB - it produces only premium varieties of apples which can be differentiated in the market whereas it is unlikely to go out and build its own dairy processing facilities because it is only a small producer of milk and the facilities are already in place. Thus the reason for the differential in Apple Fields' attitudes to the two marketing boards is the impact each has on its profitability. Tasman is unlikely to promote the dismantling of the NZDB for the same reason as Apple Fields.

In terms of its operational strategy, Tasman shifted dramatically to the use of 50/50 sharemilkers in the 1992/93 season. All except two of its dairy farms are now operated by 50/50 sharemilkers. For Apple Fields, the transition to this structure is less complete with half of its farms now operated by 50/50 sharemilkers, 37 percent by contract milkers, and 13 percent by sharemilkers who have contracts which are a mixture of contract-milking and sharemilking (Watson pers.com. 1994). The analysis of the farms in Waimate West confirmed that the larger the farm is, the larger is the work force which is required. Because the farms owned by Tasman and Apple Fields are about twice the average size of dairy farms in New Zealand, much more labour is required than for the traditional family dairy farm. For example, the sharemilkers on each of the farms owned by Apple Fields employ an average of 1.56 wage workers. The task of the following section is to compare the sharemilkers used by Tasman and Apple Fields with those sharemilkers and owner-operators in the core dairying area of Waimate West County and to determine whether or not both sets of sharemilkers are simple commodity producers.
6.6 SHAREMILKING AS SIMPLE COMMODITY PRODUCTION

In the discussion of sharecroppers as simple commodity producers in Chapter 3, I reached the conclusion that sharecropping (or ex-capitalist sharecropping in Mann's terms) is a modern way for both parties to make the most efficient and/or desirable use of their respective resources. I focussed on ownership of the production contract, the household as basis of the enterprise, the household as provider of labour to the enterprise, the agricultural ladder, and intergenerational transfer. My conclusion was that the only difference between sharecroppers and simple commodity producers is the issue of land ownership. The purpose here is to assess from the information collected for this research whether this is an accurate conceptualisation. This involves analysis of all three sets of data used thus far in the second half of this chapter.

Sharemilkers in Waimate West County

Intra-farm relations 1: Ownership of production contracts and types of enterprises

Sharemilking is well-represented in the core dairy farming regions of New Zealand if Bradly's (1992) study of Waimate West County is representative. Thirty-nine out of the 45 sharemilkers in Bradly's sample were husband and wife partnerships, and the remainder were single men who worked as owner-operators of their sharemilking enterprises. This confirms the range and type of enterprise structure found in the sample from the postal questionnaire. Fifty-fifty contracts dominate Bradly's Waimate West sample (Figure 6.34).

Figure 6.34 Sharemilking contracts in Bradly's sample

Bradly found that there was no statistically significant connection between the existence of family sharemilking contracts and the acquisition of farms from families. This suggests that sharemilking enables non-family ownership of dairy farms just as it facilitates acquisition through intergenerational transfer. All three contracts of over 50 percent in his sample were intra-family compared to only eight of the 35 50/50 contracts and three out of the seven other contracts. These intra-family contracts were less-legally specified, mostly had no set duration and were more beneficial to the sharemilker (Table 6.10).

Table 6.10 Length of current 50/50 contracts and family connections

<table>
<thead>
<tr>
<th>Length of contract</th>
<th>Family</th>
<th>Percentage of family</th>
<th>Non-family</th>
<th>Percentage of non-family</th>
</tr>
</thead>
<tbody>
<tr>
<td>No fixed term</td>
<td>10</td>
<td>71</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>One year</td>
<td>2</td>
<td>14</td>
<td>10</td>
<td>32</td>
</tr>
<tr>
<td>Three year</td>
<td>2</td>
<td>14</td>
<td>21</td>
<td>68</td>
</tr>
</tbody>
</table>

Source: Bradly, 1992:60.

Intra-farm relations 2: Work relations

The men in Bradly's sharemilking sample average 66 hours per week throughout the year. Some indicated that they worked over 80 hours per week during calving and hay and silage making. Women's participation in farm work is highly flexible as they are often on-call and have to combine farm-work with reproductive work. Women working on farm-work averaged over 26 hours per week throughout the year (Figure 6.35). The hours worked by men are similar to those for owner-operators in the 1994 postal survey but the hours worked by sharemilking women are considerably more than for the women of farm-owning families. This commitment to long hours of work at unsocial hours demonstrates the drive which sharemilking families have towards capital accumulation. Both partners are often required to work in this, the earlier stages of their dairy farming careers. That men predominate in physical farm work hides significant contributions by women. For example, all men and 78 percent of women are involved in milking which is the main daily activity and these women participate on a permanent basis. Women also do most of the reproductive work (Table 6.11).

One permanent wage worker was employed on each of six farms, five of which were amongst the largest farms in the sample. A variety of contract and casual wage workers were used on most of the farms during times of peak labour and machinery demand, such as hay-making and specialist work such as fertiliser application and animal health. Thirty-one of the 45 sharemilkers took part in reciprocal labour and/or machinery exchange with relatives (3), friends and neighbours (23),
Figure 6.35  Hours per week of farm work for men and women

Average number of hours worked per week

Source: Bradly and Blunden 1994.

Table 6.11 Division of labour: administration, management and reproductive functions

<table>
<thead>
<tr>
<th>Task</th>
<th>Male only participation</th>
<th>Female only participation</th>
<th>Shared male and female</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Administrative and managerial tasks</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buy/sell stock</td>
<td>26</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Contacts with bank manager/accountant</td>
<td>10</td>
<td>0</td>
<td>33</td>
</tr>
<tr>
<td>Bookkeeping</td>
<td>15</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>Buy/sell farm equipment</td>
<td>28</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Contacts with agricultural advisers</td>
<td>24</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td><strong>Reproductive tasks</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housework</td>
<td>3</td>
<td>34</td>
<td>7</td>
</tr>
<tr>
<td>Minding children</td>
<td>0</td>
<td>12</td>
<td>22</td>
</tr>
<tr>
<td>Household shopping</td>
<td>4</td>
<td>32</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: Bradly 1992:85, 86.
and a mixture of relatives and friends and neighbours (5). In this way, sharemilkers accessed labour or machinery, which would otherwise have to be purchased or hired. These uncommodified exchanges were important for most of these enterprises (Bradly 1992).

The sharemilking family was the primary source of labour used to operate Bradly's sample of sharemilked farms. Only five men from a total of 45 worked off-farm and all were involved in only seasonal jobs. The resulting labour shortfall was taken up by parents (2 cases), spouses (2) and hired labour (1). The motivation was to increase savings for eventual farm purchase. Only seven women were found to be pluriactive, three full-time (two teaching and the other a MAF technician) and four part-time (two teachers, one hairdresser and one shop assistant). Although all these women said they worked off-farm for their own interest, they made substantial contributions of up to $20,000 to household income. Bradly suggested that this low level of off-farm work, compared, for example, to the Raglan study (Benediktsson, Manning, Moran and Anderson 1990), partly derives from the comparatively lower education levels and the farm background of the Waimate West sample. Farming system specificity provides a stronger explanation as sharemilking allows less opportunity for pluriactivity than does sheep and beef farming. In addition women’s contributions to productive work on the farm are more significant and necessary in sharemilking.

Bradly’s study found that half of the farm owners in his sample were sharemilkers previously. There is little dispute that sharemilking in New Zealand does provide the basis of an agricultural ladder. Eighty-nine percent of Bradly's sample aimed to accumulate enough capital for farm purchase or to take over the family farm. The very existence of a ladder for sharemilkers reinforces the reproduction of sharemilkers as household enterprises and simple commodity producers. The differential in the ages of dairy farm owner-operators and sharemilkers emphasises the progression from sharemilker to farm owner-operator. The median age of dairy farmers was 42 in 1986 while it was 31 for sharemilkers. Another measure of population age structure is the cumulative age integral (CAI). Intuitively, the closer the CAI gets to unity (1), the younger is the population group. (See Neville and O'Neill (1979) for a comprehensive discussion of this measure). Sharemilkers are significantly younger than dairy farmers as they have a CAI of 0.7498 compared to 0.5746 for dairy farmers. For visual comparison, Appendix N has the respective sex/age-group pyramids which were derived from occupation data from the 1976, 1981 and 1986 Censuses of Population and Dwellings.

Some further conclusions are possible from this analysis of Bradly's work and the postal questionnaire. Sharemilkers are not wage earners but derive their income through profits which originate from their ownership of a share contract. They are of the same class as farm owner-operators in terms of their work, and their aim and the likelihood of owning their own farm. There is no oppositional class structure between farm owners and sharemilkers as posited by
Marxist analysts of sharefarming (eg, Buttel and Newby 1980; Goss, Rodefeld and Buttel 1980; Mann 1990).

**Sharemilkers and capitalist dairy farmers**

For these case studies, I interviewed eight sharemilkers during March 1994. Five were from Tasman (T) and three from Apple Fields (AF). I attempted to interview sharemilkers on a cross-section of farms (Table 6.12) but with emphasis on the larger units which were more likely to have relatively more workers per farm, a possible indicator of capitalist production. I made contact with the sharemilkers through Ray Walker and Tony Watson of Tasman and Apple Fields respectively. They provided a list of farms that I might visit and I then arranged visits with the sharemilkers. The interviews were relatively unstructured, took three to four hours, were with both the husband and wife except for one case, and included a walkabout or drive around each farm.

These case studies represent a geographical spread of the dairy farms owned by each company, from Culverden in north Canterbury to Gore in Southland. The size of these farms ranges from 74 hectares to the 375 hectares of the double-farm which is operated by one of Tasman's sharemilkers. This is an case which arose due to an unusual set of circumstances. However, it is worthwhile to include in this sample because the work relations which are used on the double-farm give further insights to the different forms of production. In this case, there are eight workers employed by the sharemilker. The average size is 194 hectares. Two are established dairy farms, two are established conversions, three are recent conversions, and the double is an established conversion and a new conversion. The farms located in Southland are distinctive as there is no irrigation - rainfall is sufficient and reliable enough. Herd size varies between 198 and 880 with an average of 466; annual production of milkfat ranges from 36,000 kilograms to 140,000 with an average of 74,000; and the number of workers employed per farm (in addition to the sharemilking families) varies between none and 6.3, with an average of 2.3. All these averages are higher than the overall averages for Tasman and Apple Fields (Table 6.13) and demonstrate a bias of these case studies towards sharemilking operations of the larger size. Note that if the double farm operated by the one Tasman sharemilker was considered as two units then the averages would drop considerably to 172 hectares, 418 cows, 66,000 kilograms, and two workers. The double farm should be considered as one operation here as I am considering the sharemilkers as cases rather than the farms or the herds.

The sharemilkers on these farms are typical sharemilkers with similar characteristics to those in Waimate West, except for the scale of their dairy farming. All of these sharemilkers organised their enterprises as husband and wife partnerships and all considered themselves as family enterprises. The average hours worked by male sharemilkers was 77 hours per week through the year, and the female sharemilkers worked an average of 29 hours per week, although this varies
Table 6.12: The sample of large-herd sharemilkers and averages from Tasman and Apple Fields

<table>
<thead>
<tr>
<th>Dairy farm</th>
<th>Irrigation</th>
<th>Farm size (ha)</th>
<th>Herd size</th>
<th>Milkfat (kg)</th>
<th>Additional workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Established</td>
<td>None</td>
<td>74</td>
<td>214</td>
<td>38,621</td>
<td>0</td>
</tr>
<tr>
<td>Conversion</td>
<td>None</td>
<td>150</td>
<td>350</td>
<td>54,250</td>
<td>1.5</td>
</tr>
<tr>
<td>Conversion</td>
<td>Border-dyke</td>
<td>177</td>
<td>440</td>
<td>70,400</td>
<td>1.5</td>
</tr>
<tr>
<td>Conversion</td>
<td>Border-dyke</td>
<td>228</td>
<td>460</td>
<td>64,400</td>
<td>2</td>
</tr>
<tr>
<td>Established conversion</td>
<td>Border-dyked 1983</td>
<td>141</td>
<td>450</td>
<td>80,000</td>
<td>1.8</td>
</tr>
<tr>
<td>Established</td>
<td>None</td>
<td>137</td>
<td>425</td>
<td>80,000</td>
<td>1.5</td>
</tr>
<tr>
<td>Established conversion</td>
<td>Border-dyke</td>
<td>269</td>
<td>660</td>
<td>108,500</td>
<td>3.7</td>
</tr>
<tr>
<td>Conversion &amp; Established</td>
<td>Spray</td>
<td>375</td>
<td>1030</td>
<td>159,000</td>
<td>6.3</td>
</tr>
<tr>
<td>Averages:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case studies</td>
<td></td>
<td>194</td>
<td>466</td>
<td>81,896</td>
<td>2.3</td>
</tr>
<tr>
<td>Tasman</td>
<td></td>
<td>146</td>
<td>367</td>
<td>56,682</td>
<td>n.a.</td>
</tr>
<tr>
<td>Apple Fields</td>
<td></td>
<td>129</td>
<td>325</td>
<td>48,000</td>
<td>1.56</td>
</tr>
</tbody>
</table>

Sources: Annual reports of Tasman and Apple Fields; Interviews with sharemilkers.

Note: The data are for the 1993/94 season and represent production as estimated by the sharemilkers in March of that season.

Note: Data for “Conversion & Established” is for two herds on adjacent farms which are operated by one sharemilker.

considerably with the number of young children. Women are involved in the same work roles as the sharemilkers in Waimate West and are principally responsible for calf-rearing, the accounts and the children. Most of the group fit the age profile of sharemilkers demonstrated in Section 6.4. The input from family members other than the husband and wife is minimal due to the young age of the children. Most of these sharemilkers are on three-year 50/50 sharemilking contracts.

The differences due to the scale of operations are simply summarised by the differential amounts of hired workers. In Waimate West, 67 percent of the dairy farms had no hired workers. On the farms that did hire non-family labour, 1.5 full-time workers was the maximum and this was where the farm owner worked for 30 hours per week off the farm. In this sample of large-herd sharemilkers, the average number of full-time workers employed was 2.6 (last column of Table 6.12). This was due to increase on the farms which were still in the early stage of development.
I concentrate on three sets of relations here - the nature of the sharemilking contracts, the work relations on these sharemilked farms, and the agricultural ladder and the roles of Tasman and Apple Fields in it. Each helps to quantify whether these sharemilkers can be considered simple commodity producers, the role of Tasman and Apple Fields in sustaining simple commodity production and how Tasman and Apple Fields sustain their own capitalist form of production.

Concerning the first set of relations, some sharemilking contracts are very flexible in the way they are put together, especially in the case of Apple Fields. Sharemilkers require a significant amount of capital for a large herd operation. If for the sake of simplicity we consider that a milking cow costs an average of $1,000, then a 400 cow herd costs $400,000. On top of this, many of the sharemilkers new to the South Island came from the North Island and incurred costs of up to $100,000 to bring themselves, their herds and associated machinery south. This may not be a big problem for someone who has been 50/50 sharemilking for a number of years but it is for most. At the other end of the scale, sharemilkers much lower down the ladder may have few assets but good credentials for the task. The point to be made is that there is a range of sharemilkers defined by their assets and experience and a range of farms defined by the farm assets of Tasman and Apple Fields. Matching these requires considerable flexibility. Tasman now chooses to do this by having all sharemilkers on 50/50 contracts, matching the size of the farm they operate with the herd assets of the sharemilkers, and in some cases financing herd costs or guaranteeing bank loans. Apple Fields has more flexible contracts, such as those which combine sharemilking contracts with contract milking. Both systems appear to work well and all the sharemilkers whom I interviewed said that they are very happy with the outcomes.

The second set of relations are the work relations on these farms. Not surprisingly, the work relations in this sample vary considerably. On the smallest farm of 74 hectares, the sharemilking couple do all the work all the time, including managing their grazing-out on leased land. On the double-farm example, a farm manager and two juniors are used by the 50/50 sharemilker to operate each of the farms, and two ancillary people are employed to cater for the men and look after the couple’s children (Table 6.13). The conditions of employment of labour additional to the sharemilking family vary considerably and are partly attributable to the particular sharemilker and partly attributable to the nature of farming on each property. As a general rule, the bigger the herd, the greater the number of workers employed. If the two farms producing 80,000 kilograms are excluded the average per worker production is remarkably consistent at around 20,000 across all farms, regardless of irrigation system (Table 6.13). The two sharemilkers excluded are the two with markedly higher output. They operate fully-developed farms owned by Apple Fields. One farm is in Southland and the other is a border-dyked farm near Christchurch. Both farms are at their full potential. Other farms operated by Tasman and Apple Fields can be expected to reach towards these levels of productivity, except for the smaller ones where economies of scale are not available. These results compare with an average
of 25,498 kilograms per worker found by Fairweather in his study of large-herd dairy farming in the 1992/93 season.

Table 6.13 Work relations of the large-herd sharemilkers

<table>
<thead>
<tr>
<th>Sharemilker labour</th>
<th>Additional workers</th>
<th>Kg milkfat per worker</th>
<th>Details of additional workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00</td>
<td>0</td>
<td>19,311</td>
<td>No additional workers</td>
</tr>
<tr>
<td>1.36</td>
<td>1.5</td>
<td>18,988</td>
<td>One full-time and one full-time from August to November. Expected to work 70 hours per week. Quarters and evening meals provided for single men on the farm</td>
</tr>
<tr>
<td>1.79</td>
<td>1.5</td>
<td>21,426</td>
<td>One full-time man, 70 hours per week with housing provided, plus a part-time worker for 30 hours per week</td>
</tr>
<tr>
<td>1.43</td>
<td>2</td>
<td>18,783</td>
<td>Two full-time workers on salary with monthly bonus for grade-free, and seasonal bonus for performance. Housing provided</td>
</tr>
<tr>
<td>1.29</td>
<td>1.8</td>
<td>26,209</td>
<td>Married couple plus son of 50/50 sharemilker; men full-time and on salary plus bonus but not based on production. Only one milking per day for each couple. Wives work part-time and are paid on an hourly basis. Three weeks annual leave first year, four in second year. Housing provided</td>
</tr>
<tr>
<td>1.21</td>
<td>1.5</td>
<td>29,474</td>
<td>Two full-time men on employment contracts, average of 49 hours per week through the year. Housing provided</td>
</tr>
<tr>
<td>1.57</td>
<td>3.7</td>
<td>20,583</td>
<td>Three full-time staff and one other employed August to February. Verbal contracts. Rotating shift: seven on, two off. Everyone works Mondays. Three weeks holidays from late December. Housing, phone, meat and milk provided</td>
</tr>
<tr>
<td>1.57</td>
<td>6.3</td>
<td>20,236</td>
<td>Salaried managers operate each farm with two juniors. Managers expected to work 70 hours per week, performance related pay. Juniors work 50 hours per week. All housing and catering costs met by sharemilker</td>
</tr>
</tbody>
</table>

Sources: Interviews with sharemilkers contracted to Tasman and Apple Fields.

Note: Sharemilker labour is calculated by assuming that the average number of hours worked per week is 70. The husband and wife's contribution are added together and divided by 70. Juniors are assessed at 50 hours per week.
The output per worker data in Table 6.13 demonstrates remarkable consistency from the smallest farm to the largest. The incentive and motivation for the sharemilkers on the smallest farm are easy to identify as no workers are employed - the sharemilkers work for themselves. The problem of the transaction costs associated with managing hired workers increases with the size of any enterprise. The sharemilker operating the largest farm, the double-farm, discovered this when his workers took industrial action over pay in the 1993/94 season. Even so, the output per worker from this farm is comparable to the others in the sample. I suggest three explanations are most likely. First, the larger farms have the advantage of economies of scale providing the appropriate infrastructure exists. Second, the motivation provided by the sharemilker presence on the farm, in the farm dairy and in all work to do with the business provides motivation for the workers. Dairy farmers have always expected a lot from their workers and the new structure of labour law in New Zealand combined with continuing high levels of unemployment has given more power to them as employers. Third, and this draws on the preceding discussion of the dairy farming ladder and the following subsection on the ladder for large-herd sharemilkers, each hired worker occupies or potentially occupies a rung on the dairy farming ladder. Although it may be preceded by other work, the first rung consists conceptually of wage work on a dairy farm either as a single person or as part of a married couple. The expectation that farm-owners and sharemilkers have of their hired workers is that they aspire to do what they themselves are doing - sharemilking or being the owner-operators of a dairy farm. Wage workers are paid fairly low wages initially but these increase as they learn their trade and progress up the ladder. Knowledge of their position and where it may lead to enables the sharemilker (or farm owner-operator) to control the wage worker more than would be the case in other farming systems or industries where such distinct ladders do not exist. Despite this reasoning, all the sharemilkers in this sample who hire workers expressed the opinion that the toughest item in successful large-herd sharemilking is the management of farm labour. Most of them use an incentive system based on grade bonuses and seasonal performance in an attempt to get the most out of their workers.

The work relations of these large-herd sharemilkers working for Tasman and Apple Fields are different from the work relations on sharemilked dairy farms of average size. The larger farm size means that hired workers often outnumber the labour supplied by the sharemilking family. But work relations are still moulded around the family unit as most sharemilkers employ a married couple or are going to change to a married couple. The hired workers work as the sharemilkers do, for similar hours and at a similar level of intensity. Workers are not hired to fill gaps in the labour supply of the family but are permanent full-time workers. In comparison to the typical family dairy farm, almost no unpaid family labour is used because most sharemilkers have children who are too young to participate in a meaningful way. Husband and wife participate in farming earnings through the partnership structure of the enterprise.

The third set of relations concerns the agricultural ladder. The career-paths of these eight sharemilkers vary widely with some having already owned dairy farms, some just beginning their
dairy farming careers, others close to purchasing their own farm, and those that do not want to own their own dairy farm (Table 6.14). These examples demonstrate that the path to farm ownership is not necessarily straightforward with periods out of dairy farming occurring in some cases. It should be noted that farm ownership does not eventuate as a matter of course in dairying. Most studies of the agricultural ladder examine only the life and enterprise courses of retired or established farmers and make no attempt to discover what happened to those who did not succeed (Loveridge 1991). Seven out of the eight in this sample aim to buy their own farms after working with Tasman and Apple Fields to accumulate sufficient capital. One sharemilking family is content to remain sharemilking and invest their accumulated capital in other primary sectors.

Tasman and Apple Fields provide real opportunities for sharemilkers as well as looking after the interests of their shareholders. Both Apple Fields and Tasman have a stated policy of developing opportunities within their companies for their good sharemilkers. The sharemilkers agree that the companies provide opportunities for large sharemilking jobs. This is good in their view because of the escalating cost of purchasing dairy farms and the need for larger sharemilking jobs to enable sufficient accumulation of capital, and inter-dependently, large-herd sharemilkers in general like the idea of not being stuck in the farm dairy every day. This means that they want to purchase a farm large enough to employ workers or sharemilkers and still make a living from it.

There is little doubt that each of the sharemilkers in these case studies is participating in an agricultural ladder of some sort, just as the majority of Bradly’s sample did in Waimate West County. The best of both worlds exists as Tasman and Apple Fields achieve the desired increases in asset values as their sharemilkers (effectively) develop their farms for them once the physical infrastructure is in place. Providing milkfat/protein prices remain relatively stable and other things (such as company diversification) being equal, these two companies should be able to reproduce their capitalist form of production for quite some time because of their low entry cost to dairy farming. From the sharemilkers’ point of view, they are given the opportunity to improve the productivity of the farm and develop the quality of their own herds, goals which are completely interdependent with each other as good production cannot occur without good farms and good stock. Many sharemilkers are able to climb the dairy farming ladder (such that it exists) and become owner-operators in their own right. This helps to ensure that simple commodity producers are reproduced in dairy farming. Tasman and Apple Fields are assisting this process simply because it pays them to do so. Tasman and Apple Fields are assisting these simple commodity producers to the extent of providing or helping to put in place beneficial financial arrangements, something which is most often provided by recourse to non-market sources by simple commodity producers. Tasman and Apple Fields must think that this is the best way to operate their dairy farms or they would not provide such assistance.
Table 6.14  Eight partial dairy farming ladders

<table>
<thead>
<tr>
<th>Partial agricultural ladders</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before contracting with Tasman or Apple Fields</strong></td>
</tr>
<tr>
<td>Worked part-time on dairy farms; worked for four years 1988/92 on a dairy, bull and pig farm to save enough to purchase own stock.</td>
</tr>
<tr>
<td>Dairy factory for wages; contract milking 1984/86; 1986/87 horse and beef stock work; 1987/89 contract milked 560 cows in partnership; 1990/93 50/50 with wife milking full-time.</td>
</tr>
<tr>
<td>Sharemilked father's farm 1983 to 1993; 29%. 39%, then 50/50. Wife worked full-time as a nurse.</td>
</tr>
<tr>
<td>Mixed farming until 1974; sharemilked until 1977; owned dairy farm until 1983/84; 50/50 1984/90.</td>
</tr>
<tr>
<td>39% 1979/80; 50/50 1980/83; purchased the 50/50 farm and then sold it at end of 1985/86 season; three years in the freezing works; 50/50 with 175 cows 1989/90 (300 ha.) for only that season; 50/50 185 cows 1990/91.</td>
</tr>
<tr>
<td>Married man 1982; contract 1983/85; 29% 1985/87; manager 1987/89 650 cows; out of farming for three years.</td>
</tr>
<tr>
<td>Sharemilked family farm 1983 to 1987; 50/50 on 100 ha. 1988/89. Added 50/50 sharemilking in 1989/90; milking 460 cows by 1991/92 season.</td>
</tr>
</tbody>
</table>

The sharemilkers used by Tasman and Apple Fields are simple commodity producers in the same way as those who sharemilk or owner-operate on dairy farms which are of average size. The differential is the use of more wage workers on these bigger farms, but conceptually, these sharemilkers are no different to other simple commodity producers.
I have established several major points in this chapter in terms of the aims listed in Chapter 1. First, I identified the importance of biophysical processes in the production system of dairy farming and the associated requirement for functional and numerical flexibility. Second, I provided an overview of the conditions governing production in this industry - slowly declining real prices, increases in the scale of dairy farming, increasing productivity, and the important role of sharemilking as an integral part of the industry and as a particular type of work relation. Third, it is clear that dairy farming in New Zealand is dominated by family farms. Fourth, in conjunction with the first two points above, the analysis of data from the Census of Agriculture identified some of the possible strategies adopted by family farmers in response to the decline in dairy prices - a decline in the number of wage workers employed and an increase in the productivity of all farm labour. These strategies alone enable the identification of dairy farmers as simple commodity producers.

Fifth, the family-based dairy farmers in Waimate West County can be described as simple commodity producers. The families own the means of production and provide the great bulk of the necessary labour. These farms also resemble strongly, in size and modus operandi, Fairweather's (1994) typical family dairy farm. A very small number of dairy farms in Waimate West are operated more as capitalist enterprises than as sites of simple commodity production. Even in these cases, the owners still have some tangible connection with the farms, either living or working on the farms as an integral part of the farming operation. Those owners of dairy farms who use sharemilkers are identifiable as simple commodity producers because they still contribute to farm operations and provide a range of inputs.

Sixth, Tasman and Apple Fields are clearly capitalist enterprises whose primary purpose is to generate profits for shareholders either in the short term through dividends or in the long term through increases in the value of the farms which the companies own. These companies are based on wage labour where ownership of the means of production is separate from the labour which operates the farms.

Seventh, for all Tasman's dairy farms and over 50 percent of Apple Fields dairy farms, this labour is not wage labour but is provided by sharemilkers who are simple commodity producers. Even these large dairy farms can be classified as sites of simple commodity production because a farm family is operating the farm. Both companies are moving towards greater use of 50/50 sharemilkers because this is the most efficient way to organise the operation of their dairy farms. In so doing, they are attempting to provide the encouragement to their sharemilkers that they can progressively increase the size of their herds as they are financially able. In this way, these two companies are assisting their sharemilkers to accumulate capital which in most cases will go
towards farm purchase. For Tasman and Apple Fields this system of operating their dairy farms means that the farms are (effectively) developed by the sharemilkers - both parties benefit from the sharemilking contract. Tasman (totally) and Apple Fields use 50/50 sharemilkers to operate their farms because this is the most efficient form of day-to-day management and it is the best way to develop the asset value of the farms they own. In moving towards installing 50/50 sharemilkers on all their dairy farms in place of contract milkers and lower-order sharemilkers Tasman and Apple Fields, as the biggest dairy farming companies, present a convincing case that 50/50 sharemilkers are the most efficient way to operate their farms.

Eighth, both forms of production are involved in the current expansion in the scale of dairy farming. The newly established dairy farms are, in general, much larger than existing dairy farms. But conversions are being undertaken by enterprises smaller than Tasman and Apple Fields. That Tasman and Apple Fields were responsible for only six of the 66 new suppliers agreed to by the Southland Dairy Cooperative Company in the 1993/94 season (McEvoy pers. com.) and only three of the 39 new suppliers to Alpine Cooperative Dairy Company (Larking pers. com.), demonstrates this point. Family farmers made-up the great bulk of these new suppliers (McEvoy pers. com.; Larking pers. com.), but some urban investment capital is also present as well (Larking pers. com.; McEvoy pers. com.; Shepherd pers. com.; Fairweather 1994). Dairy farms are currently seen as attractive investments given the efficiency of New Zealand production and the liberalisation of world trade in agriculture which is forecast to develop under the now completed Uruguay Round of the GATT.

Ninth, sharemilkers can also be considered as simple commodity producers. The arguments are virtually the same as for owner-operators of dairy farms. For sharemilking families, the intensity of work is higher because they are at the accumulation stage of their careers in dairy farming. This intensity emphasises the combination of household and enterprise. Lack of ownership of the farm is irrelevant.

Tenth, even the largest enterprises involved in dairy farming still have to operate each farm as an individual enterprise. This results from the physical limits of dairying as a farming system and partly because of the limits to the flexibility and scale that a simple commodity producer can be stretched. The physical limits of pastoral dairy farming are set simply by the demands of the cows and the system for producing grass. Cows cannot physically walk too far to the farm dairy or their milk yield declines, and as grass-based feeding is the basic ingredient of the comparative advantage of dairy farmers in New Zealand compared to other dairy farmers in the world, costs increase dramatically when off-farm feed is used to nourish the herd.

The nature of dairy farming as the management of biophysical systems for the production of milk requires a level of flexibility which can be most efficiently supplied by simple commodity producers. The demands of this farming system are such that it appears to be impossible for
capitalist enterprises, that is, those based on wage labour, to compete successfully with simple commodity producers. Yet anecdotal evidence suggests that this is also occurring - managers are being employed to operate dairy farms. An example of this on a larger-than-average scale and over a long-run period from the mid-1970s is the Van Den Brink Company of south Auckland, a family-owned enterprise which owns and operates five dairy farms. Unlike Tasman and Apple Fields, Van Den Brink operates its dairy farms with employees who report to the dairy farm manager. The prospect of using 50/50 sharemilkers is ridiculed because '...' you immediately give away 50 percent of your income if you use a 50/50 sharemilker, don't you?' (Bill Charman, dairy farm manager, Van Den Brink, pers. com.). The aim of the Van Den Brink dairy company is to generate between 50 and 60 percent profit margin on the dairy farm operations which would be an impossible target if 50/50 sharemilkers were used. Charman doesn't see the sense in using sharemilkers but the company which he works for can finance the farms and the herds without debt and the dairy farming part of the business consistently makes a good profit at the end of the process, so this is understandable. A partial explanation is that the Van Den Brink farms earn a premium from their dairy company for supplying winter milk. This provides more cost cover for the enterprise but is in turn offset by lower production per cow.

If the different types of dairy farm ownership and operatorship are conceptualised as being ideal types, then the above example of Van Den Brink in which dairy farms have managers should be conceptualised as the most fully capitalist type of dairy farming (Table 6.15). Non-farm capital is invested in dairy farms and the process is capitalist in all respects - wage labour is employed throughout and the farm owner owns the herd and all the necessary equipment.

<table>
<thead>
<tr>
<th>Type of enterprise: Farm owners</th>
<th>Interest in the farm</th>
<th>Type of enterprise: Farm operators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family owner-operators</td>
<td>Home, and income and asset growth</td>
<td>Owner-operators</td>
</tr>
<tr>
<td>Family owners</td>
<td>Home, and income and asset growth</td>
<td>Sharemilkers or Managers</td>
</tr>
<tr>
<td>Private investors</td>
<td>Income, asset growth</td>
<td>Sharemilkers or Managers</td>
</tr>
<tr>
<td>Corporate investors</td>
<td>Income, asset growth</td>
<td>Sharemilkers or Managers</td>
</tr>
</tbody>
</table>

Table 6.15 Types of organisations in dairy farming in New Zealand

This fully capitalist path was attempted partly by both Tasman and Apple Fields when these companies used contract milkers when they first entered dairy farming. After a few seasons, the companies have realised that the most profitable way to operate their farms is by using 50/50 sharemilkers and therefore not owning livestock. It is the scale at which these companies operate which makes it impossible for them to use efficiently the Van Den Brink model where the
transactions costs involved in using only wage workers are relatively low and can be contained because of the relatively low number of farms which are owned and the spatial clustering of the farms. There is also the very strong conclusion from both the literature and this research that sharecropping (sharemilking) is the best way to realise a farm's potential. So the second ideal type is capitalist ownership and simple commodity producer operatorship. The remaining ideal types are both inclusively simple commodity production for both ownership and operatorship. In fact, Table 6.15 resembles a simplified version of Table 3.5. The analyses in this thesis allows this simplification to be made.

The capitalist owner has a different rationale for being in the business of dairy farming than do simple commodity producers. Simple commodity producers have the profit motive in common with the capitalist dairy farmer but for the capitalist the mix of profits and asset growth are the essential rationale for being involved. For simple commodity producers, the enterprise must make a profit to ensure reproduction but the farm is an indeterminate mixture of home, career and lifestyle. Simple commodity producers stick at farming year-in, year-out through the cycles of commodity and land prices and through the extremes which nature throws at the production system. For dairy farming, the agricultural ladder and the life cycle when taken together provide a complete life course for the farm family even though not all dairy farmers participate in each step (Figure 6.36). Every type of work relation is found in this conceptualisation of life cycle and enterprise course.

Four organisational forms exist in dairy farming in New Zealand (Table 6.15). These are either different forms of production or combinations of different forms of production. Two of these organisational forms consist of only simple commodity producers - owner-operators, and owner-operators and sharemilkers. One organisational form is distinguishable as a completely capitalist form of production because the farm is owned as an investment and wage workers are used to operate the farm - the case of Van Den Brink. The incidence of this organisational form is thought to be low. This research did not aim to discover this information. The other is a mixture of capitalist owner and simple commodity producer operator where sharemilkers operate the farm for investors seeking a return on their funds invested in dairy farming. Such is the case with Apple Fields and Tasman, companies which now use 50/50 sharemilkers to operate the majority of their farms.
Figure 6.36  Idealised agricultural ladder and life cycle in dairy farming

**Life course**

- **Youth**
  - No assets, learning process, career training
  - Build-up of assets allows purchase of herd
  - Purchase of farm forces sale of herd and use of 50/50 sharemilker, or more usually, small farm is purchased because it is all that farmer can afford

- **Build-up of capital allows purchase of herd, and use of wage labour**

- **Semi-retirement with capital build-up, manager is used to operate the farm**

- **Active role in farm diminishes, herd is sold to fund house on farm or in town**

- **Farm is sold to offspring or on open market**

**Sharemilking ladder**

- **Youth**
  - Wage worker
  - Contract milker
  - Low- order sharemilker

- **50/50 sharemilker**
  - Farm owner using 50/50 sharemilker to operate the farm

- **Farm owner using lower-order sharemilker to operate the farm**

- **Farm owner using Wage worker to operate the farm**

- **Farm owner using manager and other wage worker(s) to operate the farm**

- **Farm owner using 50/50 sharemilker to operate the farm**

- **Farm sold to offspring or on open market**