

AGRARIAN RESTRUCTURING IN NEW ZEALAND

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PREFACE

The ongoing changes and adjustments in rural society in New Zealand are of continued interest and importance to many people. In this Research Report Dr Fairweather provides data from a wide range of sources to draw a picture of the changes to farming in New Zealand from 1984 to 1990 so that the extent of the changes since then can be accurately assessed. This study of agrarian restructuring will be of interest to anyone who wants to keep abreast of farm level changes in New Zealand agriculture. It also provides the background to intended future research on changes in rural society.

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DIRECTOR

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SUMMARY

In this Research Report the farm and structural changes in New Zealand between 1984 and 1990 are described by way of analysis of official statistics. A brief review of theory on family farms under capitalism precedes data on changes in the financial position of farms. Incomes for many farms fell sharply by 1986, then rose to remain at lower than the 1976 to 1985 ten year average. While financial pressure has eased recently, it is still unevenly distributed as a minority of farms hold a majority of debt. In recent years the proportion of income from off-farm sources has increased. An analysis of structural changes shows that sheep numbers have decreased noticeably while dairy stock and deer numbers have increased. There has been continued declines in the rate of increase in farm numbers, and for 1990 there was, for the first time, a decline in farm numbers. Also, there is a return to the 'disappearing middle' across the range of farm sizes. Significant or commercial farms total about one half of all farms in New Zealand. Farm employment data show a decline then an increase in the total between 1984 and 1990, and all of the increases occurred in the full-time female category. Some company ownership of land occurs but there is no sign of significant gains in corporate farming. The report concludes with a description of farm level responses and then makes some concluding points about the persistence of family farms in New Zealand agriculture.

CHAPTER 1

INTRODUCTION

This research report is addressed to the issue of farm and structural change in New Zealand between 1984 and 1990. Since the more-market policies were introduced in 1984, primary producers in New Zealand were forced to make considerable and rapid adjustments in response to changes in their internal and external environment. For many farmers this process of change proved, and is still proving, to be difficult. However, despite the difficulties in the adjustment process, there have been significant changes, and because sufficient time has passed since 1984 it is possible to document these and show the major impacts of the application of more-market policies. New Zealand makes a good case study for the impacts of deregulation on primary production and rural society.

The scope of this report is limited to consideration of farming. While the rural community impacts are important to monitor, the task of examining the relevant data is deserving of a separate report and this is planned for the near future. The present report, in focusing on farms, begins with a brief review of some theory on agrarian restructuring which maps out approaches to the study of family farms in capitalist societies. The substance of the report includes data on the financial situation of farms. This forms the backdrop to the changes in New Zealand agriculture as a whole, and data on the effect of restructuring are then provided to describe the overall changes in farm structure. Some information is then presented on farm-level responses. In the concluding chapter an attempt is made to evaluate these changes in terms of the theoretical issues that relate to family farms. Only a partial conclusion is possible because the data do not provide a critical test of theory.

At many points in the chapters that follow it would have been possible to deepen the analysis and examine more detailed data. Many interesting questions are passed over. This approach has proved necessary because the main aim of this report is to describe the major features of agrarian restructuring in New Zealand. If nothing else the report indicates by these omissions future research directions. Similarly, on the theoretical side, the report is suggestive rather than definitive, and indicates research questions of a theoretical nature which could be developed further in future research.

This research report is limited by using mostly official statistics to draw a picture of response to change. Some data are not available. For example, some data are not inflation adjusted, and most relate to the farm, not the farm family. Knowledge about people who have left farming is poor. We know little in detail about people farming smallholdings. Further, some official data do not include all the relevant variables, and for those variables that are covered, there can sometimes be major limitations in their usefulness. Despite these limitations it is possible to develop a description of change and suggest an interpretation.

Finally, this report is limited by using available data which describe social change in non human terms. The personal experiences of farm men and women are poorly accounted for with this approach. It is important to remember that the data used here, and the structural changes in New Zealand primary production, are undergirded by the real experience of people involved in living on the land.

CHAPTER 2

AN OVERVIEW OF SOME THEORY ON AGRARIAN RESTRUCTURING

The issue of whether family farms will persist in capitalist societies or differentiate into capitalist farms with wage labour has been an enduring topic in the sociology of agriculture. Buttel et al. (1990:78) review political economy and the sociology of agriculture literature to show that there are three postures in the Marxist political economy of agricultural production: those emphasising the persistence or survival of petty commodity production, those emphasising subsumption and the inevitable differentiation of petty commodity producers into antagonistic social classes, and those seeking synthetic positions.

The three postures, along with their proponents and the key elements of their posture are as follows. The 'survival' school emphasises barriers to capitalist transformation (Mann and Dickinson, 1978), the competitiveness of simple commodity producers (Friedmann, 1978) or the role of credit relationships (McMichael, 1987) and the banking industry (Green, 1984). The 'subsumption' school emphasises technology change, state research and commodity programmes (De Janvry, 1980), penetration of capitalist relations of production into agriculture (Friedland et al., 1981), or the functional importance of family farms in capitalist societies as a reserve of surplus labour (Mottura and Pugliese, 1980; Bonanno, 1985). The 'synthetic' school attempts to bridge the survival and subsumption positions by emphasising the responses farmers can make to the pressure to become wage labourers (Mooney, 1988; Whatmore, et al., 1987b) and the contingent factors in regional political economy that facilitate family farming or sharecropping as alternatives (Pfeffer, 1983).

Buttel et al.'s trichotomy is paralleled by Mann's (1990) review of the development of explanations of uneven development in capitalist societies and, in particular, uneven development in agriculture combined with the persistence of family farms. In the last three decades, world systems theory and dependency theory have recognised global processes affecting agriculture and emphasised class stratification. Like the subsumptionist position described above, these macro-oriented approaches lead to the perception that all forms of production are capitalist, including simple commodity production. The weakness of this perspective, according to Mann, is that it overlooks the distinctive labour relations of family farms. Mann goes on to describe how micro-oriented Weberian theories explain persistence of family farms in terms of advantages that factors within the farm provide to family labour enterprises. For example, Weber saw persistence deriving from particular value orientations such as freedom and independence combined with self-exploitation, and Chayanov saw persistence deriving from the distinctive labour/consumption balance chosen by the peasant household. For Mann, the prevailing micro-oriented theories are inadequate because they spell out advantages to household producers which would apply to other areas of production when in fact it is mostly with agricultural production that family labour units have persisted.

Finally, Mann describes how a macro-micro synthesis is the appropriate way to study persistence of family farms. In this case, Mann more accurately classifies Friedmann in the synthetic school rather than in the survival school as does Buttel. While for Friedmann simple commodity producers do survive, they do so because of successful reproduction (persistence or survival of the farm family to enter another round of production) and adaptive changes within an historical context which determines whether reproduction or change

occurs. Simple commodity producers do not use the category of profits, and they replace the inflexibility of the wage with flexible costs of personal consumption. Mann argues that Friedmann's theory is incomplete because it, as before, fails to account for household survival typically occurring in agriculture. The solution to this problem for Mann lies in theorising the peculiar character of land in agricultural production. Specifically, there is an inherent non-identity of production time and labour time which makes it difficult for capital to subordinate nature. Thus for Mann "... where capital is unable to modify or transcend certain natural barriers to its development, these spheres are left in the hands of petty commodity producers or other non wage forms of production".

The reviews provided by Buttel et al. (1990) and Mann (1990) provide a thorough overview of approaches to the study of agrarian capitalism. They indicate that the subsumptionist posture, with its macro-oriented approach, is important because it draws attention to the context in which (family) farmers operate. It is always easy to overlook the very real constraints on farmers' options that do occur because of developments in international capitalism. Narrow, micro-oriented approaches are flawed by this weakness. However, the subsumptionist posture tends to emphasise structure at the expense of agency, or to put it another way, at the expense of how farmer's may choose to respond to the changing international context. Further, subsumptionist agrarian political economy tends to draw the focus of attention away from farmers toward the food system, of which they form a small and diminishing part (Marsden et al., 1990). In this way, these approaches tend to overlook farmers and their immediate rural social context. For Marsden et al., rural areas are dominated by social relations of agricultural production and farming is important in moulding rural economic development. Thus, those approaches which see farming as residual are inappropriate to rural studies. However, synthetic approaches, which locate agricultural producers within an historical and political-economic context, can accurately account for uneven patterns of development and the contingent character of agricultural development. In accordance with the synthetic approach, Buttel et al. (1990) emphasises that there is less emphasis now in deductive theories of agrarian structure and there is emergence of new theoretical strategies for understanding the diversity of agricultural forms in time and space. It is the position of this paper that the synthetic approach to agrarian capitalism is the best approach, and that the balance of an assessment of actual changes in New Zealand agriculture supports this view.

Having set out the approaches to agrarian capitalism as developed in the world scene, it is appropriate to review developments in New Zealand. Amongst those who have studied New Zealand agrarian development can be found representatives of the subsumption school and the synthetic school only. As representatives of the latter school, Moran and Cocklin (1989) examine approaches to family farm research and identify the key issue as the degree of control that the family farm can exert over its own business. While they acknowledge that high financial stress has led to a degree of subsumption they note that family farmers have been resilient, that casualties in corporate horticulture have been high, and that in some cases farmers have increased control over marketing. In a brief discussion of trends in the social organisation of production of New Zealand farms, Fairweather (1989) notes that corporate farming is likely to occur only in particular circumstances and not an inevitable outcome of deepening integration into the international economy.

The subsumption posture is better represented in New Zealand. Share et al. (1991) view the New Zealand and Australian economies as undergoing economic restructuring in which there

is likelihood of profound alterations to the social organisation of primary industries. While they acknowledge that the extent of corporate landholding in Australia and New Zealand appears to be low, they emphasise the advantages that corporations obtain by not becoming directly involved in production. Thus, 'independent' farmers can be exploited via subsumption. Their viewpoint tends towards the subsumption posture, but, to be fair, their review of a rural social research agenda is exceptionally wide-ranging and open to evidence of rival postures. Also hinting at potential subsumption in future is Cloke's earlier (1989) study of change in New Zealand agriculture.

Stronger proponents of the subsumption posture are Le Heron (1988) and Le Heron et al. (1991). Le Heron (1988) argues that there is gradual erosion of the historic differences between food and fibre production and other spheres of production. He focuses on agro-commodity chains as the medium by which different technological and organisational options are likely to develop as a result of the present downturn in world capitalism. Specifically, this focus emphasises the presence of advanced corporate forms along with concentration and centralisation of capital. In examining survey data on New Zealand farm business, household and family restructuring in three different agro-commodity systems, Le Heron et al. (1991) emphasise parallels to Australian restructuring in which changes are forced on farmers. In particular, they expect that recent conditions would be suitable for the appearance or upsurge of pluriactivity. However, the survey results show that where off-farm income is earned it is used for household support rather than for the farm business, and that pluriactivity was neither a significant nor important response to the downturn in farm incomes.

Le Heron's position is supported by Australian researchers, notably Lawrence (1987, 1990) who applies the subsumptionist view to the Australian countryside. It can be argued that the general similarities between Australia and New Zealand, at least in terms of exposure of their agricultural economies to international forces, would mean that similar developments would occur in each country. Thus, Lawrence sees the classic pattern: withdrawal of state support combined with limited power to farmers results in indebtedness and proletarianisation, along with concentration and centralisation of production and distribution. Also adversely affected are rural communities and the environment.

While the synthetic position is supported by general trends in the international literature, there remains the task of assessing this theoretical position in the light of the New Zealand experience. The New Zealand case appears to be an ideal one for assessing the above theoretical issues since farming has been exposed to international pressures and all forms of subsidy have been removed. If the synthetic position is a suitable approach to understanding changes in farming and farm structure in New Zealand then data should be available which illustrate adoptive response of family farmers and the persistence of this household form of production in the wake of increased financial pressure. If the subsumptionist position is a suitable approach then there should be clear signs of corporate farming taking the ascendancy and of family farming changing to proletarianised form. Other variables of interest to this theoretical debate are farm labour changes and changes in off-farm work. However, while it is easy to clearly describe different approaches to the study of changes in farming, it is not so easy to test rival approaches by reference to data. Actual changes to farms can be used by any proponents to support their view. For example, family farm numbers may decline but they will still exist: subsumptionists see increasing penetration by capital while survivalists see persistence. Even the persistence of family farms is compatible with subsumption according to proponents of the subsumption school because these farmers are

seen as exploited propertied labourers. In the light of these difficulties and other constraints, this report emphasises description at the expense of interpretation. While a critical test is not attempted here and in fact may not be possible, the report still provides a useful preliminary assessment of theoretical issues. The remaining chapters describe the financial position of farmers, structural changes, and farm-level responses before coming back to the theoretical issues discussed in this chapter and tentatively suggesting a theoretical conclusion.

CHAPTER 3

THE FINANCIAL SITUATION ON FARMS, 1984 TO 1990

3.1 Introduction

This chapter gives an overview of the financial situation on farms and how it has changed since 1984. The focus is on the main indicators of farm financial affairs such as income and expenditure, and on debt, sources and applications of funds, and capital structure. The objective is to present data on a yearly basis where possible to show the obvious trends. The data are by no means definitive or exhaustive. There are obvious limitations to the data used in this report: they do not cover all farm types, they are not always adjusted for inflation, and they are not fully comprehensive of all financial variables. However, the data do give a general and readily accessible understanding of the main features of farm finances, and this chapter forms an important backdrop to later chapters on structural changes in New Zealand agriculture and on farm-level responses.

3.2 Farm Financial Data

Since 1984 and the change to a more-market economic policy, farmers have experienced reduced incomes. This was due to removal of government supports combined with lowered returns from the sale of farm commodities. Table 1 shows the generally lowered farm profit before tax for sheep and beef farmers from 1985 to 1991. In this Research Report the data refer to the farming year ending in June. In the tables the relevant years are referred to, e.g. 1984/85, but in the text this example is referred to as 1985 only. In this table, and many of the following figures and tables in this chapter, data are taken from the Meat and Wool Boards' Economic Service annual survey of a random sample of sheep and beef farms. There were an estimated 21,300 farms with at least 750 sheep and beef stock units in 1989, and this number is about one half of all commercial farms in New Zealand.

The impact on farmers of price and policy changes did not begin immediately in 1985, and in that year gross farm revenue was high at \$132,623 and farm profit before tax at the second highest level over the period of \$34,208. Farm profits before tax were particularly low in 1986, increased from 1987 to 1990 and provisionally are lower in 1991. The table also shows how farm expenditures have followed the trend in gross farm income: as incomes drop, expenditure drops, and vice versa. It is with the fertiliser and the repairs and maintenance expenditure items that variability occurs, while the interest component has been fairly steady, rising from \$17,736 in 1985 to an average of \$22,402 from 1986 to 1990. At this level, expenditure on interest is 23 per cent of the average total expenditure of \$97,258 from 1986 to 1990. Interest is the highest single item of expenditure and has been since at least 1981. The 'other' expenditure item (including wages, shearing, fuel and vehicles etc.) also has risen over the period.

Table 1
Sheep and Beef Farm Income and Expenditure,
1984-85 to 1990-91

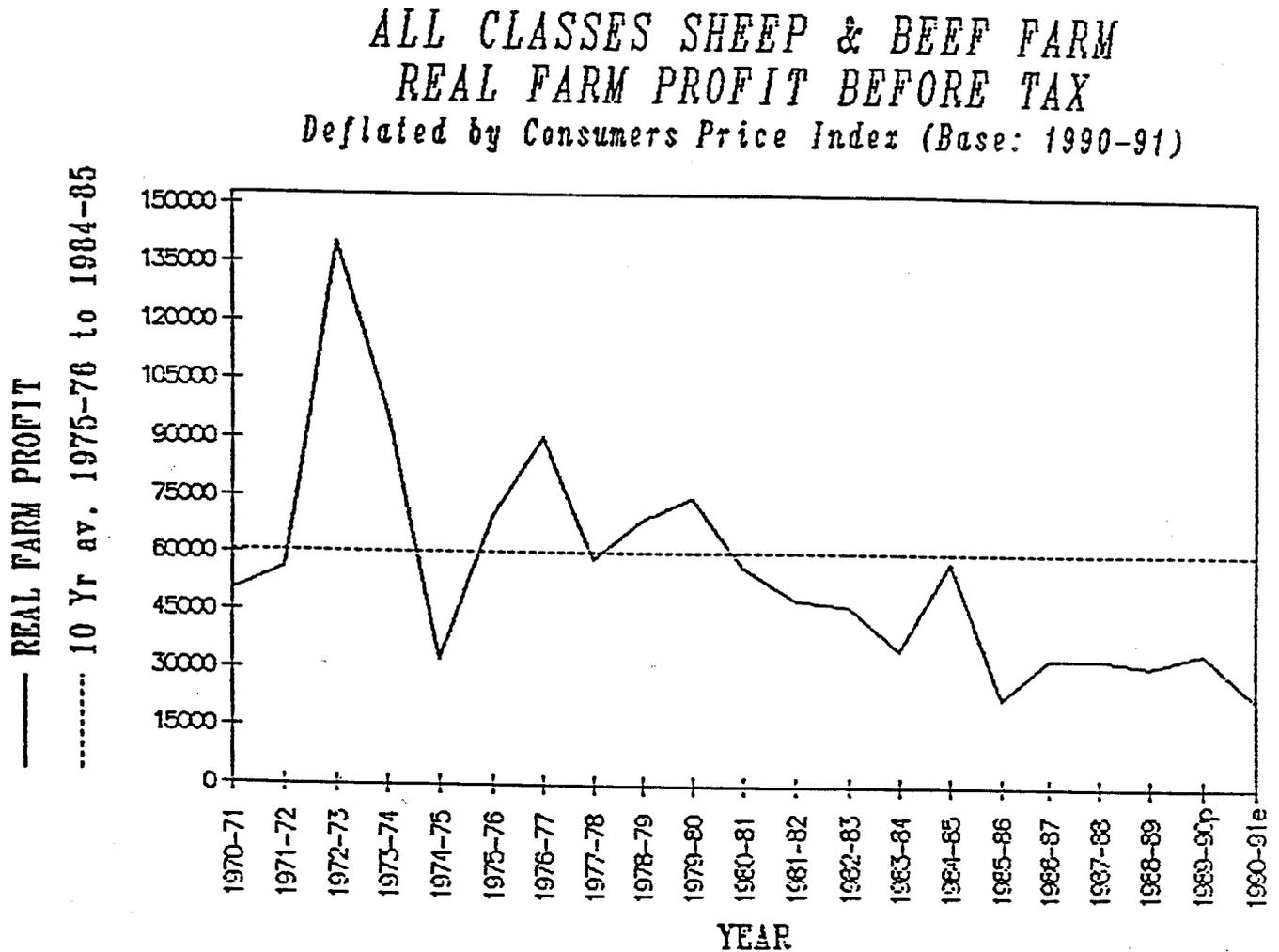
	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91
Farm Income							
Wool	46,954	42,400	47,657	57,112	59,974	51,284	37,500
Sheep	44,411	24,957	30,793	30,856	26,684	39,894	38,600
Cattle	21,745	18,834	20,999	20,877	24,385	29,585	30,200
Other	19,513	20,138	17,678	17,333	17,493	22,593	18,800
Gross Farm Revenue	132,623	106,319	117,127	126,178	128,536	143,356	125,100
Farm Expenditure							
Fertiliser	14,146	8,201	9,279	9,258	8,835	10,134	10,100
R & M	9,387	7,142	6,179	6,309	7,001	8,527	6,200
Interest	17,736	21,509	22,619	23,862	22,379	21,642	21,400
Other	57,146	54,128	53,193	58,202	62,064	65,768	61,500
Total Expenditure	98,415	90,980	91,270	97,691	100,279	106,071	99,200
FARM PROFIT BEFORE TAX	34,208	15,339	25,857	28,487	28,257	37,285	25,900

- Notes: 1. 1990-91 data are provisional.
2. The net income per farm (not per farmer) shown above is required to meet drawings, tax, debt repayment, and the purchase of capital items.

Source: NZ Meat & Wool Boards' Economic Service

To put the farm income picture in historical perspective, Figure 1 shows from 1971 to 1991 the real farm profit before tax, deflated by the consumers' price index. The figure shows the trend since 1985 which matches the trend described in Table 1, but also shows the steady decline in real farm profit from 1971. The dotted line represents the ten year average from 1976 to 1985, and all post-1985 real farm profits are lower than this line. While the long-term trend is down, this gloomy prognosis could be tempered by noting that two years in the early 1970s were good years followed by a relatively even patch between 1976 and 1985 after which there was decline. For the last period the entire context of farming in New Zealand is different due to the effects of more-market policy and general world recession in commodity prices. An optimistic scenario would see an upturn in real farm profit as adjustments are completed and if prices improve.

Figure 1

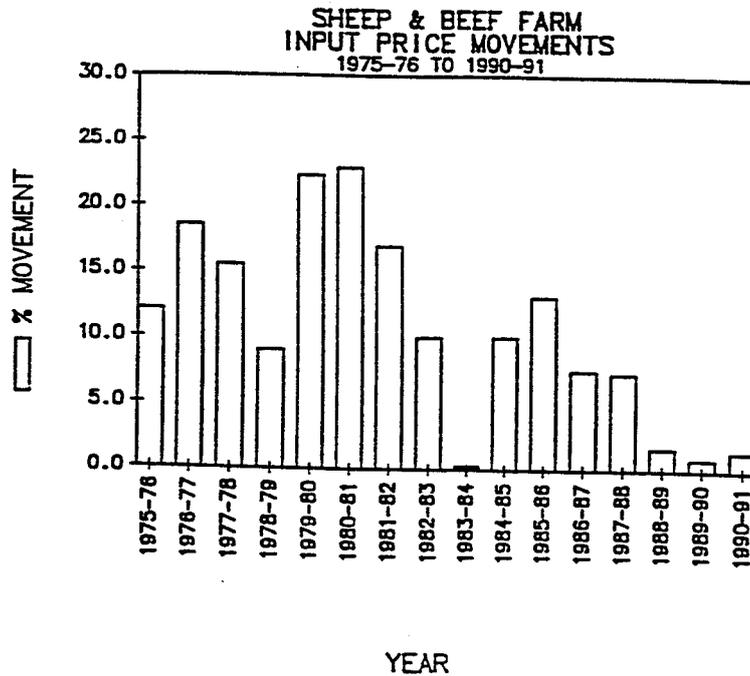


Dotted line represents the 10 year average 1975-76 to 1984-85

Source: N.Z. Meat and Wool Boards Economic Service

It is appropriate now to balance the data on expenditure with data on input prices. While policy changes have resulted, in part, in lowered returns they have also had a major effect on the inflation rate. Presently, the annual inflation rate is 1-3 per cent and there has been an associated decline in the rate of increase in farm input costs. Figure 2 shows sheep and beef farm input price movements from 1976 to 1991 and the movement in input prices has been for a steady decline in the level of increase in recent years, with the last three years at about a one to two per cent increase each year. The changes in input prices have contributed positively to the financial situation of farms.

Figure 2



Source: N.Z. Meat & Wool Boards Economic Service

The general financial description given above can be complemented with data on farm land sales because sales volumes and values reflect changes in farm viability. Table 2 shows the sales data for all farm land in New Zealand. Generally, there is a marked dip in volume, value and rate by 1986 and since then a return to earlier levels. This pattern corresponds to the trend in farm profit before tax.

Table 2

Farmland Sales Data, 1980 to 1990

Half Year Ended	No. of Freehold Open Market Sales	Total Sale Price (\$million)	Farmland Price Index	Per Cent Change	Turnover Rate (%)
June 1980	2,376	321.8	463	-	2.0
December 1980	2,349	317.5	505	+ 9.1	2.0
June 1981	2,595	443.5	604	+19.6	2.1
December 1981	2,635	482.0	708	+17.3	2.1
June 1982	2,038	443.5	846	+19.4	2.3
December 1982	1,716	371.0	932	+10.2	2.0
June 1983	1,130	227.5	920	- 1.2	1.5
December 1983	1,385	268.2	928	+ 0.8	1.9
June 1984	1,579	353.4	964	+ 3.9	1.8
December 1984	1,498	329.0	969	+ 0.5	1.7
June 1985	1,217	247.8	989	+ 2.0	1.4
December 1985	1,370	305.4	967	- 2.2	1.5
June 1986	882	166.8	942	- 2.6	1.2
December 1986	1,046	185.5	933	- 1.0	1.2
June 1987	1,269	285.6	886	- 5.1	1.4
December 1987	1,479	313.1	921	+ 4.0	1.5
June 1988	1,311	273.2	914	- 0.8	1.4
December 1988	1,532	306.6	882	- 3.6	1.8
June 1989	1,996	455.2	932	+ 5.8	2.1
December 1989	2,249	531.8	1,000	+ 7.2	2.5
June 1990	2,347	652.5	1,163	+16.3	2.8
December 1990	1,939	483.9	1,188	+ 2.1	2.3
June 1991	1,735	422.5	1,169	-1.6	2.1

- Note: 1. Price index base: half year ended December, 1989 = 1,000
2. Turnover rate is the number of sales compared to the total number of properties expressed as a percentage

Source: Valuation New Zealand

The net effect of the changes described above has been to put many farmers in New Zealand in a tight financial squeeze. Taking the overall effect and ignoring how different groups within the total may have fared, it is possible to develop an indication of financial stress. Johnston and Frengley (1990) have addressed this issue in a critique of standard measures of financial stress by formulating a measure of an 'adjusted household consumption stress ratio'. Table 3 shows farm profit before tax, interest expense, drawings, savings and the adjusted household consumption stress ratio of interest expense divided by nominal personal drawings. The last column shows that consumption stress has been high (above 0.80) from 1982 to 1991 with a peak of 1.15 in 1986. Since 1988 the consumption stress levels have returned to pre-1984 levels. The table also shows that since 1988 interest expenses have declined due to capital restructuring and decreases in the interest rate. Further, while nominal personal drawings have increased in nearly all years, real personal drawings peaked in the mid-1970s and then declined fairly steadily to 1990 to reach a level about one half of the 1976 figure.

Table 3

Selected Financial Indices, Sheep and Beef Farms, 1971 to 1991

Year ending June 30	Net Farm Income \$	Interest Expense \$ (A)	Personal Drawings		Nominal Savings \$	Adjusted Household Consumption Stress A/B
			Nominal \$ (B)	Real \$ 1976		
1971	5,822	1,889	4,451	7,456	-231	0.42
1976	13,625	3,506	8,092	8,092	2,765	0.43
1981	21,697	8,964	13,112	6,662	607	0.68
1982	21,401	12,137	15,071	6,584	411	0.81
1983	23,395	14,782	15,262	5,895	2,324	0.97
1984	18,491	16,305	17,038	6,310	-4,889	0.96
1985	34,208	17,736	20,143	6,690	8,575	0.88
1986	15,339	21,509	18,776	5,463	-10,082	1.15
1987	25,857	22,619	21,178	5,297	-715	1.07
1988	28,487	23,862	23,116	5,242	-3,858	1.03
1989	28,257	22,379	24,466	5,089	-6,866	0.91
1990	32,100	21,000	24,000	4,593	-4,198	0.87
1991	18,400	20,400	22,500	4,318	-	0.91

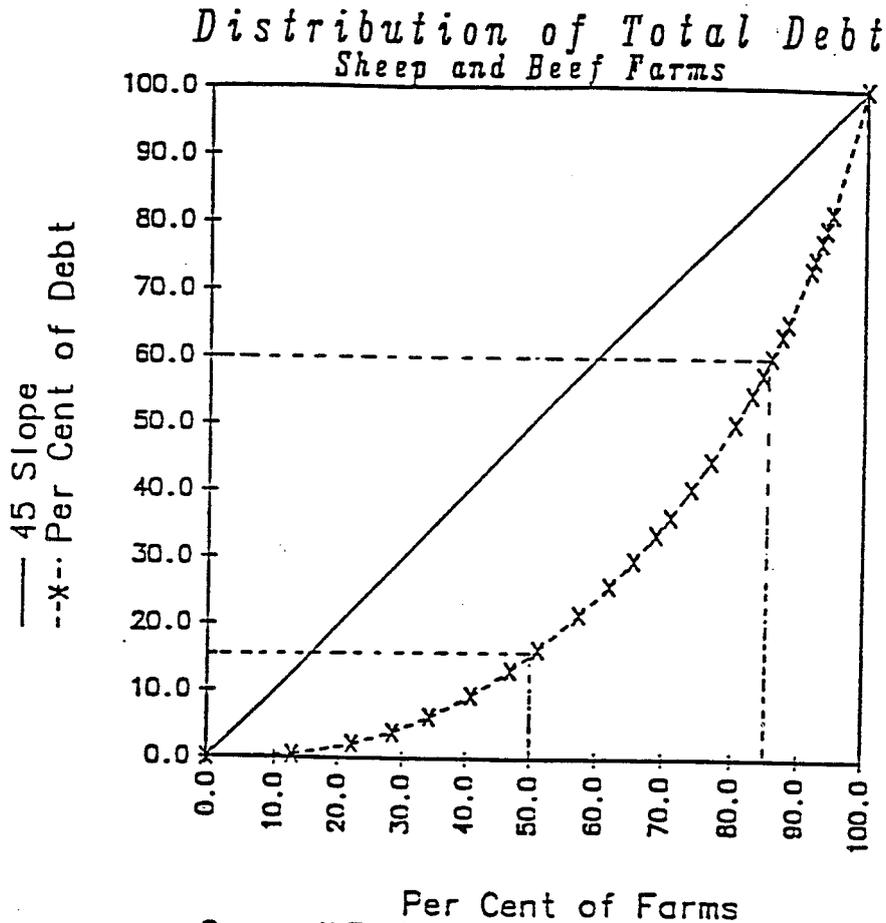
Note: 1990-91 figures range from provisional through to estimated.

Sources: Johnston and Frengley (1990), NZ Meat and Wool Board's Economic Service.

While the above account implies a stressful time for farmers it is important to recognise that not all farmers are affected in the same way. There is a distinct distribution of stress among the overall group of farmers. In particular, there is a range of degrees of indebtedness and data are now presented on this important dimension of the financial situation of farmers. Figure 3 shows the distribution of total debt among all sheep and beef farms in New Zealand for 1989. While 50 per cent of farms have about 15 per cent of total debt, at the other end of the distribution the most indebted top 15 per cent of farms have 40 per cent of the total debt. These high debt farms are spending over 35 per cent of their gross income on interest alone.

One early response to financial pressure was Rural Bank debt discounting which began in July 1986. Of the total 8,099 applicants for restructuring there were 4,706 approvals (Johnston, in Britton et al., 1992). Prior to discounting the farmers owed the Rural Bank \$696m. of which \$228m. (33 per cent or \$50,000 per farm) was written off.

Figure 3



Source: N.Z. Meat & Wool Boards Economic Service
Sheep & Beef Farm Survey - June 1989

The distribution of debt among sheep and beef farmers can also be linked to the household consumption stress ratio introduced earlier. Table 4 shows the relevant data for five groups of farmers, each group defined in terms of the proportion of debt as a percentage of total farm assets. The table shows that highly indebted farms have a significantly greater household consumption stress ratio. Frengley and Johnston (1991) emphasise that there is a \$39,146 interest expense difference between the two extreme groups while their drawings only differ by \$8,111. Thus, household consumption needs appear to be comparatively inelastic, so that 53 per cent of farms with a level of debt at 20 or more per cent of total farm assets have to dissave to sustain household production. According to Frengley and Johnston (1991) farmers in this situation use up capital reserves to sustain current consumption.

Table 4

Sheep and Beef Farm Financial Indices by Proportion of Debt, 1988 to 1989

Debt as a Percentage of Total Farm Assets	Percent of Farms	Interest Expense \$	Nominal Drawings \$	Savings \$	Adjusted Household Consumption Stress Ratio
> 50	15.0	40,847	15,800	-18,420	2.6
35 to 50	15.0	38,562	23,231	-15,354	1.7
20 to 35	22.7	29,565	28,026	-6,103	1.1
5 to 20	29.8	11,665	26,288	1,158	0.4
< 5	17.5	1,701	23,911	-2,763	0.07
All farms		22,379	24,466	-6,866	0.9

Sources: Frengley and Johnston (1991), NZ Meat and Wool Boards' Economic Service.

Obviously, many farmers in New Zealand have been experiencing financial pressure. Needed now are data which show how farmers have made financial responses in the wake of increased household consumption stress. Table 5 shows the weighted average flow of funds for all sheep and beef farms from 1984 to 1990. This table shows both sources and application of funds. On the sources side there is the farm cash surplus plus non-farm income, cash grants, mortgage increase and other sources. Non-farm income includes interest, off-farm wages etc., and the trend is for this component to increase over the period from \$3,028 in 1984 to over \$6,000 in two of the last three years. Cash grants were significant in 1987 and 1988 because the Government gave assistance to farmers adversely affected by weather conditions. Mortgage increases peaked in 1986 and 1990. Finally, like non-farm income, other sources of funds have increased slowly since 1984.

The percentages in Table 5 show first that the farm cash surplus as a proportion of the total source of funds ranges from 40 per cent to 65 per cent and averages 53 per cent. This means that just over one half of farm funds are derived from the farm cash surplus. The remainder of funds are derived from borrowing (23 per cent on average of total source of funds), and from non-farm income and other sources which together average 21 per cent of total sources of funds. These latter two categories contain a variety of sources (see notes on the table) including off-farm income from either spouse if such income was included in the farm accounts. At a minimum, off-farm work has contributed an average of eight per cent to the total sources of funds. Given that off-farm income may not be included in the accounts it is likely that the above measures of non-farm income and other sources

underestimates off-farm sources of funds for the farm household. This means that more than 21 per cent of funds have come from off-farm sources, further diminishing the proportion that farm profit before tax plays in total source of funds. Of course, a return to higher commodity prices would reverse this situation. And further, the picture presented by Table 4 in focusing on farm cash surplus neglects the larger scale of the farm operation as defined in terms of gross farm revenue. Table 1 showed that in all recent years gross farm revenue ranged from \$106,319 to \$143,356. However, between 1984 and 1990 non-farm and other sources have been significant. Noteworthy is the decline to 19 per cent in 1990 as mortgage increase gained dramatically. However, non-farm incomes and other sources increased slightly in absolute terms.

Table 5 also shows the application of funds. The biggest item of expenditure typically is drawings which on average is 34 per cent of total applications. While some other items vary over the years from 1984 to 1990, the level of drawings is fairly constant. The other significant item of application is mortgage reduction, averaging about 22 per cent but varying more than drawings. New plant and additions, and plant and machinery together account for 13 per cent of application on average, and these items vary over time, with a general decline from 1986 onwards.

The sources of funds and application of funds contain the new mortgage increase and mortgage reduction categories respectively, and these two figures can be compared. On balance, over all the years in Table 5 the two figures have a similar average percentage of their respective totals, 23 per cent and 22 per cent respectively, showing that they are equally significant. The difference between the increases and reductions each year can indicate what farmers have done to alter their term debt (current account debt is not included), and this is shown in an additional line labelled 'mortgage change'. From 1984 to 1986 farm mortgage levels increased as new mortgage increase outweighed mortgage decrease by up to \$6,000. From 1987 to 1989, the situation was reversed as farms were managed to reduce mortgage levels. In 1988, a year of relatively high farm profit before tax, the mortgage reduction amounted to \$8,387. Over the 1984 to 1990 period the total mortgage increase is very similar to the total mortgage decrease. In the last year, 1990, there is a very high level for both mortgage increase and decrease due to refinancing occurring at high levels as farmers have adjusted their mortgage arrangements in the wake of competition among lenders.

The change in the working capital item in Table 5 shows the outcome of the flow of funds in terms of the difference between sources of funds and applications of funds. The change in working capital reflects the change in the cash position of the farm. In 1984, 1985, 1986 and 1988 there were decreases in the total working capital, although the amount in 1985 was negligible. 1986 and 1988 were the two years since 1985 in which there was a decrease in working capital and for the remaining years of 1987, 1989 and 1990 the farms managed to hold their situation. However, the decreases in 1986 and 1988 were significant, adding up to \$10,587, and this loss in working capital was hardly balanced by the sum of the gains, which equals \$3,832.

Table 5 also shows the impact of change in working capital in terms of current assets and liabilities as shown on the balance sheet. In 1986 there was a significant decline in current assets, and in 1988 there was a significant increase in current liabilities (showing up as a positive entry). These current liabilities refer to changes in current overdraft or changes in the amount of outstanding bills, as distinct from term liabilities.

Table 5
Weighted Average Flow of Funds, \$ Per Farm, 1983/84 to 1989/90

SOURCE OF FUNDS		1983/84		1984/85		1985/86		1986/87		1987/88		1988/89		1989/90		Av.
			%		%		%		%		%		%		%	%
1	Farm Profit Before Tax	18,491	40	34,209	54	15,339	30	25,857	43	28,487	48	28,257	42	37,285	40	43
2	+ Depreciation	6,194)	13	7,148)	11	6,085)	10	6,217)	10	6,343)	8	6,247)	20	7,050)	5	11
3	+ Standard Value Charge	-438)		-207)		-1,357)		-202)		-1,491)		7,261)		-2,178)		
4	= FARM CASH SURPLUS	24,247	(53)	41,150	(65)	20,067	(40)	31,872	(53)	33,339	(56)	41,765	(62)	42,157	(45)	(53)
5	+ Non-Farm Income	3,028	7	3,230	5	4,604	9	4,766	8	6,406	11	5,977	9	6,579	7	8
6	+ Cash Grants	54	0	16	0	-	0	2,750	5	5,448	9	603	1	211	0	2
7	+ Mortgage Increase	13,876	30	12,264	19	18,620	37	10,071	17	6,940	12	9,035	13	33,326	36	23
8	+ Other sources	4,409	10	6,551	10	7,130	14	10,785	18	7,740	13	10,513	15	11,126	12	13
9	= SOURCE OF FUNDS (A)	45,614	100	63,211	100	50,421	100	60,244	100	59,873	100	67,893	100	93,399	100	100
	5 + 8 as % of 9		17		15		23		26		24		24		19	21
APPLICATION OF FUNDS																
10	New Plant and Additions	2,201)	19	1,819)	21	2,114)	11	661)	9	1,069)	11	599)	10	897)	10	13
11	+ Plant and Machinery	7,456)		11,675)		4,134)		5,018)		5,866)		5,843)		8,717)		
12	+ Income Equalisation A/c	34)	2	-16)	7	728)	6	127)	11	873)	3	1,489)	10	-3,118)	-	6
13	+ Term Deposits	-167)		2,076)		878)		4,038)		458)		4,744)		-624)		
14	+ Investment	962)		2,314)		1,708)		2,542)		453)		471)		2,711)		
15	+ Mortgage Reduction	7,400	15	11,249	18	12,522	22	12,585	21	15,327	24	12,570	19	32,573	35	22
16	+ Drawings	17,831	36	20,179	32	18,716	34	21,178	36	23,117	35	23,522	35	26,785	29	34
17	+ Tax	6,502	13	5,513	9	5,919	11	5,278	9	8,359	13	9,056	14	11,660	13	12
18	+ Other applications	7,578	15	9,114	14	8,954	16	8,051	14	9,686	15	8,232	12	12,099	13	14
19	= APPLICATION OF FUNDS (B)	49,797	100	63,923	100	55,673	100	59,478	100	65,208	100	66,526	100	91,700	100	100
	7 - 15 = Mortgage Change	+6,476		+1,015		+6,098		-2,514		-8,387		-3,583		+753		
20	CHANGE OF WORKING CAPITAL (A-B)	-4,183		-712		-5,252		766		-5,335		1,367		1,699		
REFLECTED BY CHANGE IN																
21	Current Assets	1,830		686		-2,597		3,459		-511		273		3,457		
22	- Current Liabilities	6,013		1,398		2,655		2,693		4,824		-1,094		1,758		
MORTGAGE INCREASE DETAILS																
23	Interest Rate %	11.6		12.3		14.6		17.3		18.8		13.9		14.0		
24	Term in Years	10		11		10		7		9		7		9		

- Notes:
1. Non-farm income includes interest, dividends, off-farm wages, rents, winnings and horse sales.
 2. Cash grants include Government assistance (Cyclone Bola) and Rural Bank discounting.
 3. Other sources include asset sales, family transactions, Family Care and spouse's earnings (where shown).
 4. Drawings include life insurance payments, school fees and personal expenditure.
 5. Other applications include family transactions, asset purchases (land) etc.

Source: New Zealand Meat and Wool Boards' Economic Service

Having examined farm income and expenditure, and other financial data it is appropriate now to examine farm capital structure and its change over time. Table 6 shows assets and liabilities from 1984 to 1990. The data for the 1984 year show the high, pre-policy change value for total assets after which there was a significant decline to a low of \$601,927 in 1986. By 1990, the total asset value had increased to an amount higher than that in 1984.

Finally in this series on sheep and beef farms based on the Meat and Wool Boards' Economic Service data, there is Table 7 which shows a variety of data from 1984 to 1990. The average effective area increased until 1988 then declined to its 1984 level, perhaps due to subdivision and sale of parts of some farms in order to raise cash or perhaps due to change in the survey sample. Stock units show slight increase over the period until the last year which shows a decline to earlier levels perhaps due to drought. Total labour units have declined steadily resulting in a significant increase in the stock units per labour unit, an increase of 310 from 1984 to 1989. The 1990 figure is down from the 1989 figure. Permanent and other labour have declined steadily while owner labour rose slightly in the middle years and declined in 1989. Perhaps this decline measures a decrease in hours worked on the farm by the owner.

3.3 Conclusion

Farmers in New Zealand have faced acute financial pressure since 1984. This pressure came very quickly, was accompanied by immediate adjustment in farm expenditure, and appears to be easing for many, but not all, farmers. In summary, farm incomes fell sharply by 1986 then rose to remain at lower than the 1976 to 1985 ten year average. The level of increase in input prices fell steadily. Farm cash surplus accounted for 53 per cent of the total source of funds, the remainder derived from borrowing, non-farm and other sources in roughly equal amounts. Farmers have reduced their mortgage commitments in recent years. Earlier in the post-1984 period the levels of working capital declined and have since marginally increased, and current total asset values have returned to their 1984 levels. There has been an increase in the number of stock units per labour unit.

Generally, the data in Tables 5 and 6 give detailed information on how farms have adjusted to financial pressure. The range of responses to lowered income is wider than just using up capital reserves described by Frengley and Johnston (1991). Farmers have a range of sources of funds including interest, dividends and rents, and from other off-farm investments. Table 6 shows that farmers have investments off-farm of about \$20,000 on average and these have been increasing slightly over time. Further, there are off-farm wages of both farm men and women, which Table 5 shows is an important, if underestimated, source of income. There is also the possibility of asset sales. A final element of the adjustment options is the family transaction component of the other sources of funds category, whereby financial help is provided by the farm family.

The above analysis of flow of funds data, and the other data, relates to the farm and not the farmer or the farm household. Two points are relevant here. First, the per farm data do not account for the number of people working on the farm. It is possible that two brothers operate one farm, or a parent may work a farm along with a son or daughter. The farm income may have to be spread over a number of people. Second, the crucial aspect of farm

Table 6
Weighted Average Capital Structure, 1983/84 to 1989/90

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	Change 1985 to 1990
ASSETS								
1. Capital Value	589,574	494,955	373,878	381,463	377,356	445,463	531,056	36,101
2. Truck & Tractor	15,181	18,061	16,641	15,793	15,333	15,438	17,479	-582
3. Other Plant & Machinery	10,571	12,906	12,397	12,204	11,872	11,825	12,844	-62
4. Sheep	72,321	69,170	39,954	69,436	59,568	59,454	87,649	18,479
5. Cattle	55,716	61,056	43,709	55,457	46,970	58,781	79,496	18,440
6. Deer	6,389	11,565	6,916	7,414	5,038	4,893	6,355	-5,210
7. Goats	696	3,286	3,139	1,693	738	368	294	-2992
8. FARM CAPITAL	750,448	670,981	496,634	543,460	516,875	596,222	735,173	64,192
9. Current Assets	20,326	21,426	18,256	21,615	20,470	19,171	22,130	704
10. Term Deposits	3,723	6,027	7,181	11,471	10,598	15,541	15,306	9,279
11. Income Equalisation Balance	2,065	2,001	2,800	2,934	3,942	5,934	2,556	555
12. Investments off Farm	16,060	18,377	19,462	22,452	20,802	22,522	22,222	3,845
13. Other Assets	2,580	2,765	2,617	2,208	2,262	3,592	3,871	1,106
14. Homestead	52,315	51,000	44,663	46,896	47,504	53,192	61,142	10,141
15. Car	8,819	10,548	10,305	11,361	11,351	11,202	11,653	1,105
16. TOTAL ASSETS AT CLOSE	856,356	783,126	601,927	662,397	633,804	727,363	874,053	90,927
LIABILITIES								
17. Current Liabilities	33,863	35,416	37,196	38,302	40,638	37,747	37,432	2,016
18. Fixed Liabilities	133,709	138,500	148,273	144,034	141,800	141,554	144,263	5,763
19. Reserves	1,981	3,073	2,354	2,828	4,229	1,923	1,440	-1,633
20. Capital Net Worth	686,803	606,137	414,104	477,233	447,137	546,139	690,918	84,781
21. TOTAL AT CLOSE	856,356	783,126	601,927	662,397	633,804	727,363	874,053	90,927

Source: Meat and Wool Boards' Economic Service

Table 7

Sundry Data, Weighted Average All Sheep and Beef Farms, 1983/84 to 1989/90

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
Effective Area (ha.)	487	487	487	492	502	485	487
Stock Units	3,219	3,289	3,230	3,287	3,246	3,314	3,155
Labour Units							
Owner	1.09	1.13	1.12	1.11	1.10	1.07	1.10
Permanent	0.37	0.35	0.31	0.27	0.27	0.25	0.25
Other	0.31	0.26	0.24	0.23	0.22	0.25	0.24
Total (Years/Farm)	1.77	1.74	1.67	1.61	1.59	1.57	1.59
Stock Units/Labour Unit	1,819	1,890	1,934	2,042	2,042	2,138	1,984
Wages							
\$/Farm	6,397	6,567	6,011	5,813	6,168	6,582	7,287
\$/Hectare	13.14	13.48	12.34	11.82	12.29	13.57	14.96
\$/S.U.	1.99	2.00	1.86	1.77	1.90	1.99	2.31
% Expenditure	7.4	6.7	6.6	6.4	6.3	6.6	6.9

Source: Meat and Wool Boards' Economic Service

survival is the household income not the farm income as it is the viability of the household that sees it able to enter another season of production. Not accounted for in the farm financial data used above is the household income, and this limitation has a number of sources. There is incomplete accounting or measuring of income from off-farm employment. Also there is incomplete measuring of non-market transactions between the household and other households or farms. Bartering or exchanging of items may play a key role in household survival.

CHAPTER 4

STRUCTURAL CHANGES IN NEW ZEALAND FARMING

4.1 Introduction

Looking at the broader picture of New Zealand primary production it is possible to see in aggregate terms a number of dimensions to farm structure. The following presentation examines changes in livestock and farm numbers, small and significant farms, employment data and social organisation of production.

4.2 Livestock and Farm Numbers

Sheep, beef, and goat numbers have declined while dairy stock and deer have increased in number. Table 8 shows the main categories of livestock in recent years. Sheep numbers peaked in the early 1980s at nearly 70 million and since then have declined to 58 million, a decrease of 12 million or 17 per cent in six years. The numbers of beef cattle peaked in 1975, decreased in the early 1980s and then have been fairly constant. When sheep numbers were high beef cattle numbers were low, and vice versa. Similarly, there are some opposing trends between dairy cattle and beef cattle so that in the last three years as beef cattle numbers have decreased slightly dairy cattle numbers have increased slightly. Of the two minor livestock groups, deer numbers show a steady increase while goat numbers peaked in 1988 and then decreased. This pattern is confirmed by the data in Table 9 which shows the numbers of deer and goat farms. The number of deer farms is increasing steadily while the number of goat farms peaked in 1987, a year before the peak in goat numbers. Changes in stock numbers reflect substitution between livestock types as farmers have responded to changed profitabilities, and reflect the impacts of drought on sheep and beef areas. There are also changes away from traditional livestock to deer, for example, although these are a small percentage of the total livestock units.

There has been a number of changes in farm numbers. Table 10 shows the total number of farms for 1976 and for 1981 to 1990 using adjusted data which exclude unusual types of farms. Generally, there has been an increase in the total number of farms in all but 1982 and 1990. This trend has been occurring since 1971. The survey in 1982 adopted some new procedures which were dropped in 1983, and this may account for the decrease in that year. Aside from 1982 there has been a gain in farm numbers every year until 1990 although the rate of increase has slowed down. By 1990 the total number of farms has decreased and, judging by the trend, the decrease is probably a true reflection of the situation. The total area of occupied land has been over 15.5 million hectares for most of the last decade and is at its lowest level in 1990. Since 1986 average farm size has been about 220 hectares.

While farm numbers overall have been increasing from 1971 to 1989 there have been changes to the distribution of farm sizes. Table 11 shows numbers of farms in three-yearly intervals by size for dairy, sheep/beef and horticultural farms. The cells having a decrease in number are marked by a circle. The table shows both changes in the size distribution and changes in farm type. For the first three time intervals spanning 1972 to 1981 there was a consistent pattern of increases in small and large sized ranges combined with decreases in the mid-sized ranges. Thus, between 1972 and 1978, there were significant decreases in the 40-

59 hectares, 60-99 hectares, and 100-199 hectare ranges. Between 1978 and 1981 only the latter two size ranges showed a decrease in number, and correspondingly, there were increases in a wider range of smallholdings. A similar pattern occurred between 1981 and 1984 but there were also some decreases in the larger size ranges.

Table 8
Main Categories of Livestock (Millions), 1972 to 1990

	Dairy	Sheep	Beef	Deer	Goats
1972	3.289	60.883	5.344	-	-
1975	2.998	55.320	6.294	-	-
1978	2.991	62.163	5.507	-	-
1981	3.134	69.884	5.113	0.109	0.068
1984	3.246	69.739	4.531	0.258	0.230
1987	3.195	64.244	4.804	0.500	1.054
1988	3.200	64.601	4.858	0.606	1.301
1989	3.302	60.569	4.526	0.780	1.222
1990	3.464	57.852	4.601	0.976	1.062

Source: Agricultural Statistics

Table 9
Total Number of Deer and Goat Farms

	Deer	Goats
1983	162	101
1984	642	305
1985	857	470
1986	1,020	773
1987	1,088	974
1988	1,542	885
1989	1,721	703
1990	2,178	555

Source: Agricultural Statistics

Table 10
Number and Area of Farms, 1976 to 1990

	Total No.	Change	Total Area (ha.)	Average Size (ha.)
1976	61,688	-	16,110,800	261
1981	65,328	+ 3,640	15,998,584	245
1982	64,976	- 352	15,939,017	245
1983	66,263	+ 1,287	15,899,179	240
1984	67,732	+ 1,469	15,787,443	233
1985	69,217	+ 1,485	15,731,409	227
1986	70,081	+ 864	15,697,612	224
1987	70,444	+ 363	15,672,538	222
1988	70,521	+ 77	15,491,256	220
1989	71,049	+ 528	15,888,295	224
1990	71,002	- 47	15,315,762	216
1984-90		+ 3,270		

Note: Data adjusted to exclude idle land, other land and plantations.

Source: Agricultural Statistics.

It must be noted that even small changes in a large size range can show up as a relatively high percentage change because the total number of farms is low and for this reason less attention is given to these changes. Moving on to the 1984 to 1987 period shows a similar pattern, but there were significant increases in the number of farms in the 40-59 hectares and 60-99 hectare ranges. In two of the size ranges in the 1970s where farm numbers were decreasing, by the 1984-87 period, farm numbers were increasing.

Generally, from 1972 to 1987 there appears to be a pattern of diminished declines in the mid-sized ranges with gradual skewing of declines towards the larger sizes. In addition, the dominant feature of large increases in smallholdings has continued over this period, however the gains in the smallest size ranges have declined while the gains in the larger end of the smallholdings range has increased.

For the final period, 1987 to 1990, there is an abrupt change from the earlier general pattern. There are declines in the four mid-sized ranges, as there were in the early 1970s. Another difference lies in the rate of gain in smallholdings. For the first time since 1972 the increases here are quite small, at about four to seven per cent, when in earlier years they have been mostly between ten or twenty per cent. Also, for the smallest size range there was

Table 11

**Changes in Number of Farms, 1972 to 1990, for Each Farm Size Range (hectares)
and by Major Farm Type**

		<5		5-9		10-19		20-39		40-59		60-99		100-199		200-399		400-799		800-1199		1200-1999		2000-3999		> 4000		Total			
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
1972-75	D	+ 2	2	- 30	14	-142	30	- 922	30	-837	16	-135	2	+ 211	7	+ 75	11	- 10	9	- 5	-	+ 1	-	0	-	0	-	0	-	-1763	9
	S/B	+ 548	68	+ 557	48	+356	23	+ 247	11	+ 55	3	-305	9	- 610	8	+107	1	+ 66	2	+ 27	2	+32	4	+ 9	2	-10	2	+1079	3		
	H	+ 396	28	+ 196	25	+ 26	4	+ 57	14	+ 13	10	+ 25	22	+ 37	61	+ 8	-	- 3	-	+ 1	-	- 1	-	- 1	-	0	-	+ 845	25		
	T	+2788	102	+1682	62	+889	27	- 88	1	-506	6	-265	3	- 375	3	+127	2	+156	4	+ 64	5	+64	7	+36	7	+72	14	+4274	7		
1975-78	D	- 22	20	- 22	12	- 55	16	- 469	22	-306	7	- 90	2	- 5	0	- 70	9	- 10	8	- 6	-	+ 1	-	0	-	0	-	-1064	6		
	S/B	+ 159	38	+ 328	19	+143	8	+ 213	8	+ 8	0	-108	3	-984	14	+ 84	1	- 19	0	+ 7	1	- 1	0	+15	3	4	1	+ 364	1		
	H	+ 28	2	+ 132	14	+132	19	+ 22	5	+ 2	1	- 3	2	- 12	12	- 9	-	+ 2	-	- 1	-	0	-	+ 2	-	0	-	+ 252	6		
	T	+ 951	17	+ 880	20	+427	10	+ 66	1	-159	2	-179	2	-244	2	+118	1	- 9	0	+ 2	1	+ 4	0	+19	3	5	1	+2338	3		
1978-81	D	- 3	4	- 30	23	- 30	11	- 271	16	-433	10	-279	5	- 37	1	+ 31	4	- 13	11	- 0	-	- 1	-	0	-	0	-	-1146	7		
	S/B	+1379	74	+ 981	48	+737	36	+ 469	17	+560	28	+342	11	+1094	17	+420	5	+299	8	+49	4	-77	9	+ 1	0	-10	3	+7848	23		
	H	+ 129	8	+ 277	25	+197	24	+ 157	33	+ 51	34	+ 21	16	+ 16	19	- 1	-	+ 4	-	0	-	- 1	-	- 1	-	- 1	-	+ 815	18		
	T	+1242	19	+ 966	18	+704	15	+ 434	7	- 28	0	-187	2	- 92	1	+59	1	+ 2	0	+ 27	2	+14	1	-16	3	11	2	+3114	4		
1981-84	D	+ 133	160	+ 128	100	+ 99	40	+ 41	3	-102	3	+107	2	+ 161	5	- 18	2	+ 7	7	- 2	-	+ 2	-	0	-	0	-	+ 621	4		
	S/B	- 414	13	- 426	14	-364	13	- 66	2	-437	17	-694	20	-1120	16	-724	9	-472	11	-141	11	+34	4	-50	10	-17	4	-5311	13		
	H	+ 537	30	+ 607	44	+146	14	+108	17	+ 59	30	+ 13	8	- 6	6	+ 11	-	- 4	-	0	-	-	-	- 1	-	+ 1	-	+1782	33		
	T	+1328	17	+1342	25	+975	18	+5077	8	0	0	- 42	0	- 160	1	+103	1	+ 56	1	- 35	3	1	0	-22	4	- 5	1	+4118	6		
1984-87	D	+ 32	15	+ 5	2	+ 18	5	- 27	2	-148	4	-122	2	- 8	2	+ 7	1	+ 9	-	+ 2	-	- 2	-	0	-	+ 1	-	- 316	2		
	S/B	+ 401	14	+ 324	12	+252	10	+ 283	9	+ 70	3	+ 76	3	- 266	4	-237	3	-137	4	- 62	6	+33	4	-31	6	- 4	-	+ 655	2		
	H	+ 283	12	+ 336	17	+458	39	+ 162	21	+ 54	21	+ 54	32	+ 34	35	+ 11	27	+ 2	-	0	-	0	-	0	-	0	-	+1125	16		
	T	+1337	15	+1131	15	+876	14	+ 809	11	+166	2	+124	1	- 79	1	+41	0	- 38	1	- 74	6	-40	4	+ 4	1	+ 6	1	+4163	5		
1987-90	D	+ 127	51	+ 138	53	+176	48	+ 54	4	-325	9	-1060	19	+ 532	16	+341	48	+ 90	76	+ 5	-	+ 2	-	+ 4	-	- 1	-	+1083	7		
	S/B	- 543	17	- 529	18	-375	14	- 470	14	-246	11	- 405	14	- 704	12	-827	11	-296	8	-78	8	-53	7	-10	2	-42	12	-4594	12		
	H	+ 43	2	+ 195	8	+175	11	+165	18	+ 58	19	+84	38	+ 134	103	+ 66	127	+ 14	127	+ 3	-	+ 1	-	0	-	0	-	+ 938	11		
	T	- 173	2	+ 358	4	+495	7	+ 349	4	-268	4	- 193	2	- 123	1	-320	3	- 6	0	+ 9	1	-13	1	+ 2	-	- 9	2	+ 108	0		

Notes: D = Dairy
S/B = Sheep/Beef
H = Horticulture
T = Total

Source: Agricultural Statistics

a decline in number. These changes possibly relate to the sharemarket crash in 1987 which reduced demand for lifestyle blocks. Thus, the latest changes appear to herald a different set of adjustments than have occurred earlier. While in earlier times increases in smallholdings outweighed the declines in the mid-sized ranges and led to a steady increase in the number of farms, now the reverse is happening with renewed declines in the mid-sized ranges which are beginning to outweigh the increases in the number of smallholdings. The result is a decline in farm numbers. If this trend continues we can expect to see more rapid declines in the total number of farms. This means that farms in the mid-sized ranges involved in traditional land uses will get progressively larger as will newer land uses such as horticulture or deer farming on smaller-sized farms. In cases where farmers sell part of their land in order to improve their cash position, either a smallholding is created or some farms will gain in size and some will lose in size.

Table 11 also shows changes for the main farm types. The totals column shows the pattern for each farm type for all of New Zealand. The total for all types follows the pattern of increase up to 1987 described in Table 10. Since then the 1987 to 1990 increase is nominal (and is slightly different to the numbers in Table 10 because those data have been adjusted to exclude idle land, other land and plantations). Dairy farm numbers show changing fortunes as the numbers declined between 1972 and 1981, fluctuated, then increased between 1987 and 1990. Sheep/beef farm numbers have changed in reciprocal fashion: in each period while dairy numbers decreased, sheep/beef numbers increased. Thus, there was a major decrease between 1981 and 1984, and again between 1987 and 1990. Against the variable fortunes of dairy and sheep/beef, horticulture shows strong gains in all periods except the last. Between 1981 and 1984 there was a peak in the increase in horticultural farm numbers at 33 per cent, then a levelling off.

The variations in numbers for each farm type represent, to some degree, fluctuations in the viability of each sector. Each farm type classification is based on the proportion of income from each activity. However, beyond these fluctuations there is also movements away from some types of production as indicated by the livestock data presented earlier. Since 1984 sheep farming has been less popular and there has been movement to other activities like dairy farming, deer farming, and horticulture. These changes show up in Table 11 with the decrease of 4,594 sheep farms and the increase in 1,083 dairy farms over the last four years.

The size range data show that while sheep/beef numbers since 1984 show a slight increase then a decrease for the totals, the mid-sized, or commercial, sheep/beef farms have consistently declined in number since 1984, continuing the trend which began in 1981. Some of the decreases have been significant with a maximum of 34 per cent during 1987 to 1990 for the 800 to 1,199 hectare range. While for the 1984 to 1987 period the decreases in the mid-sized or commercial sheep/beef farms were offset by gains in the small size range, for the latest period there were decreases across all size ranges. The horticultural distribution shows large increases in the smaller size ranges, but these increases extend into the mid-sized ranges as well, so that after 1984 there are significant increases in the 200 to 399 hectare range. In a similar way dairy farms show a significant increase after 1987 in this size range.

4.3 Small and Significant Farms

Clearly evident from the above data on farm numbers is the presence of a significant group of small-scale farms which has been increasing in number in recent years. Numbers of farms

in many of the small-sized ranges show steady increases up until the 1987 to 1990 period. In fact, the trend of increase in farm numbers since 1971 can be attributed to growth in smallholdings alongside growth in new types of production like deer and horticulture which can occur on smaller properties. The existence of smallholdings in New Zealand is well known but poorly studied. In the following discussion, data are presented which provide a preliminary description of both small farms and significant farms.

Since 1986 the Department of Statistics has developed a measure of gross farm income using their estimates of current prices combined with actual and estimated production levels as stated by farmers in the agricultural census. The estimated value of agricultural output (EVAO) per farm is aggregated to estimate the total value of output for each farm type and to determine the number of farms in each type of production. In doing this the farms are listed in descending order from the largest to the smallest. Working from the top and accumulating EVAO values going down it is possible to reach a cut-off point where the accumulated value is 95 per cent of the total EVAO. All farms above this value are classified as 'significant' farms and all farms below this value are 'small' farms. As at June, 1990 there were 41,559 significant farms and this group is 51 per cent of all farms in New Zealand. It should be noted that if there is no income from a farm, as would be the case for many smallholdings, the EVAO is zero and the farm is classified as idle land. The approach developed by the Department of Statistics has been scrutinised by MAF officials and the Department's number of significant farmers matches the number from MAF.

Table 12 introduces data on the number of small and significant farms for 1986, 1988 and 1990, but some cautionary points need to be made first. Between 1986 and 1990 the total number of farms increased slightly from 79,824 to 80,904, or a gain of 1,080 farms. The table shows these totals at the bottom of each column, but also indicates that there was an increase in farm numbers for the intervening year of 1988 when the total number was 82,063. This increase of 2,239 farms occurred largely in the number of small farms which gained 1,489 compared to the gain in significant farms of 750. Further, the increase occurred mainly in other land (mostly idle land) rather than in the main land use types (see next table). Given these attributes the increase in 1988 is not an important feature of change in mainstream farming, and the important focus is the change between 1986 and 1990. The change in the total number of farms between 1986 and 1990 shows an increase of 1,080 farms. (This is slightly different to the corresponding figures in Table 10 showing the number and area of farms because in that table the totals were adjusted to exclude idle land, other land and plantations.) However, the increase of 1,080 is comprised of a four per cent increase in small farms and a one per cent decrease in significant farms. This pattern is consistent with Table 11 which showed decreases in the mid-sized ranges where it is more likely for significant farms to occur. The trend appears to be for the number of small farms to increase and the number of significant farms to decrease. The result is that by 1990 small farms are almost one half of all farms. The change between 1986 and 1990 shows that agricultural production is derived from fewer producers.

Table 12 also shows how small and significant farms are spread over all farm size ranges. There are significant farms in the smallest range (six per cent) and small farms in the largest range (three per cent). However, small farms dominate the small size ranges up to the 50 hectares and significant farms dominate over 50 hectares. Even in the 50 to 99 hectare range one third of farms are small farms. In 1990, small farms number 7,152 or 17 per cent of all farms larger than 50 hectares.

Table 12

**Numbers of Small and Significant Farms by Size Range,
1986 to 1990**

Hectares		1986		1988		1990		Change 1986-90	
		No.	%	No.	%	No.	%	No.	%
< 5	Small	9,283	91	9,871	91	9,545	94	262	3
	Significant	884	9	980	9	658	6	-226	26
	Total	10,167	100	10,851	100	10,203	100	36	0
5-9	Small	6,924	82	7,458	82	7,848	86	924	13
	Significant	1,500	18	1,672	18	1,239	14	-261	17
	Total	8,424	100	9,085	100	9,087	100	663	8
10-19	Small	5,276	78	5,763	78	6,239	81	963	18
	Significant	1,516	22	1,629	22	1,422	19	-94	6
	Total	6,792	100	7,392	100	7,661	100	869	13
20-49	Small	7,927	65	8,695	68	8,561	67	634	8
	Significant	4,289	35	4,156	32	4,200	33	-89	2
	Total	12,216	100	12,851	100	12,761	100	545	4
50-99	Small	4,505	34	4,424	33	4,227	33	-278	6
	Significant	8,775	66	8,881	67	8,775	67	0	0
	Total	13,280	100	13,305	100	13,002	100	-278	2
100-199	Small	2,381	21	1,941	17	1,931	17	-450	19
	Significant	9,095	79	9,506	83	9,386	83	291	3
	Total	11,476	100	11,447	100	11,317	100	-159	1
200-499	Small	986	8	794	7	778	7	-208	21
	Significant	10,622	92	10,638	93	10,432	93	-190	2
	Total	11,608	100	11,432	100	11,210	100	-398	3
500-999	Small	194	6	154	5	139	4	-55	28
	Significant	3,098	94	3,133	95	3,119	96	21	1
	Total	3,292	100	3,287	100	3,258	100	-34	1
> 1,000	Small	204	8	69	3	77	3	-127	62
	Significant	2,365	92	2,344	97	2,328	97	-37	2
	Total	2,569	100	2,413	100	2,405	100	-164	6
Total	Small	37,680	47	39,169	48	39,345	49	1,665	4
	Significant	42,144	53	42,894	52	41,559	51	-585	1
	Total	79,824	100	82,063	100	80,904	100	1,080	1

Source: Agricultural Statistics

Table 13

Numbers of Small and Significant Farms by Farm Type, 1986 to 1990

		1986		1988		1990		Change 1986-90	
		No.	%	No.	%	No.	%	No.	%
Dairy	Small	2,124	13	2,544	16	2,335	14	+211	10
	Significant	13,895	87	13,476	84	14,523	86	+628	5
	Total	16,019	100	16,020	100	16,858	100	+839	5
Sheep/Beef	Small	18,835	51	16,918	48	16,771	50	-2,064	-11
	Significant	17,782	49	18,314	52	16,708	50	-1,074	-6
	Total	36,617	100	35,232	100	33,479	100	-3,138	-9
Horticulture	Small	3,647	46	4,166	44	4,543	49	+896	25
	Significant	4,200	54	5,389	56	4,723	51	+523	12
	Total	7,847	100	9,555	100	9,266	100	+1,419	18
Cropping	Small	970	40	683	44	639	37	-331	-34
	Significant	1,477	60	853	56	1,089	63	-388	-26
	Total	2,447	100	1,536	100	1,728	100	-719	-29
Other Animal	Small	3,457	51	4,171	51	5,986	63	+2,529	73
	Significant	3,376	49	3,978	49	3,551	37	+175	5
	Total	6,833	100	8,149	100	9,537	100	+2,704	40
Sub-total	Small	29,033	42	28,482	40	30,274	43	+1,241	4
	Significant	40,730	58	42,010	60	40,594	57	-136	0
	Total	69,763	100	70,492	100	70,868	100	+1,105	2
Other Land	Small	8,647	86	10,687	92	9,071	90	+424	5
	Significant	1,414	14	884	8	965	10	-449	-32
	Total	10,061	100	11,571	100	10,036	100	-25	0
Total	Small	37,680	47	39,169	48	39,345	49	+1,665	4
	Significant	42,144	53	42,894	52	41,559	51	-585	-1
	Total	79,824	100	82,063	100	80,904	100	+1,080	1

- Note: 1. Other land includes beekeeping, plantations, other farming, agricultural contracting, research and educational farms, and idle land.
2. Other animal includes pigs, horses, deer, goats, poultry and other livestock.

Source: Agricultural Statistics

The 50 hectare size is the cut-off point for differences in the change between 1986 and 1990 shown in the right hand column. All small size ranges up to 50 hectares show gains in the number of small farms and losses in the number of significant farms. Beyond 50 hectares there is a different pattern with mostly losses in the number of both small and significant farms, except for the 100 to 199 hectare range which shows a notable gain in the number of significant farms. These changes match those in the earlier table on farm size ranges (Table 11) which showed declines in the mid-sized and larger ranges. Table 12 further shows that

losses of significant farms in the smallest two size ranges are quite high at 26 per cent and 17 per cent respectively. These losses suggest that commercial small farms, typically in horticulture, have had to increase in size quite rapidly. Further, the gain in small farms for the 10 to 19 hectare range is high at 18 per cent, suggesting that this size is the most popular choice for small farms in recent years, where a choice is in fact possible.

It is also possible to examine small and significant farms by farm type and Table 13 shows the relevant data. This breakdown of farm types is more inclusive than that provided by Table 11 and has cropping, other animal, and other land categories. The other land category, while including all residual land uses, is made up mostly of idle land. For example, in 1990 of the 10,036 farms in this category, 7,739 or 77 per cent were as idle land, and this number is ten per cent of all farms. Thus, one tenth of all farms are idle land or farms that are owned by smallholders who receive no income from their land.

Table 13 shows for each farm type the relative proportion of small and significant farms. Dairy farming is dominated by significant farms which are from 84 per cent to 87 per cent of all dairy farms. Clearly, the technological requirements of milking preclude entry by smallholders into dairying. The next farm type to have a predominance of significant farms is cropping (from 56 per cent to 63 per cent), another type of production with high machinery costs. All other types have roughly equal proportions of small and significant farms. Interestingly, the 'other animal' category shows a balance between small and significant farms for 1986 and 1988, but a change in 1990 to a higher proportion of small farms. Perhaps this reflects changes to newer types of animals, a process necessarily requiring starting prudently with lower numbers and lower returns.

The last column in Table 13 shows the changes between 1986 and 1990. There have been gains in both small and significant dairy, horticultural and other animal farms, and losses in both small and significant sheep/beef and cropping farms. These trends are similar to those described earlier. However, most of the increase in horticultural and other animal farms is in the small farms, with the other animal increase being large at 73 per cent. Thus, by 1990 63 per cent of other animal farms are small farms. Another point about Table 13 is that even small farm operators appear to respond to market signals and move into new and more viable activities as do their significant farmer counterparts. Thus, there is a decline in sheep/beef small farms and an increase in dairy small farms. This observation suggests that small farm operators are market oriented. It further suggests that demarcation between small and significant farms may not be so clear cut.

4.4 Farm Employment

An important dimension to agrarian changes between 1984 and 1990 are the changes in farm employment. A comment on the method used for the analysis presented in Tables 14 and 15 is required first. A number of recent studies of farm employment (OECD, 1991; Webber and Rivers, 1991; Savage, 1990) have taken agricultural statistics at face value and developed interpretations based on the existing official employment data. While this approach can give some accurate indications of employment changes it neglects to take into account the procedures used to collect data and how these have influenced the data. The following observations on data collection and analysis are made to show how some variations in numbers are due to method rather than genuine changes in employment.

First, in 1981 a small farms questionnaire was used for the first time rather than a comprehensive questionnaire for all farmers. Since there was an increase in working owners and unpaid family members of 6,479 from 24,792 in 1981, it is likely that the response rate from small farms was higher and the new total better represented the actual number of farmers. When the small farm questionnaire was extended further in 1984 the number of male working owners decreased by 7,202 from 70,047 persons suggesting that for some reason the coverage excluded male working owners. However, there is reason to believe that the 1982 and 1983 figures for male working owners was superficially high because in 1982 the Department of Statistics' policy was to impute a working owner for every questionnaire including those that did not state any working owners. This accounts for an increase of 4,417 male working owners from the 1981 level of 69,552 persons. By 1984 this imputation procedure was stopped and the number dropped to levels lower than for the previous seven years. Since 1984 the number has changed only slowly as though they were reflecting realistic changes in the number of male working owners. Thus, 1984 is a good base to begin a comparison to a later year because good coverage of all farmers formed the basis of the survey.

In the post-1984 period the Department of Statistics introduced a new policy of surveying only significant farms every year. Thus, in 1988 and 1989 only significant farms were surveyed and data for small farms were estimated. Thus, over these two years any significant changes will not be picked up and a large change may occur in 1990. Further, as a later table shows, small farms contribute 13,379 people to the total number of 62,539 full-time working owners, and are an important part of the farm employment picture. By 1990, all farms were surveyed again and this makes 1990 a good year to compare with 1984.

Another important factor in the 1984 to 1990 period was a change to the presentation of the farm employment question in 1988. While the logical form of the question in 1988 was identical to earlier years, the physical layout was slightly different in that the earlier definitions of all the categories were omitted. It appears that farmers have responded by declaring fewer unpaid members of family so that the total number decreased by 8,774 or 23 per cent from 37,986 persons in 1987. From 1984 to 1987 the number was increasing and it is unlikely that a real decrease occurred in 1988. Earlier financial data showed that 1988 was similar to 1987 and, if anything, the number of unpaid members of family would have increased or held the same. For the following analysis the unpaid family members data in 1988 and later years are adjusted upwards by the difference from 1987 so that 1987 and 1988 are the same. Changes after 1988 reflect true changes in the trend.

Taking into account the above factors it is appropriate to examine changes between 1984 and 1990. In both years there was a complete agricultural census. Further, the 1984 to 1990 period is a six-year period which is long enough to reflect changes to farm employment in the light of more-market policies since 1984.

To give an overview of farm employment numbers Table 14 shows the subtotals for the four main types of employment between 1984 and 1990, including adjusted data for unpaid members of family. The numbers for permanent and casual workers are for the week ended 30 June. Data for the week ended 28 February are available and for 1990 they are 7,503 higher than the June figure. Thus, the data used here are a conservative estimate of permanent and casual worker numbers. (The 1991 agricultural census introduces changes to the specified month, using February for all the categories of employment). The table

Table 14
Main Types of Farm Employment, 1984 to 1990

	Working Owners Leaseholders & Sharemilkers	Unpaid Members of Family		Sub Total	%	Permanent Workers	Casual Workers	Sub Total	%	Total
1984	86,981	33,138		120,119	74	30,130	11,837	41,967	26	162,086
1985	88,748	34,795		123,543	75	28,719	12,242	40,961	25	164,504
1986	86,653	35,680		122,333	76	27,061	11,913	38,974	24	161,257
1987	87,311	37,986		125,297	76	26,872	12,761	39,635	24	164,932
1988	(85,045)	(29,212)	(37,986 ¹)	(123,031)	77	(27,028)	(9,924)	(36,952)	23	(159,983)
1989	(83,921)	(27,986)	(36,760 ¹)	(120,681)	78	(25,180)	(9,364)	(34,544)	22	(155,225)
1990	87,203	27,578	36,352 ¹	123,555	77	26,960	9,928	36,888	23	160,443

- Note: 1. The unpaid members of family data include the original census figure and an adjusted figure (see text) which is used for the subtotals and totals.
2. Permanent and casual workers are for the week ended 30 June.
3. The numbers in parenthesis are less reliable indicators of the actual figures (see text).

Source: Agricultural Statistics

shows a decline in the total numbers employed in agriculture to 1989 and then an increase in 1990. The working owners and unpaid members of family subtotals show variability but are higher in 1990 than in 1984. The permanent and casual subtotal shows a fairly steady decline to 1989, then a slight increase in 1990. The percentage figures, show the distribution between family and paid workers and the farmer has increased to 77 per cent in 1990, while the latter has decreased.

Table 15

Changes in Employment Numbers, 1984 to 1990

	Full Time		Part Time		Total	
	No.	%	No.	%	No.	%
Working Owners	+832	+1.3	-610	-2.5	+222	+0.3
Male	-347	-0.7	-1,282	-10.1	-1,629	-2.7
Female	+1,179	+8.4	+672	+5.6	+1,851	+7.1
Unpaid Family	+2,006	+18.2	+1,208	+4.8	+3,214	+8.8
Male	+997	+18.5	+679	+5.6	+1,676	+9.6
Female	+1,009	+17.8	+529	+4.0	+1,538	+8.1
SUB TOTAL	+2,838	+3.9	+598	+1.2	+3,436	+2.8
Male	+650	+1.2	-603	-2.4	+47	+0.1
Female	+2,188	+4.8	+1,201	+4.8	+3,389	+7.5
Permanent Labour	-1,383	-24	-1,787	-24	-3,170	-11
Male	-1,326	-7	-346	-11	-1,672	-7
Female	-57	-2	-1,441	-33	-1,498	-20
Casual Labour	-	-	-	-	-1,909	-16
Male	-	-	-	-	-561	-8
Female	-	-	-	-	-1,348	-26
SUB TOTAL					-5,079	-12
Male					-2,233	-8
Female					-2,846	-23
TOTAL	+1,455	+2	-1,189	-2	-1,643	-1
Male	-676	-1	-949	-4	-2,186	-2
Female	+2,131	+10	-240	-1	+543	+1

Note: Full time is more than 30 hours per week and part time is less than 30 hours per week.

Source: Agricultural Statistics

Table 15 shows the employment data for working owners, unpaid members of family, permanent and casual labour, presenting only the change in numbers between 1984 and 1990. All except casual labour are broken down into full-time and part-time categories and all are broken down into male and female categories. The totals at the bottom of the table do not add up across to the overall total because the latter includes casual workers who cannot be analysed in full or part-time terms. The totals show that by 1990 the number of people employed in agriculture in all categories decreased by 1,643 persons or one per cent. While the total number employed in all categories declined between 1984 and 1990, the number of women increased slightly and the number of men decreased. Further, for the sum of working owners, unpaid family and permanent labour, there was an increase of 1,455 persons in full-time employment and a decrease of 1,189 persons in part-time employment. Of the increase in full-time workers, there was a gain in women and a decline in men. Thus, one preliminary observation from the totals at the bottom of the table is that now there are more full time and less part-time workers, and more women and less men working in agriculture.

Of interest now is to learn where these overall changes in employment occurred. Looking under the Total column at the first subtotal, for working owners and unpaid family, shows 3,436 persons and the second subtotal, for permanent and casual workers, shows -5,079 persons. These figures correspond to the main trends noted above for Table 14, namely, an increase in family labour and a decrease in paid labour.

For the family labour subtotal, nearly all of the increase is in the number of women. Also important to note in the data on working owners and unpaid members of family is the predominance of the full-time workers in the change of numbers. Of the subtotal increase of 3,436 persons, 2,838 or 83 per cent are in full-time work, and again, female workers dominate. However, most of this increase is in the full-time unpaid members of family subcategory. Meanwhile, full-time working owners increased slightly and part-time working owners declined slightly.

Further qualifications can now be made. Of the working owners and unpaid family increase of 3,436 persons, the majority was due to increases in unpaid members of the family (3,214 persons) and these unpaid family increases were balanced between men and women. The increase in unpaid family occurred for both full and part-time categories. While the number of working owners increased only slightly, by 222 persons, the number of males declined by 1,629 and the number of females increased by 1,851. (The decline in male working owners matches the increase in unpaid male workers, suggesting that as farm financial returns worsened for some men over the 1984 to 1990 period they changed in status from working owners to unpaid members of family.) Female working owners and female unpaid family both increased by similar and large amounts resulting in the dominant female component of the increase in total working owners and unpaid members of family.

Focusing on the respective roles of farm men and women, the data show that there are fewer full-time and part-time men as working owners and more men in both categories as unpaid family. There are slightly more male unpaid members of the family and this is matched by the increase in female full-time unpaid members of family. However, there are now more female working owners and unpaid members of family in both full- and part-time categories, with the majority in full-time categories. Thus among the family labour component the important changes are the growing presence of women as full-time working owners and unpaid members of family. This change can be called feminisation of agriculture.

Turning now to permanent and casual labour, the table shows a decline of 3,170 persons in the total permanent labour category. This decline is roughly balanced between male and female workers and between full-time and part-time workers. There is a decline of 1,909 casual workers, with most of these decreases among females. These changes match the observation that farmers have laid off permanent workers and tended to employ only casual labour where possible.

Having shown the main trends in employment numbers between 1984 and 1990, it is possible to see changes in employment on small and significant farms. Table 16 shows the relevant data for working owners and unpaid members of family but only from 1986 onwards because earlier data are not available. Note that the change in unpaid members of family is from 1988 to 1990 because of changes to the employment question in 1987 which led to a sharp reduction in the number in this category. While earlier tables used adjusted data, in this case the original data are used because they cannot be adjusted to show the direction of change. Data for permanent and casual workers are not shown because the majority (89 per cent in 1990) are on significant farms.

Table 16 shows that most full-time workers are on significant farms: in 1990 80 per cent of full-time male working owners and 75 per cent of full-time female working owners were on significant farms. For unpaid members of family the figures are 64 per cent and 68 per cent respectively. Thus, the complementary figures are interesting in that 20 to 25 per cent of full-time male or female working owners are on small farms. These people are working more than 30 hours per week on farms that produce a low value of agricultural output. Greater proportions of unpaid family workers are in this situation.

In a similar way there are significant proportions of part-time working owners and unpaid members of family who work on significant farms. For working owners in 1990, 28 per cent of men worked on part-time significant farms while for women it was 56 per cent. In considering the part-time working owners it is possible that some of these workers have off-farm work, especially so for those on significant farms. Thus, a crude upper estimate of the extent of off-farm work is the total number of part-time male and female working owners who are on significant farms. This is 10,302 persons in 1990, or 12 per cent of all working owners. The number has changed little since 1986. Meanwhile for unpaid family, greater proportions of men and women are working part-time on significant farms: in 1990 it was 50 per cent for men and 58 per cent for women.

Table 16

**Numbers of Small and Significant Farms by Working Owners
and Unpaid Family, 1986 to 1990**

			1986		1988		1990		Change 1886-90	
			No.	%	No.	%	No.	%	No.	%
<u>Working Owners:</u>			86,653	-	85,045	-	87,203	-	550	1
Full-time:	Male	Small	10,326	22	9,204	19	9,928	20	-398	-4
		Significant	36,769	78	38,792	81	38,547	80	1,178	5
		Total	47,095	100	47,996	100	48,475	100	1,380	3
	Female	Small	3,216	22	3,074	22	3,451	25	235	7
		Significant	11,109	78	10,846	78	10,613	75	-496	-4
		Total	14,325	100	13,920	100	14,064	100	-261	-2
Part-time:	Male	Small	9,704	75	8,363	71	9,162	72	-542	-6
		Significant	3,316	25	3,359	29	3,579	28	263	8
		Total	13,020	100	11,722	100	12,741	100	-279	-2
	Female	Small	4,707	39	4,638	41	5,200	44	493	10
		Significant	7,506	61	6,769	59	6,723	56	-783	-10
		Total	12,213	100	11,407	100	11,923	100	-290	-2
									Change 1988-90	
<u>Unpaid Family:</u>			35,680	-	29,212	-	27,578	-	-1,634	-6
Full-time:	Male	Small	1,579	33	1,584	35	1,549	36	-35	-2
		Significant	3,248	67	2,903	65	2,758	64	-145	-5
		Total	4,827	100	4,487	100	4,307	100	-180	-4
	Female	Small	1,473	29	1,523	30	1,608	32	85	6
		Significant	3,541	71	3,571	70	3,398	68	-173	-5
		Total	5,014	100	5,094	100	5,006	100	-88	-2
Part-time:	Male	Small	5,455	45	4,616	50	4,283	50	-333	-7
		Significant	6,649	55	4,556	50	4,300	50	-256	-6
		Total	12,104	100	9,172	100	8,583	100	-589	-6
	Female	Small	5,248	38	4,441	42	4,077	42	-364	-8
		Significant	8,487	62	6,018	58	5,605	58	-413	-7
		Total	13,735	100	10,459	100	9,682	100	-777	-7

Note : Unpaid family change is from 1988 to 1990, not 1986 to 1990, because of changes to the employment question in 1987 (see text).

Source: Agricultural Statistics

Table 17

Changes in Employment Numbers by Farm Type, 1984 to 1990

	Working Owners, Lease-holders & Sharemilkers				Unpaid Member of Family				Permanent Workers				Casual Workers		Total Change	
	Full Time	Part Time	Total	%	Full Time	Part Time	Total	%	Full Time	Part Time	Total	%	Total	%	Total	%
D	+ 374	-175	+ 549	36	+ 324	-141	+ 183	12	+ 1332	-388	+ 944	62	-161	-	+ 1515	100
S/B	-1596	-2782	-4378	45	+ 774	-970	-196	2	-2095	-1520	-3615	37	-1524	16	-9713	100
H	+ 1440	+ 945	+ 2385	55	+ 265	+ 657	+ 922	21	+ 786	+ 188	+ 974	23	+ 29	1	+ 4310	100
Cr	-298	-306	-604	46	+ 24	-249	-225	17	-148	-92	-240	18	-242	18	-1311	100
OA	+ 1470	+ 1542	+ 3012	44	+ 623	+ 1963	+ 2586	38	+ 987	+ 88	+ 1075	16	+ 213	3	+ 6886	100
O	-555	-184	-739	22	-5	-51	-56	2	-2245	-63	-2308	69	-224	7	-3327	100
T	+ 832	-610	+ 222		+ 2005	+ 1209	+ 3214		-1383	-1787	-3170		-1909		-1643	

Notes: D = Dairy
S/B = Sheep/beef
H = Horticulture
Cr = Cropping
OA = Other animal
O = Other
T = Total

Source: Agricultural Statistics

Table 18

Farm Type by Size Range, 1990

	< 5		5-9		10-19		20-39		40-59		60-99		100-199		200-399		400-799		800-1199		1200-1999		2000-3999		> 4000		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
D	375	4	399	4	542	7	1508	17	3239	45	4531	46	3825	34	1054	11	208	5	12	1	3	0	5	1	0	0	16701	21
S/B	2698	26	2384	26	2286	30	2974	34	1934	27	2458	25	5178	46	6460	69	3332	76	959	79	745	82	435	77	318	66	32161	40
H	2682	26	2521	28	1792	23	1098	13	370	5	307	3	264	2	118	1	25	1	4	0	1	0	0	0	0	0	9192	11
Cr.	50	0	104	1	163	2	208	2	131	2	206	2	423	4	322	3	64	1	5	0	3	0	0	0	0	0	1677	2
OA	1985	19	1794	20	1440	19	1565	18	787	11	754	8	976	9	974	10	537	12	153	13	110	12	60	11	38	8	11173	14
O	2413	24	1885	21	1438	19	1348	15	706	10	639	6	651	6	407	4	197	5	79	7	45	5	67	12	125	26	10000	12
T	10203	100	9087	100	7661	100	8701	100	7167	100	9895	100	11317	100	9335	100	4373	100	1212	100	905	100	567	100	481	100	80904	100

Notes (1): D = Dairy
 S/B = Sheep/Beef
 H = Horticulture
 Cr = Cropping
 OA = Other animal
 O = Other
 T = Total

(2): Idle land accounts for 77 per cent of 'other' land use, and 66 per cent of 'other' land is on farms less than 20 hectares in size.

Source: Agricultural Statistics

The changes over time in Table 16 show that the numbers of full-time male working owners have declined for the small farm category but increased in the significant farm category. Part-time male working owners show the same trend. Female working owner numbers have moved in the opposite direction with decreases on the significant farms for both full and part-time operators. Generally, the number of unpaid members of family have declined between 1988 and 1990 except for full-time female workers.

In addition to the changes in employment on small and significant farms, it is possible to examine the changes in terms of farm type to learn where the increases and decreases are occurring. Table 17 shows changes in employment numbers for all farm types and the net loss of 1,643 persons is a product of diverse trends in the different farm types. Dairy, horticulture and other animal all show gains, while sheep/beef, cropping and other all show losses. While horticulture accounts for much of the gain, it is not as important as other animal farms. In addition, the table shows in which employment category the gains or losses occurred. Focusing on gains show that in absolute terms dairying and other animal farms gained as many permanent workers as did horticulture. Looking at horticulture another way, most of the horticultural increases occurred in the number of working owners.

The importance of the other animal category raises the question of what this particular farm type consists of. Are these farms a result of subdivision and include many hobby farms with a few unusual animals? Table 18 shows the farm size range of all main farm types for 1990. The table shows that the other animal farm type occurs on a wide range of sizes, which while not extending up to the sizes of sheep/beef farms, does have significant numbers between 20 and 200 hectares, namely 4,082 out of 11,173 or 37 per cent.

4.5 Social Organisation of Production

Table 19 shows the three main types of ownership for all farms. Private registered company ownership of farmland was at its highest of 9.8 per cent in 1981 and since then has declined slowly. The 1990 figure of 6.9 per cent is noticeably lower than in previous years. Individual ownership declined steadily to 45.1 per cent in 1986 and since then has increased to 47.1 per cent. While individual ownership predominated in 1975 at 64.2 per cent, by 1990 it had declined to less than one half of all ownership although it is still the largest single category. Against the overall trend away from individual ownership is the increase in partnerships, from 22.9 per cent in 1975 up to 42.3 per cent in 1990. The increase has been steady throughout the 1980s. Generally, since 1984 the main changes have been the small decline in company ownership and the small increase in private ownership, while partnerships have steadily increased in number.

Before offering an interpretation of these data the situation can be further described by examining buyers of farmland, rather than the overall existing picture, as above, which is a result of ongoing land transactions. Valuation New Zealand (formerly the Valuation Department) records farmland transactions and their data show types of ownership. Table 20 shows half-yearly data and ownership type for freehold open market land sales. The percentages for public or private companies have declined slowly throughout the decade with only slight peaks to 14 per cent in December 1984 and 13 per cent in June 1987. The latest figure of eight per cent for June 1991 is at the lowest level for the entire period. These company data include both private and public companies whereas the agricultural statistics in the earlier table refer to private companies only. However, public companies owning land

amounted to only 288 or 0.3 per cent of all farms in 1988, so the two sets of figures are roughly equivalent. Thus, the current level of company transactions in the freehold open market is very close to the absolute level of company-owned land among all farms in New Zealand.

Table 19
Main Types of Ownership of Farm Land, 1975 to 1990

	Private Registered Company		Individual		Partnership	
	No.	%	No.	%	No.	%
1975	6,846	9.7	43,034	64.2	15,327	22.9
1981	7,110	9.8	38,540	53.1	23,012	31.7
1982	6,843	9.3	38,561	52.2	24,807	33.6
1983	6,762	8.9	39,009	51.5	26,208	34.6
1984	7,038	9.2	37,307	48.7	28,400	37.1
1985	7,230	9.1	36,728	46.6	30,793	39.1
1986	7,122	8.9	35,998	45.1	32,311	40.5
1987 ¹						
1988	6,742	8.2	38,553	47.0	32,951	40.1
1989 ¹						
1990	5,583	6.9	38,104	47.1	34,201	42.3

Notes: ¹ Data not collected for 1987 and 1989.

Source: Agricultural Statistics

The level of partnerships among current sales is high at just under 60 per cent of all sales. The proportion of partnership in current sales has been increasing slowly throughout the 1980s and the relatively high level accounts for the steady increase in the total number of partnerships for all farmland. In a similar way, the proportion of individual ownerships among recent current farmland buyers has been steady and recently increasing and this has, in part, contributed to the slight increase in overall individual ownership.

Table 20
Ownership Type for Freehold Open Market Sales, 1981 to 1990

Half Year Ended	Individual		Partnership		Public or Private Co.		Other		Total
	No.	%	No.	%	No.	%	No.	%	No.
Dec. 1981	1,000	38	1,223	46	316	12	96	3	2,635
June 1982	803	39	933	45	247	12	59	3	2,058
Dec. 1982	624	36	834	49	175	10	81	4	1,716
June 1983	438	39	521	46	124	11	42	3	1,130
Dec. 1983	497	36	694	50	133	10	59	4	1,385
June 1984	522	33	789	50	195	12	70	5	1,579
Dec. 1984	451	30	765	51	203	14	78	5	1,498
June 1985	373	31	659	54	135	11	47	4	1,217
Dec. 1985	363	26	800	58	154	11	50	4	1,370
June 1986	266	30	479	54	93	10	43	5	882
Dec. 1986	295	28	586	56	119	11	46	4	1,046
June 1987	326	26	746	59	164	13	32	2	1,269
Dec. 1987	447	30	795	54	178	12	58	4	1,479
June 1988	334	26	785	60	147	11	45	3	1,311
Dec. 1988	414	27	927	60	155	10	36	2	1,532
June 1989	488	24	1,245	62	222	11	41	2	1,996
Dec. 1989	635	28	1,368	61	201	9	45	2	2,249
June 1990	629	27	1,477	63	197	8	44	2	2,347
Dec. 1990	552	28	1,172	60	166	9	49	2	1,939
June 1991	545	31	1,012	58	148	8	30	2	1,735

Source: Valuation New Zealand

In general, the above two tables show a declining presence of company ownership, a slight predominance and recent upturn in individual ownership, and an overall growing presence of partnerships. Partnerships have increased in number for at least three reasons. First, farm men and women in recent times are playing more equal roles in the farm business and this may be reflected in the formation of legal partnerships. Second, husband and wife partnerships can be formed to minimise estate duties and can potentially reduce income tax. These developments reflect changes in the degree of participation by each farm member in the farm business and do not in themselves indicate a change away from family farming to corporate farming. Third, it may be the case that some partnerships are 'special partnerships' set up by farming companies seeking to coordinate investment in land. Special partnerships allow more than 25 persons to be partners with no liability beyond the amount of capital each partner invests. If this is occurring then some partnerships may be a product of corporate farming activity.

Other Valuation New Zealand data can shed some light on ownership structures by indicating who is buying farmland. Table 21 shows types of buyer on the freehold open market, in

particular, business person buyers who typically will not be intending to farm the property personally. The percentage of business buyers was nearly 20 per cent in June 1981, decreased to nearly 15 per cent by June 1985, then it increased to the highest point of 23 per cent by June 1987. Since then and the sharemarket crash towards the end of 1987 it has declined steadily to the lowest level of seven per cent in June 1991. Thus, business purchases were active for a short period after 1984 at a time when the urban economy was very buoyant. Lately, with the continued difficult financial times in the rural sector and general recession elsewhere, business purchasers have declined markedly.

Table 21
Types of Farmland Buyer (Freehold Open Market), 1981 to 1990

Half Year Ended	Existing Farmer		New Farmer		Business person		Govt. and/or Local Authority		Other		Total Freehold Open Market No.
	No.	%	No.	%	No.	%	No.	%	No.	%	
Dec. 1981	1,451	61.4	650	27.5	468	19.8	18	0.7	48	2.1	2,635
June 1982	1,056	51.3	541	26.3	395	19.2	28	1.4	38	1.9	2,058
Dec. 1982	934	54.4	433	25.2	303	17.8	23	1.3	23	1.3	1,716
June 1983	561	49.6	340	30.1	192	17.0	17	1.5	20	1.8	1,130
Dec. 1983	715	51.6	377	27.2	248	17.9	25	1.8	20	1.4	1,385
June 1984	794	50.3	449	28.4	268	17.0	26	1.6	42	2.7	1,579
Dec. 1984	803	53.6	410	27.4	221	14.8	40	2.7	24	1.6	1,498
June 1985	599	49.2	383	31.5	190	15.6	23	1.9	22	1.8	1,217
Dec. 1985	676	49.3	413	30.1	234	17.1	20	1.5	27	2.0	1,370
June 1986	432	49.0	246	27.9	147	16.7	27	3.1	30	3.4	882
Dec. 1986	454	43.4	301	28.8	240	22.9	20	1.9	31	3.0	1,046
June 1987	582	45.9	354	27.9	395	23.2	14	1.1	24	1.9	1,269
Dec. 1987	691	46.7	461	31.2	268	18.1	22	1.5	37	2.5	1,479
June 1988	636	48.5	397	30.3	218	16.6	21	1.6	39	3.0	1,311
Dec. 1988	773	50.5	486	31.7	222	14.5	14	0.9	37	2.4	1,532
June 1989	1,130	56.5	582	29.2	239	12.0	11	0.6	34	1.7	1,996
Dec. 1989	1,276	56.7	644	28.6	272	12.1	12	0.5	45	2.0	2,249
June 1990	1,432	61.0	616	26.2	255	10.9	10	0.5	34	1.4	2,347
Dec. 1990	1,114	57.5	549	28.3	218	11.2	17	0.9	41	2.1	1,939
June 1991	1,065	61.4	500	28.8	124	7.1	12	0.7	34	2.0	1,735

Source: Valuation New Zealand

Table 21 also shows that new farmer purchasers category has fluctuated at just under 30 per cent of all purchasers, and over the 1980s has been relatively steady. New farmers have not previously owned a farm and includes farm managers, sharemilkers, shearers etc. but excludes business people. Balancing the recent decline in business purchasers has been an increase in existing farmer purchasers. Existing farmers are buying replacement or additional holdings. When business purchasers peaked by December 1986 and by June 1987, existing farmer purchasers were at their lowest point of 44 and 46 per cent respectively. By June 1990 and June 1991 the proportion of existing farmer purchasers was at 61 per cent, matching the previously high level for December 1981.

Another dimension to understanding the degree of corporate farming in New Zealand is to examine type of ownership for small and significant farms. Table 22 provides the relevant data and shows, not surprisingly, that individual ownership occurs most for small farms. All other ownership types occur mostly for significant farms. Thus, in 1990 among all partnerships, 62 per cent were significant farms. Putting it another way, of the total 41,559 significant farms in 1990, 14,232 or 34 per cent were individually owned. In general, the data in Table 22 show that among significant farms there is a higher proportion of non-individual ownership of farmland. Any changes between 1986 and 1990 were small and not significant.

Table 22
Numbers of Small and Significant Farms by Ownership Type, 1986 to 1990

		1986		1988		1990	
		No.	%	No.	%	No.	%
Individual	Small	22,281	62	23,712	62	23,872	63
	Significant	13,717	38	14,841	38	14,232	37
	Total	35,995	100	38,553	100	38,104	100
Partnership	Small	11,481	36	11,970	36	12,954	38
	Significant	20,850	64	20,981	64	21,247	62
	Total	32,331	100	32,951	100	34,201	100
Private Company	Small	2,150	30	2,050	30	1,549	28
	Significant	4,973	70	4,692	70	4,034	72
	Total	7,122	100	6,742	100	5,583	100
Trust	Small	947	34	889	36	606	30
	Significant	1,845	66	1,556	64	1,430	70
	Total	2,792	100	2,445	100	2,036	100
Other	Small	821	52	548	40	364	37
	Significant	760	48	824	60	616	63
	Total	1,581	100	1,372	100	980	100
Total	Small	37,680	47	39,169	48	39,345	49
	Significant	42,144	53	42,894	52	41,559	51
	Total	79,824	100	82,063	100	80,904	100

Source: Agricultural Statistics

Corporate farming or other business investment in farming is more likely to occur with some types of farming than others. From the limited evidence above, it is clear that horticulture, and more recently dairy farming, are favoured types of production. Data from Valuation New Zealand give a better indication of preferred types of farm for corporate investment. Table 23 shows the business buyers since 1982 for a wide range of farm types. The bottom line shows the average percentage to give an indication of the relative importance of each type of business purchaser for each farm type. Horticulture and forestry are the two farm

types with the highest averages at 23 per cent and 33 per cent respectively. Next in importance are specialist livestock (19 per cent) and grazing (18 per cent). The mainstream categories of arable, dairy and fattening have the lowest levels of business buyers. Also shown in the last column in the table is total business buyers between 1982 and 1990. Even before the significant changes after 1984, business buyers were at about 15 to 18 per cent of all freehold open market sales. To June 1987 the proportion increased to 23 per cent, then dropped steadily to a low of seven per cent in 1990. Thus, the main response in recent years has been a decline in business buyers and an increase in existing farmer buyers (see earlier table).

Table 23
Freehold Open Market Business Buyers by Farm Type, 1982 to 1991

Half Year Ended	Arable		Dairy		Fattening		Grazing		Horticulture		Specialist Livestock		Forestry		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Jun 82	1	4	17	7	43	11	28	22	77	34	10	14	11	31	192	17
Dec 83	1	3	30	10	62	13	21	15	105	35	13	19	13	19	248	18
Jun 84	5	10	24	7	73	13	33	20	88	29	22	23	15	50	286	17
Dec 84	1	2	24	9	67	12	24	16	79	26	12	17	7	16	221	15
Jun 85	2	5	16	7	45	11	16	14	67	25	19	27	20	50	190	16
Dec 85	6	15	26	9	63	14	22	18	71	23	22	26	14	44	234	17
Jun 86	2	8	13	9	44	14	26	26	40	22	12	20	5	19	147	17
Dec 86	11	31	24	19	66	18	25	26	78	27	20	28	8	30	240	23
Jun 87	5	13	40	16	95	20	30	28	99	33	16	24	4	25	295	23
Dec 87	3	8	33	13	82	15	28	20	89	25	17	19	9	33	268	18
Jun 88	10	24	24	10	66	12	27	22	60	23	16	24	8	53	218	17
Dec 88	9	15	41	12	68	12	16	12	55	19	19	18	7	46	222	14
Jun 89	12	18	40	8	97	12	27	15	40	13	14	14	3	20	239	12
Dec 89	11	11	47	10	103	11	24	12	60	16	16	15	4	29	272	12
Jun 90	8	11	36	6	96	11	23	10	55	15	21	15	6	27	255	11
Dec 90	2	3	33	11	93	10	22	12	43	13	15	18	6	24	218	11
Jun 91	2	5	15	5	27	4	23	16	37	11	8	8	5	20	124	7
Av. %		11		10		12		18		23		19		33		16

- Notes: 1. Not Shown are the minor categories of 'miscellaneous' and quarries.
2. Specialist livestock includes poultry farms, racing stables, horse studs and dog kennels.
3. Deer farms are included in fattening land.

Source: Valuation New Zealand

Despite the decline in business buyers there has been some activity by corporate farms in recent years. Table 24 shows that a total of 66 properties were purchased by the New Zealand Rural Property Trust between 1987 and 1990. The Trust is a publicly registered company that buys farms, employs farm managers and provides a return on capital invested. Recently, the funds of the Trust were frozen while it was restructured. Apple Fields Dairy, operating from Christchurch has about 33 dairy farms spread roughly from Culverden to

Oamaru. Tasman Agriculture in Dunedin has about 31 dairy farms in the southern half of the South Island. Canterbury Orchard Services has about 20 orchards, typically planted in apples, around Christchurch. This company used helicopters to prevent frost damage to their trees last spring, using ten machines from 4.00 a.m. one morning. Frost protection is needed only occasionally, and some seasons not at all, so that this technique is an appropriate solution to the problem. But this example illustrates the type of approach to solving problems that is possible with corporate farming activity. A further illustration is in the size of the work force. By summer of 1991/1992 the Chairman, Sir Allan Wright, stated that Apple Fields will become Canterbury's biggest employer (The Press, December, 1991). For that financial year a total of 1,800 full and part-time staff were employed, and at full production the figure is expected to rise to 3,500 people.

Table 24
Number, Area and Value of Properties Purchased by the
New Zealand Rural Property Trust, 1987 to 1990

	No.	Average Area (ha.)	Average Interest at Purchase (\$)
1987	8	339	686,000
1988	15	419	648,000
1989	25	364	718,000
1990	<u>18</u>	447	649,000
	66		

Source: New Zealand Rural Property Trust, Eighth Prospectus, 27 March 1991.

Another corporate farmer is New Zealand Farmlands Ltd which was formed in 1989 to take advantage of the attractive prospects for farming (The Press, January 18, 1992). It owns six farms worth \$11.6 million, mostly in Southland. In this case managers are supervised by Willow Park Group, an Otaki-based farm management and consultancy company which owns or manages farms or orchards worth \$55 million. The Chairman of Willow Park is a director of New Zealand Farmlands. There is also some interest in beef feedlots, but to date, only one example occurs in the grain growing region of the South Island. It is unlikely that beef feedlots will become numerous because it appears that costs of production are very high.

4.6 Conclusion

In summary, livestock numbers have changed to reflect a move away from sheep and towards newer types like deer. Farm numbers show a decline recently, and there are now declines in the numbers of mid-sized farms and a return to the disappearing middle in the farm size distribution. Significant farms account for about one half of all farms in New Zealand, and there is a slight decline in number to 1990 suggesting a tendency towards concentration of production. Most farms less than 50 hectares are small farms. There is a greater proportion of small farms in the other animal farm type, corresponding to movement of farms into newer types of production.

The data on farm employment show that family labour has increased and paid labour has decreased between 1984 and 1990, while the total employment figure is only slightly lower (by one per cent) in 1990 than it was in 1984. Somewhat surprisingly, the proportion of full-time employment has increased - apparently lowered inputs on the farm and the option of off-farm work has not led to an increase in part-time farm work. The number of women involved as working owners or unpaid family has increased noticeably, and while the total number for men has not changed, fewer are working owners and more are unpaid members of family. Full-time and part-time male working owners have increased in number on significant farms while female working owners have decreased in number on significant farms. Permanent and casual workers have declined in number for both men and women, with the greatest decline occurring for permanent workers.

These changes in the employment data are consistent with expectations and show a greater reliance now on family labour at the expense of paid labour. Further, there is now greater involvement of women as both working owners and unpaid labour, thus there is a tendency towards the feminisation of agricultural production. Family farms in New Zealand have shown flexibility in labour use in times of financial pressure. Also indicative of changes in contemporary agriculture is the increase in employment in horticulture, dairying and other animal production. Horticulture is not dominant in terms of gains in employment and even there, most of the increase was in the number of working owners.

In terms of ownership of farmland, the main trend is for increase in the number of partnerships. More recently, company ownership has declined slightly at the expense of individual ownership. Business person purchase of farmland has declined recently and existing farmer purchasers have increased in number. While some examples of corporate farms can be found they do not appear to be numerous.

The data in this chapter on structural changes in New Zealand farming show the outcome of changes made by individual farmers. While there are fewer farms now, they are increasingly organised using family labour with a greater role now played by farm women. Corporate or business person involvement in farming plays only a small, and possibly diminishing, role in New Zealand agriculture.

CHAPTER 5

FARM-LEVEL RESPONSES

5.1 Introduction

The data from Chapters 3 and 4 give an overview of the farm situation on many of the farms in New Zealand. They show the financial situation in a number of dimensions, and they show the overall farm structural changes including changes in the livestock mix, farm numbers, small and significant farms, employment, and only some indications of corporate farming activity. The data used so far are good at showing the effects of change, and showing them in ways that, despite the limitations of the data, are fairly concrete and definite. However, they do not answer questions about changes at the personal level of the farmer. This chapter focuses on farm men and women and provides some balance to the previous two chapters. While by no means complete, the account that follows does focus on farmers, and in particular, their management strategies and general attitudes, the exit process and changes in farm working arrangements.

5.2 Management Strategies and Some Farmer Attitudes

An indication of farmer responses can be shown in some data built up from a number of farmer surveys in the South Island. In all of these surveys for 1986, 1988, 1989 and 1991, an identical question was asked on general attitude to management strategies. However, the surveys covered different locations, except for 1989 and 1991, and strict comparison across time is not possible. Table 25 shows the data. Clutha County is adjacent to Southland County and both are mainly sheep farming areas with some cropping. At the least, the table shows fairly similar farmer management strategies during the depths of rural recession in 1986 and 1988. In both years, a very small number (four and two per cent) say they have to look for ways out of farming, while only slightly more (eight and twelve per cent) say they have to change and diversify into new types of production. Significant and fairly constant numbers (40 and 35 per cent) say that they have no choice but to stay with the present farm system or that their present farm system is quite adequate. For both counties there is just under one third selecting the first two options which relate to changing their management strategies to some degree. Comparing Clutha County 1986 with Southland County 1988 suggests that about four per cent more seek to change and diversify and that correspondingly fewer are staying with their present farm system.

Looking at the data for Strathallan County in 1989 and 1991 shows, first, higher levels of support for the first two management strategies relating to diversification or adjustment. Second, there is an increase of four per cent in the diversify option and a decrease of six per cent in the adjust option indicating a change over the two year interval towards diversification. Perhaps the improved farm incomes in 1989 and 1990 allowed farmers to consider making needed changes. A final observation can be made. For all four times there are about one quarter of all farmers who say that their present farm system is quite adequate. The general indication of these results is that while some farmers consider that their management strategy is adequate, most have had to change. It appears that the changes have occurred recently rather than early in the post-1984 period.

Table 25
Management Strategies (Percentages)

	Clutha County August '86	Southland County August '88	Strathallan County March '89	Strathallan County May '91
Have to change and diversify into new types of production	8)) (32)	12)) (34)	21)) (48)	25)) (46)
Have to change and adjust present farm system	24)	22)	27)	21)
No choice but to stay with present farm system	40	35	21	24
Present farm system is quite adequate	25	28	29	25
Have a look for ways out of farming	$\frac{4}{100}$	$\frac{2}{100}$	$\frac{2}{100}$	$\frac{4}{99}$

Source: AERU Farm Survey Data

Data are available to document fertilizer usage. Table 26 shows the total tonnes of fertilizer sold from 1981 to 1990. After the peak in 1985, there was a decline to 1987 and then an increase to 1990. The latest levels are still lower than the pre-1984 levels. These data match the farm expenditure data presented in Chapter 3.

Table 26
Manufactured Fertiliser Sales

	Tonnes
1980-81	1,977,245
1981-82	1,941,292
1982-83	1,652,413
1983-84	1,839,024
1984-85	2,012,589
1985-86	1,122,389
1986-87	1,021,959
1987-88	1,092,530
1988-89	1,215,288
1989-90	1,309,602

Source: MAF, Situation and Outlook

Another observation can be made about farmers' planning strategies. According to Lincoln University farm management staff, farmers now have a different timescale when planning their management. In some cases the planning horizon is much shorter, presumably caused by the financial pressure of meeting debt repayments and maintaining a cash flow. These pressures enforce a sharper focus on the immediate situation and the need to undertake profitable activities as soon as possible. Juxtaposed to this tendency is a lengthening of timescale as farmers realise that they have to await the benefits of restructuring in the long term. Similarly, they may look to long-term benefits, including non-financial goals, as justification for accepting low returns at the present time. In fact farmers now are confident about their future. In a recent nationwide survey of 994 livestock farmers, there were 45 per cent confident in farming as a business over the next two years, and 35 per cent unconfident (The Press, October 1991). The remaining 20 per cent were neither confident nor unconfident. Dairy farmers and younger farmers were more confident than others. In terms of the next ten to twenty years, the levels of confidence were higher with 68 per cent expressing confidence.

One non-financial goal of farmers is to maintain freehold ownership of their farm land. Some agricultural commentators and advisors point to the benefits of separating production from land ownership via renting, leasing, or joint venture arrangements. They see landownership as a burden on efficient, business-oriented agricultural production. In New Zealand at the present time there is talk of the benefits of introducing outside capital into farming, especially in the area of forestry, for example. However, there is limited scope for these alternative arrangements because, as Saunders et al. (1991) show, farmers do not operate their business with the sole objective of improving risk and return, but seek in addition to preserve freehold ownership of land. Saunders et al. note that even with opportunity to replace debt with outside equity only a small proportion would do so. In their non-random survey of 80 farms in Southland, Canterbury and Waikato about one half of the farmers said they would not replace debt with equity even if they could repurchase the equity share at a price they thought was fair. They show that farmers tend not to seek opportunities to reduce financial risk via alternative ownership structures. Instead farmers view farm expansion as a more acceptable way to reduce risk. This finding fits the structural change data in Chapter 4 which shows that some farms are enlarging and that there is an increase in the existing farmer land purchaser category.

5.3 Farmers Leaving Farming

The New Zealand Rural Trust was formed in September 1988 to help farmers manage debt and to support farm families. Government support ended in June 1990. Farmers who took up the services of the Trust could receive a free financial appraisal, and general advice or support, or they could receive a New Start Grant of \$45,000 to leave their existing farm and start off anew. As at July 1989 there were 1,385 cases on the Trust books, and by March 1990 there were a total of 2,326 cases for the Canterbury and North Otago areas only (Taylor, 1990) - two of the three main drought areas in New Zealand. Data about the Trust's activities can thus indicate some of the responses and adjustments farmers made when they faced acute financial pressure due to the combination of financial pressure and severe drought. Taylor (1990) provides data from a survey of a sample of Rural Trust cases.

For the Canterbury/North Otago area there were a total of 2,326 clients out of estimated total number of 5,600 significant farms. Thus, 42 per cent of significant farms in this drought

prone area received some kind of help from the Rural Trust. Of these 2,326 clients, most (83 per cent) received counselling or financial advice, and a minority (395 persons : 17 per cent of clients or seven per cent of significant farmers) underwent the application for a New Start Grant and presumably most of these received the grant. The sample survey of clients showed that New Start Grant (N.S.G.) clients had smaller mean farm size and were ranked by Rural Trust coordinators to have lower communication and financial management skills. Perhaps an obvious characteristic of the farmers that took up New Start Grants is that they had negative equity in their properties. Of particular interest is what happened to the farmers who took up New Start Grants. First, Taylor (1990) shows what happened to the farms:

	No.	%
New ownership	87	71
Acquired by neighbours	20	16
Subdivided	10	8
Other (leased or don't know)	<u>5</u>	<u>4</u>
	122	100

Land use change did occur to a small degree: some of the new owners introduced dairying with irrigation.

Not all New Start Grant farmers left their land. In some cases, the original family stayed on the farm under a new arrangement as, for example, labourers, lessees or managers. Sometimes the New Start Grant was used to buy into a new arrangement with the wider family. Taylor reports that Rural Trust data show that for 62 out of 325 exits, or 19 per cent, the farmer stayed on the farm. In addition to the group that stayed on the farm, most of the New Start Grant farmers stayed in their local districts. Other data showed that these farmers did not have difficulties obtaining housing. Typically, farmers looked for houses in the country or looked for smallholdings. Because they tended to stay in their rural communities where they were known and respected, the skills of the farmers were recognised. Most New Start Grant farmers had little problem finding employment.

The impacts of restructuring on the New Start Grant farmers were felt by their families. Taylor reports that many farm women tended to be passive partners financially who were involved in identifying family stress and meeting the needs of their families. The survey showed that 17 per cent of farm women were involved in farm accounting, or became involved because it was not being done otherwise, and were aware of the farmers' exposed position. As Taylor (1990:15) states:

Communication breakdown between husband and wife over farm finances was common. Some men were wondering what their wives were doing with the books. On the other hand, in some cases husbands didn't want their wives to know the real position. There were cases where wives took the initiative and pushed for action to resolve the disastrous financial situation.

The impact of financial pressure on marital stability was varied, with apparently more cases of marriage breakup than strengthening of the marriage.

Taylor also presented data on off-farm work. For both the farmer and the spouse exactly one half of Rural Trust cases had no off-farm work. The remaining one half comprised 38 per

cent with one working and 12 per cent with two working. Cases receiving a New Start Grant had a higher proportion working off farm. For those engaged in off-farm employment, most were in part-time work, although in the case of the men some others were engaged in casual work, while in the case of women some were engaged in full-time work.

The research undertaken by Taylor effectively collates data on farmer adjustment which were available because of a government assistance scheme. The important points are that even in an area hit by financial downturn and severe drought only seven per cent of significant farmers applied for a New Start Grant. Of this group one fifth stayed on the farm under a new arrangement. Thus, despite the obvious trauma of adjustment, the number forced out of farming was low.

There is other, limited, evidence available to address the question of what happened to farmers who left farming during the 1984 to 1990 period. In a case study approach of five Southland farmers who left their farms after 1986, Christie (1991) documents in detail the farm exit experience. That study makes no pretence that the results are generalisable and acknowledges the weaknesses of small sample size. Many candidates for research declined to be interviewed so that the selected cases may reflect the more positive experience of a few. However, the results show that the decision to sell was traumatic because of ties with the land, fear of doing something different, and usually the need to shift out of the area. Couples typically fear having to shift to a city to obtain housing. The farm men seemed to recover from the trauma of the sale reasonably quickly and were motivated to find work. The farm women seemed to have less confidence. The fear associated with finding work was not matched in reality as work was found, even in cities with high unemployment. Those with new permanent positions were happy with their work and, in the case of the men, their confidence rebuilt very quickly. Generally, the speed of integration into the new community was rapid and successful. Early fears proved to be unfounded. After the change in circumstances, all the farmers noticed reduced levels of stress and their lifestyle was changed, usually for the better. In the view of Christie (1991), standards of living were much more likely to have increased.

The limited evidence presented above suggests that exit from farming is not as unpleasant as anticipated for these farmers who choose, or who are forced, to leave their farm. Naturally, there is a significant relationship between the farmer and farming (not necessarily to a particular piece of land because New Zealand farmers have always readily bought and sold farm land). This relationship makes the thought of exit unattractive for the farm family and unpleasant for other farmers observing the process. However, dreaded anticipation does not necessarily translate to the impossibility of finding or developing a satisfying lifestyle outside of farming, as the above case studies suggest.

Another case study carried by a Dunedin newspaper describes the farm exit process. In 1988 and 1989 farm creditors forced a sale and the farmer and his wife were in limbo. She had part-time work. While selling some topsoil from a forestry access track on his farm just before it was sold, the farmer noticed a good demand for soil, bark, gardening services, woodlot planning and tree planting. Providing these services drew on his farming and forestry skills. Later, he had to employ other labour, and he opened a small gardening shop in the nearby provincial town. Looking back, the farmer acknowledged that he had the bank to thank for a whole new lifestyle and one that he really enjoyed.

5.4 Changes in Farm Work Arrangements

Clearly, the role played by farm women in times of financial pressure is very important. In a repeat study of 43 farm women, Walton (1991) found that they undertook a variety of work roles, including operating as partners (30 per cent) housekeepers (37 per cent) and unpaid workers (23 per cent). Their actual work included housekeeping, bookkeeping, drenching, tailing, crutching, draughting, rousing, fencing, labouring and cooking for shearing gangs. Somewhat surprisingly the number with off-farm work did not change between 1985 and 1988. In both years about 40 per cent had off-farm work. However, these data are based on a small random sample in one South Island location and may not be indicative of national trends.

Off-farm work, or pluriactivity, was the focus of Le Heron et al. (1991) in a collation of data from two farm surveys examining horticultural, dairy and sheep/beef farms in the North Island. Farm women typically were active in regular farm work although, in addition, about one half of farms were pluriactive in 1989. However, Le Heron et al. found that while many households were pluriactive, much of it was at best a marginal contribution to household income or to farm business support if that occurs. Most women gave personal satisfaction as the main reason for pluriactivity while most men gave compensation for low farm income as the main reason. While some farm households do have substantial off-farm earnings, Le Heron et al. (1991) conclude that off-farm income is used for general household support rather than to prop up the farm. The main responses of farmers has been to cut back on farm expenditure and change their management strategies.

The findings collated by Le Heron et al. (1991) from two farm surveys are not well matched by the preliminary and unpublished results from a national survey of 1,600 farm women. The data show that womens' involvement in farm work has intensified as more paid employees have been laid off. From this national sample there were 38 per cent who said they worked off the farm, and for this group over three quarters say the off-farm income is necessary for farm viability. While the precise extent and motivation of women's involvement in both farm and off-farm work is not known at preset, it is clear that as permanent farm labour has been laid off since 1984, farm women, and presumably also other family members, have taken up farm work. It is also clear that to some degree both farm men and farm women have sought off-farm work in increasing amounts between 1984 and 1990.

An additional observation can be made about changes in female participation in work since 1984. In a detailed ethnographic study of two rural towns, Methven and Mt.Somers, Fairweather and Campbell (1990) found that as financial pressure on farms increased after 1984 there was an increase in female participation in the ski industry at Methven, typically in service and cleaning roles. However, as farm income returned to better levels by the late 1980s these women tended to stay employed in the ski industry. In nearby Mt. Somers, without such a dominant tourist industry, when the agricultural economy improved there was a noticeable movement of women out of paid work into mothering roles and the birth rate increased significantly. It is likely that, generally, farm men expect the women to give up their work once the immediate necessity had passed.

There are other consequences to the changing role of women in New Zealand farms. As farm women take greater responsibility for either managing the farm or in off-farm work

there is less importance given to traditional roles of providing food. Consequently, the task of providing food for shearing gangs or farm workers is becoming even less popular.

The data on pluriactivity and the role of farm women in work show that the farm family has adjusted to financial pressure in a number of ways. Relationships between farm men and women have deepened, broken, maintained division of labour or changed to greater sharing of male and female roles. While no data are available on the role of children, anecdotal evidence shows that in some cases the work done by children is also important in farm survival. Another observed family change is that, in some cases, sons or daughters no longer look to farming as a career. Apparently, some parents have advised their children to seek other careers. If this change is significant then the average age of farmers will increase.

5.5 Conclusion

In summary, farmer attitudes to management strategy have changed in recent years, albeit slowly, and new types of production have been developed. These attitudinal changes match the structural data in Chapter 4 which showed changes away from traditional livestock and changes towards increased scale of production. Farmers now are confident of their future and emphasise maintaining freehold ownership of land. While it is true that some farmers were forced out of farming relatively few left by way of taking a New Start Grant. However, adjusting to change has been traumatic for many farmers, even those who have remained in production, and the more-market context to farming since 1984 has enforced considerable adaptation. Major adaptations have been to cut back expenditure and seek off-farm work. While it is not clear exactly to what extent this has occurred among New Zealand farmers, off-farm work has been important for many farms. In some cases this has meant permanent changes to the social relationships on the farm as women have taken work and maintained the new role past the point of necessity in terms of farm finances. In other cases, the work roles are temporary and women have returned to household roles.

This chapter has given a rather sketchy account of farm-level responses in order to highlight the human dimension to farming. Changes to farming have slowly developed and these have included the development of new social relations of production within the family farm.

CHAPTER 6

CONCLUSION

While the main objective of this report has been to describe changes in New Zealand farming between 1984 and 1990, a secondary objective has been to interpret these changes in the light of theory. Chapter 2 presented an account of some of the main trends in the sociology of agriculture literature on approaches to the study of changes to farming in capitalist societies. The changes in agrarian restructuring can be interpreted in a number of way depending on the theoretical perspective used. Further, it is clear that for this particular topic of agrarian restructuring empirical evidence itself is not adequate to resolve disputes because changes can be variably interpreted. Some of the differences in the two perspectives on agricultural development stem from different approaches to the study of human social life. These differences in approach mean that different aspects of phenomena are emphasised and that facts about agriculture are interpreted in different ways. However, there are some differences in the viewpoints which do admit of empirical testing so that despite the problems it is useful to attempt an assessment of rival viewpoints using the New Zealand case.

Table 27

Some Key Elements of the Subsumption and Survival Positions

	Subsumption	Survival
Key Position:	Family farms dominated by economic structures.	Family farmers respond and adapt with the context of economic structures.
Mechanisms:	External control of debt, inputs, technology: macro factors.	Adaptation via managerial flexibility, including household relations: micro factors.
Role of State:	Assists external capital or facilitates capitalist processes.	May help or hinder family farms.
Impact of Increased Exposure to Market Forces:	Difficult for family farms to survive.	Easier for family farms to survive.
Outcomes:	More corporate farms. More off-farm work. More part-time farmers. Fewer, larger farms. More hired labour, contracts. Corporate farms enter new types of production.	Mostly family farms. More off-farm work. Part-time farming may develop. Little change in farm numbers. More household labour. Family farms enter new areas of production.

In order to prepare for this assessment it is useful to summarise the key propositions of the alternative viewpoints. Table 27 lists some of the key elements of the subsumption and

survival positions. These two positions are used because they have strongly contrasted propositions on a number of key dimensions. The table is useful in summarising the contrasting features of the two theoretical positions and for helping to structure an assessment of them.

A first point to note is that the key positions listed in the table are not mutually exclusive, that is, both can be true at the same time. This implies that evidence relevant to the key positions will not be particularly helpful in resolving the debate. The mechanisms listed in the table flow from the key positions. The role of the state is another important dimension to the two positions but has not been explicitly addressed in this report. The impact statement predicts in general terms the consequence for farms of exposure to market forces. Finally, the outcomes are tested and it is here that an assessment of the positions is possible. The following discussion examines each of these outcomes in turn.

The data in this report do not show widespread increase in corporate farms. There is some new corporate involvement in production but it is not becoming dominant. It is quite likely that the corporate farms that have developed recently are finding survival to be difficult. In the areas where corporate farms appear to be doing well - in dairying and horticulture - both enjoy reasonably buoyant export returns at present. With any future decline in export prices, these farms may fail. In the less buoyant pastoral sector, one corporate farm has restructured recently. Further, the data show that business person purchase of farmland has declined in recent years where farm land is bought increasingly by existing farmers. Corporate farming exists but is neither significant nor expanding.

The presence of off-farm work has been documented in this report, although by no means precisely. Farm men and women have taken off-farm work but despite this occurring as a means of farm survival it has also occurred to maintain household expenditure rather than the farm business, and is, in part, a product of a general trend towards greater female involvement in the workforce. There is some suggestion that as farm finances have improved recently the extent of off-farm work has declined. Thus, off-farm work appears to have been an adjunct to farming and a response to changing women's roles rather than a movement of farmers permanently into other work. Since the farming business dominates most farms it is perhaps appropriate to use the concept of off-farm work rather than pluriactivity.

The issue of part-time farming is related to off-farm work and important in theoretical assessment because it too is meant to be a sign of proletarianisation and the removal of farmers from full-time commercial production. The employment data show increases in full-time workers and decreases in part-time workers, contrary to the expectations of subsumptionists. It seems that financial pressure has intensified the full-time work element in farm employment. Data have been presented to suggest that even small farms are market oriented and involved in new types of production. Thus, small farms cannot be seen as a group divorced from production goals. Many of them appear not to be lifestyle farms, or farms maintained by a significant off-farm income.

Farm numbers have declined recently and there is both a disappearing middle and a movement to larger size among small farms. Matching this is a slight increase in the concentration of production. These changes are in accordance with the subsumption view which sees continuous pressure on farms to enlarge, and the development of large farms on which is employed wage labour. However, the evidence is not decisive because survivalists

argue that increasing scale is a choice for family farmers as well. Along with increasing scale, subsumptionists would predict growing numbers of wage labourers, and this is a key development to expect as family farmers are proletarianised and become wage labourers, on farms or elsewhere. The data show first, that paid labour in both casual and permanent forms has declined while family labour has increased. Second, there have been some cases of farmer proletarianisation as with farmers forced into new arrangements which involve being managers or leaseholders on what were formerly their own properties. However, the extent of this appears to be quite limited. Thus the changes in employment show a swing to a family labour emphasis. Family labour relations have been strengthened by exposure to market forces.

Finally, there is the last outcome to consider, the extent of activity in new types of production. The evidence is mixed because both corporate and family farms are involved in new types of production. Corporate farms do occur for beef feedlots but there are only a few examples of this and most of the corporate farms are in horticulture, dairying or forestry and these are traditional areas of production. In the area of other animal production it is family farms that dominate and these constitute a larger proportion of all farms and many are small farms presumably building up to significant farms. Thus, it appears that the dynamic response among farmers with respect to new types of production occurs mainly within family farms.

Generally, this report presents evidence which shows that farmers in New Zealand since 1984 have made rapid adjustments, first to their immediate expenditure, and second, to their overall management. While the adjustment has been traumatic, because of the enforced rapidity and the dramatic nature of the change to exposure to market forces, it has occurred steadily. The result has been some modification to farming and to the farm structure in New Zealand. Farmers are cautiously increasing their spending and maintaining a different approach to using labour. Family social relations have adapted and developed so that there has been feminisation of agriculture. Farm structural changes show increasing concentration of production.

The findings in this report support the synthetic school approach to understanding changes to farming in capitalist economies. The case of New Zealand is useful in assessing theoretical issues. In general terms, despite rapid exposure to international forces and a more-market economy, family farms in New Zealand have adapted and survived successfully. There has not been a demise of family farming and a movement towards corporate farming. If anything, exposure to financial pressure has intensified the family character of farming. In effect, the process of adjustment has illustrated how family farms in New Zealand have responded to their particular historic circumstances within a given international set of forces and evolved to develop into a newer version of the family farm which will be well-suited to face future pressures for change.

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