

URBAN PERIPHERY LAND USE CHANGE

THE ROLE OF HOBBY FARMING

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ABSTRACT.

The aim of this research was to identify the role of hobby farming in land use change in urban periphery zones. Research to date which incorporates the interaction of the three main study components, land use, hobby farms and the urban periphery, has been limited, and it was recognised that such interaction can have a significant effect on the rural land scape.

The urban periphery of Christchurch City in New Zealand's South Island was used as a case study, over a period of 12 years, 1970 to 1992. At the outset four study objectives were stated. The first, to identify land use change in the study area; the second, to examine the role of hobby farming in land use change; the third, to discuss the influence of planning regulations on land use change and hobby farm development; and finally, to modify theoretical concepts in order to reflect the findings of the study.

By selecting four study areas within the urban periphery of Christchurch, land use change was recognised and then analysed to identify the role of hobby farming. The use of questionnaire survey, interview, statistical analysis and observation techniques enabled the objectives to be fulfilled.

The results from the field study showed that land use change in the urban periphery of Christchurch was a reflection of the development of hobby farming in the area. Hobby farming, which had established as a result of peoples' desire for a rural lifestyle without being a 'farmer', had caused land uses on both hobby and full-time farms to practice multi-functional land use systems. Traditional land uses had declined over the study period. Comparisons between each selected study area also provided recognition of planning influences. From this, controversial planning dimensions were discovered between four interacting interest groups.

The final conclusions drawn from the completed research identified that hobby farming had played a significant role in land use change in the urban periphery, these are illustrated in *Figures 7.2.1 to 7.2.4*. Theoretical models were consequently modified to reflect this phenomenon.

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CHAPTER ONE: INTRODUCTION.

1.1. INTRODUCTION.

Land use characteristics and patterns in the New Zealand landscape have arisen as a result of many different impacts ranging from shifts in the agricultural economy to processes related to population increase. The aim of this study is to recognise the change of one type of phenomenon which is occurring within an area where population movements and land uses are interacting at a high level. This piece of research identifies the land use changes which have taken place from 1970 to 1992 within the urban periphery of Christchurch. In particular this study the role of hobby farm development will be assessed in regard to its influence on land use change in this area.

The continual encroachment of urban residential land use has been recognised as influencing rural land use patterns and types near metropolitan cities (Sinclair 1967, Champion 1983, Pacione 1984, Persson 1990). The Christchurch case is no exception and the flat topography of the area allows the spread of the urban area to be relatively unrestrained. As the urban area has developed it has constantly used up land which was first settled by the Europeans to provide food for the city and to export this produce to their homelands. Since this time agricultural land uses have been progressively displaced to allow for the urban growth. *Figure 1.1* illustrates the location of the area included in this study.

This chapter sets out the nature of the research topic and the research questions which are to be addressed. The objectives of the study, outlines of the appropriate definitions of the important factors and a profile of the thesis format will also be presented.

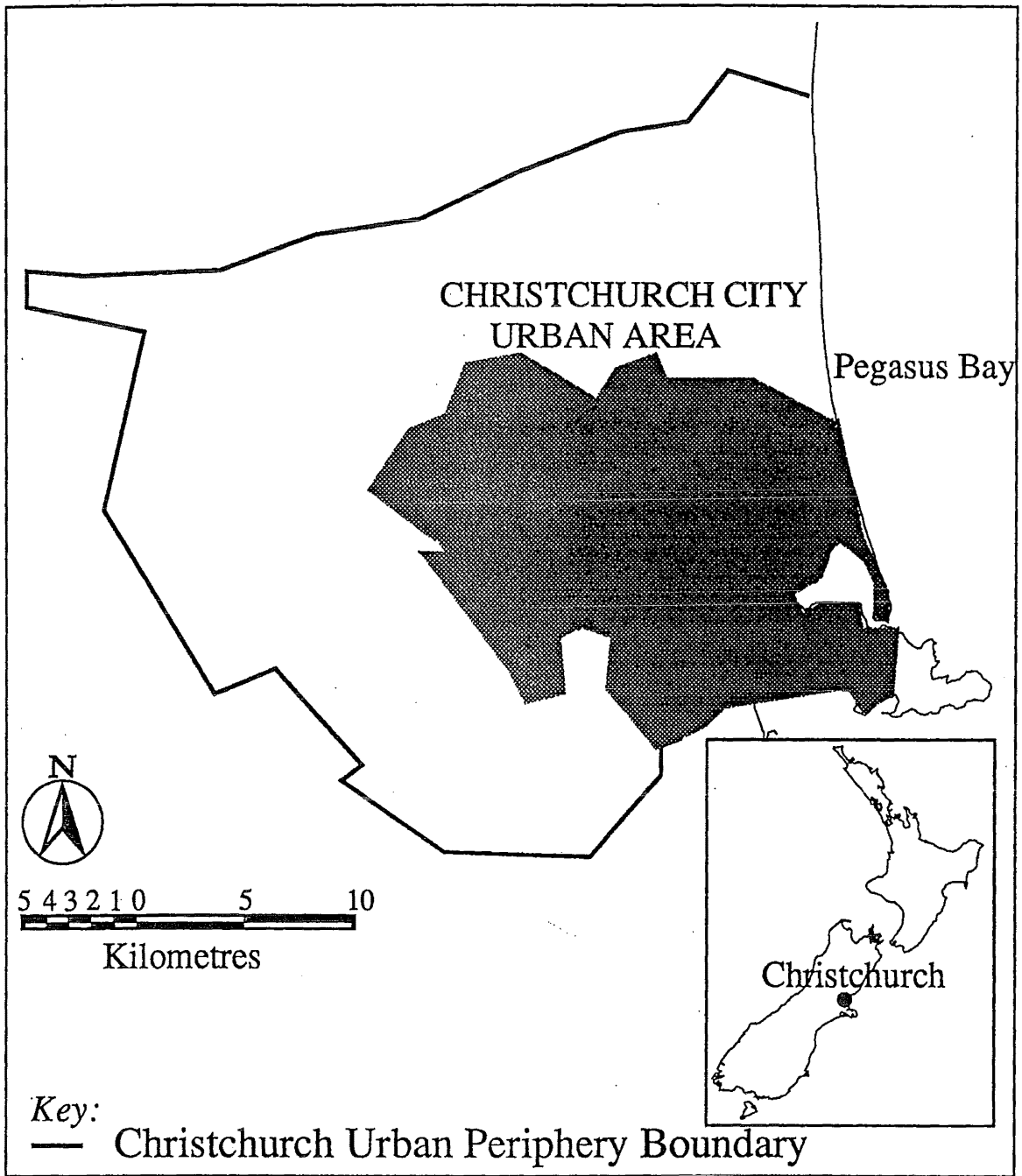


Figure 1.1: Christchurch City Urban Periphery, New Zealand, in 1992.

1.2. RESEARCH QUESTIONS.

The selected research topic is stated below -

Land use change in the urban periphery of Christchurch.

The topic here relates to the broad nature of the study as a whole. In order to devise research which could be undertaken within the given time period of 12 months, a decision was made to narrow the size of the study to one which would successfully achieve and relate to one specific facet of land use change in the area. Accompanying this adjustment was the election to also identify the change within a given time period. This resulted in the formation of the specific research question which is stated below.

What land use changes have occurred in the urban periphery of Christchurch from 1970 to 1992, and what has been the role of hobby farming in the changes?

Initial background research and observation identified that land use change and the development of hobby farming in the urban periphery of Christchurch were two inter-related phenomenon which were transforming the landscape of the urban periphery. The period from 1970 to 1992 was chosen as it was identified as being a significant time of growth within the study area (Christchurch City Council 1991).

Having discussed the research topic and the formulated question the objectives of the research can be identified.

1.3. RESEARCH OBJECTIVES.

Four research objectives were devised for this study. These are outlined as follows:

(1) Identify land use change in the urban periphery of Christchurch.

The focus of this objective is to identify the type of land use changes which have occurred in the study area from 1970 to 1992. By using a number of techniques including, on site observation, questionnaire surveying and data

analysis, the types of land use within the area have been recorded in relation to the study period. The discovery of land use change is not restricted to any one type of land use or any one type of farm operation, whether they are full-time operations or hobby.

(2) Identify the role of hobby farming in the discovered land use changes.

This is the central objective of this research. After recognising the land use changes within the study period and area, the influence of hobby farming can be analysed. This involves examining the characteristics of hobby farms in the area and what makes them different from other farming operations. Hobby farms in this study are farm units which do not use a full-time labour unit and do not gain over half of their farm income off the land. With this type of farm structure the ability to practice traditional land uses is diminished and may play a significant role in the land use changes identified.

(3) To identify the influence of planning initiatives on land use change in the urban periphery of Christchurch.

Incorporated with the land use changes which will be identified, is the influence that planning initiatives have had on both land use change and the development of hobby farming. This will combine the discussion and identification of planning policies which affect the land units, and will outline the dimensions that influence planning regulations.

(4) To develop and assess the relationship of the research topic to theoretical models.

The final objective of this study is to modify and assess the theoretical concepts and models which are identified as contributing to land use change in the urban periphery. These concepts will be discussed then consequently analysed in relation to the practical field study. Any modifications that need to be made to the initial models will be undertaken and will enable the theoretical dimension of this study to be justified.

The field work which was undertaken over a period of four months in 1992 is the main object of this study and the conclusions drawn from it enable both theoretical modifications and insights to be identified.

1.4. DEFINITIONS.

At the outset of this study it is essential to give an indication of the specific definitions which will be used. These have been identified as land use change, hobby farming and the urban periphery.

1.4.1 Land Use Change.

Land use can be simply defined as the way in which an area of land is utilised regardless of the land's topography, size and soil type. The information displayed in *Table 1.1* outlines the land use systems which are relevant to this study.

Table 1.1: Land Use Characteristics.

<i>Land Use Function</i>	<i>Land Use Types</i>
Agricultural:	Beef Cattle Grazing Dairy Production Sheep Meat and Wool Production Poultry Meat and Egg Production Pig Meat Production Deer Meat and Velvet Production Goat Wool and Milk Production
Horticultural:	Orchard Fruit Production: Pip and Stone Fruit Market Gardening: Vegetable Production
Professional:	Horse Grazing and Training
Recreational:	Pet Keeping

Therefore land use change in this context relates to the change of these types of productive and recreational land uses within the study time period, 1970 to 1992, and the urban periphery of Christchurch. A designated land use type will be assigned to each land unit within the study areas in 1970 and then each land unit's change in type will be recorded from that time onwards.

1.4.2 The Urban Periphery.

The urban periphery denotes the area of rural land directly adjacent to the urban area of any major city. The map in *Figure 1.1* illustrates the area to be used in this study. The land area used excludes the residential land uses associated with the city, this area is the grey shaded zone in *Figure 1.1*. The area of land which is located next to these residential land titles is also referred to as the urban fringe zone or the urban/rural transition zone.

However for this study 'urban periphery' will be the term used and it will correspond to the Green Belt zone which is recognised by the Canterbury Regional Council as the urban periphery zone (Canterbury United Council 1985).

1.4.3 Hobby Farming.

The definition of a hobby farm to be used in this study is stated below.

A small sized land unit, less than 50 hectares in size, which has a labour input of less than 30 hours per week in total, with the operator's income and total household and farm income being partially compiled of off-farm employment revenue or off-farm investment or business dividends.

Specific size and time restrictions are used in this definition in order to correspond to other data systems which operate in the local, national and global context. The size limit on hobby farms is derived from Fairweather (1989) who argued that farm sizes ranging from 1 to 50 hectares were considered 'small' within the New Zealand context. Similarly the labour input amount corresponds to New Zealand Population Census guidelines which stipulate that full-time employment or paid work begins at 30 hours per week (New Zealand Department of Statistics 1991). The most important part of this definition is the amount of labour input, because this is what differentiates hobby farms from full-time farms. It is central to the study in terms of comparisons in land uses change between farm types.

The definitions discussed enable the study to have simple and strict guidelines which in turn will reduce any discrepancies between the data types. Having discussed the important definitions and the broad outline of the research topic a format of the following chapters will be profiled.

1.5. CHAPTER FORMAT.

Chapter Two analyses the theoretical concepts which have been identified with the change of land use in urban periphery zones. These are: Von Thünen's and Sinclair's adaption of agricultural patterns near urban areas; population migration theory, including rural depopulation and counterurbanisation; pluriactivity. Pluriactive farms utilise off-farm finance

and the combination of more than one land use type. An analysis and relationship of the relevance of these theories to this study will be undertaken and then modified to suit the field study and recent influences on their structure. Following this Chapter Three illustrates the topic from the New Zealand perspective using statistical information and reviews of appropriate research to illustrate land use change, population movements and hobby farm development within the country as a whole.

In Chapter Four the selected study areas are introduced and their topography, soil types, location and traditional land uses are described in preparation for the summary of the field work and research methodology, which is outlined in Chapter Five.

The analysis and conclusions drawn from the field study are analysed in Chapters Six, Seven and Eight. Chapter Six analyses the overall patterns of land use change and the influence of hobby farming in the aggregated study areas. Following this Chapter Seven differentiates this information into the individual study areas and compares the land use changes which have occurred between 1970 and 1992. Incorporated with this information is the introduction of planning influences. This acts as a stepping stone to Chapter Eight which identifies the dimensions of planning and the issues it has raised within the urban periphery.

Chapter Nine relates the theoretical concepts analysed in Chapter Two to the conclusions drawn from Chapters Six, Seven and Eight. In this chapter modifications will be made to the models constructed in Chapter Two where the field information has developed new insights into the theoretical notions. Finally Chapter Ten outlines the main conclusions which were discovered throughout the study and suggests outlines for future policy options and further research.

CHAPTER TWO: RESEARCH CONTEXT.

2.1. INTRODUCTION.

After having outlined the direction this research is to take and the specific questions it will address, a research context must be illustrated to provide a basis for the fieldwork. The nature of this study in identifying land use change in the urban periphery of Christchurch and the role of hobby farming in that change, requires the discussion of several different theoretical concepts. The three theoretical concepts chosen are based on: land use patterns around major metropolitan cities, Von Thünen's theory; population migration flows and pluriactivity. The mix of both contemporary and well established theoretical concepts enables this study to achieve a historical and comparative insight into the activities which have shaped modern land use change and the development of hobby farming.

The research questions outlined in Chapter One will be acknowledged in relation to the three chosen theories. This requires the construction of models and theoretical graphs which will help to illustrate the theoretical influences on the urban periphery of Christchurch.

2.2. THEORETICAL CONTEXT.

This chapter is displayed in three sections. The first section discusses the outline of Von Thünen's theory of agricultural patterns around metropolitan areas and the relationship it has to the Christchurch region in this study. Following this, an outline will be given of the influence of migration movements in terms of rural to urban and urban to rural population flows. Finally the introduction of pluriactive farming to New Zealand will be analysed and discussed in relation to the concept of hobby farming land use change on the urban periphery. A mix of global and New Zealand based information will be drawn upon in order to illustrate the relationship of the theoretical concepts to this study and the particular research questions that have been constructed.

2.2.1. Land Use Patterns Near Urban Areas; Von Thünen's Theory.

The concept of land use patterns on the urban periphery of metropolitan settlements derives mainly from work undertaken by the German scientist, Von Thünen, during the early years of the nineteenth century. Even though his work has become somewhat dated in the present context, his theories relating to patterns of agricultural practices near urban areas still provide the basis of theories that are used today. This section discusses the relationship of this theory to the research topic and its research questions.

Von Thünen's aim was to discover and examine the forces which created the particular agricultural land use patterns which he observed within his life span. Whilst German in context it was aimed towards universal land use patterns. Sinclair(1967), best describes the crux of this theory:

"He recognised that this land use pattern depended upon competition between various types of agriculture for the use of a particular piece of land. The controlling factor in this competition was Economic Rent, defined here as return from investment in the land. Stated briefly, that form of land use providing the greatest Economic Rent would make the highest bid for the land and displace all others."

(Sinclair, 1967,pp73)

Von Thünen considered transport costs to be the dominant factor in determining Economic Rent. As transport costs for the marketing of agricultural produce would increase as the distance from the central market increased, he argued that with every unit of distance travelled that the Economic Rent would become lower and that the value of agriculture would decrease. Therefore the Economic Rent is an inverse function of the distance from the market, and different types of land use compete for land closest to the market. Ideally they would all like to be situated close to the market with low transport costs, but those that can successfully produce a higher yield per hectare will win out. This concept also coincides with the location of perishable production near the market. Goods such as vegetables and milk are produced close to the market or urban area because they are perishable and have a high level of yield per hectare. Perishable goods needed to be transported more regularly to the market so transport costs were aimed to be kept at their lowest possible level. Therefore crops which were not considered perishable in the short term were located further from the market.

From these assumptions Von Thünen was able to create a diagrammatic system of concentric zones. In his initial study the use of a centrally located city totally surrounded by flat, tillable land enabled the formulation of a model which utilised a uniform system of zones which signified changes in land use with the increased distance from the market. This model appears in *Figure 2.1*.

The six zones in *Figure 2.1* signify the different land uses which diminish in intensity outward from the central metropolitan area. This theory excludes physical and human variations, for example differences in soil, topography or climate along with production costs and standards of living for the farmers. However Von Thünen considered that with these accounted for, the basic

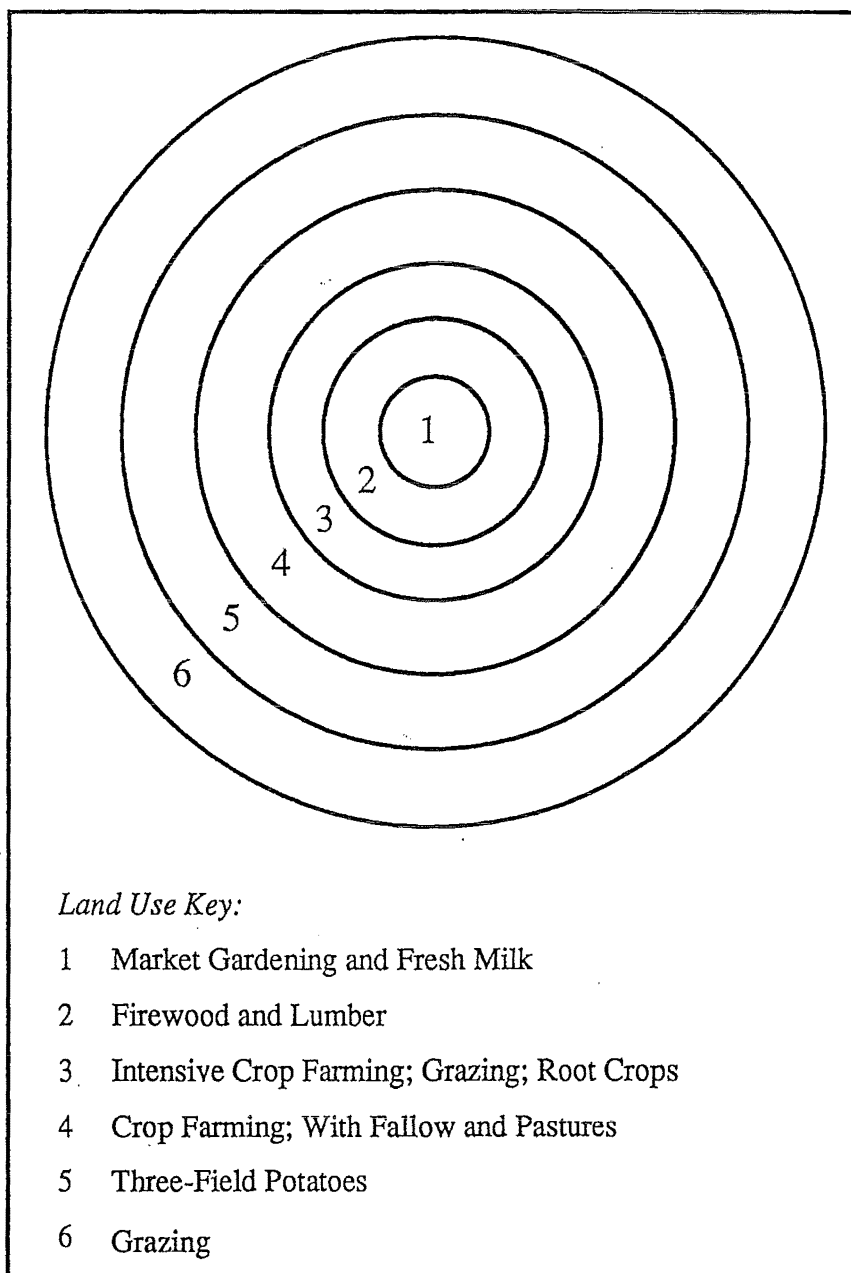


Figure 2.1: Von Thünen's Concentric Zones of Land Use Around A Metropolitan Area.

Source: Sinclair (1967).

construction of the model would still remain the same.

2.2.1.1. Modifications.

Since Von Thünen's '*Der Isolierte Staat*' was first published many criticisms of its relationship to phenomena of the modern day have arisen (Grotewold 1959; Johnson 1962; Sinclair 1967) . Perhaps the most detrimental factor to the theory is the introduction of advanced technology. Not only have more efficient systems of transportation been developed but also systems of production and product storage. With this, new systems of mass production and product processing have led to changes in land use, farm financing, production types and schedules. The number of markets for a certain product has also increased and the central singular market of Von Thünen's model no longer exists in reality and subsequently has changed the way in which land use zones are organised. With the advancement of technology there is the pressure on land use for industrial purposes which has also caused the transformation of Von Thünen's model.

While Von Thünen's model is out of date in terms of the labelling of each zone it is still obvious that such zones exist in a modified form. Sinclair (1967), cited urban expansion as one of the major influences at work. Sinclair stated that urban land was more valuable, in the modern context, than rural land. He recognised that urban land use dictates where, what and why rural land uses change. Rural land immediately adjacent to urban land became an area of 'anticipation' where landholders looked towards suburban housing expansion. Further rural development and investment was unlikely in an area where the threat of encroachment by the urban area was high. It is this region that is most important to this study. This region is where the study areas are located and where smallholding land uses are subsequently changing. Here Sinclair noted that this land became less productive as urban encroachment was anticipated and was occupied by systems of grazing and greater amounts of fallow land, quite the opposite of Von Thünen's model. This is a product of the time and location in which Sinclair wrote, in the Midwest United States in the 1960s. Sinclair recreated Von Thünen's model in *Figure 2.2* and subsequently suggested that as distance from the market increased then the more intense the land use became.

Whilst this is the general pattern of development and land use in the developed world today it can be argued that beyond Sinclair's fifth zone of specialised feed - grain livestock there may exist subsequent zones which gradually become less intensive in production, for example vacant and grazing land, because costs of transport and market location still play a

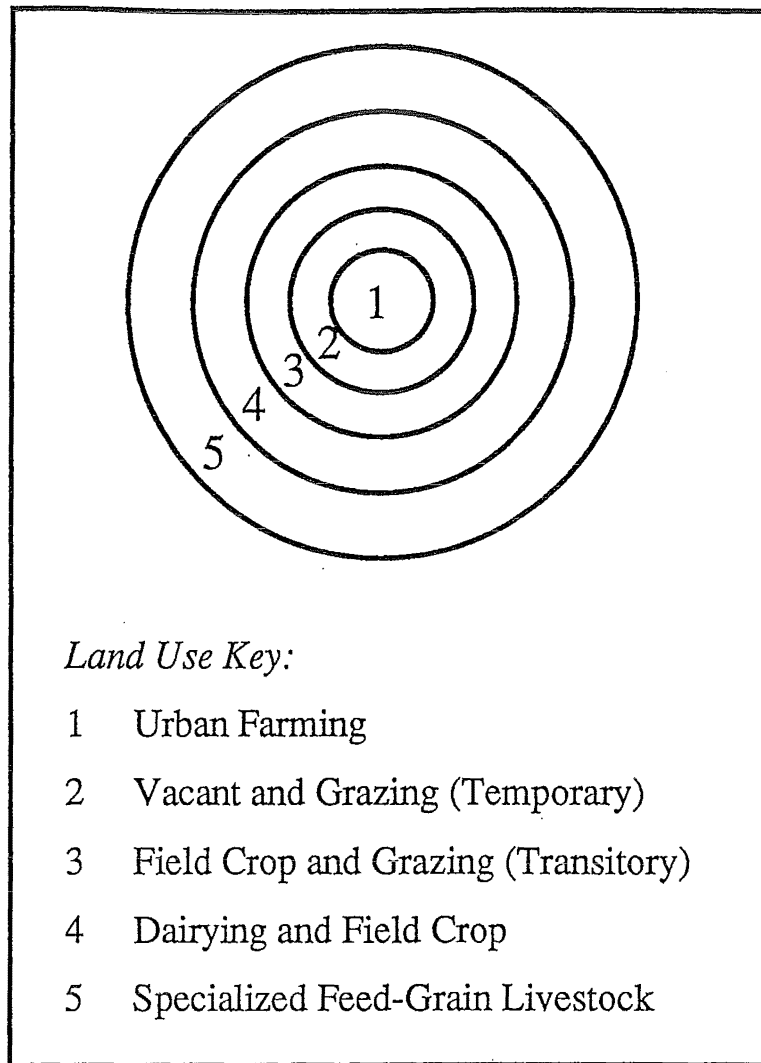


Figure 2.2: Sequence Of Land Uses Around An Expanding Metropolitan Area.

Source: Sinclair (1967).

significant role, as stipulated by Von Thünen. The first two graphs in *Figure 2.3* best describe the differences between the Von Thünen model and Sinclair's adaption. In addition a third graph has been formulated to represent the value of agriculture in the Canterbury situation. The last graph emphasises that the value of agriculture in the field study may be increased at the outset as a result of intensive land use directly adjacent to Christchurch's urban area. This region next to the city is prime agricultural land and the city has subsequently expanded to encompass a large amount of this area. However this area of land is still very valuable and in demand for agricultural use. As the distance from the city increases the demand rises as intensive land uses are forced to utilise land further away from the city where land rates or rent are/is lower. After this peak the value of agriculture decreases as the distance from the city increases and agricultural use becomes less intensive and not dependent on the city market.

In reality it is also fair to conclude that in every case to which these models are related there will be exceptions to them. This is mainly due to differing city growth patterns, the location of the city, the topography of the surrounding rural area and particularly the constraints put in place by development planners, land taxes, governmental restrictions and management plans.

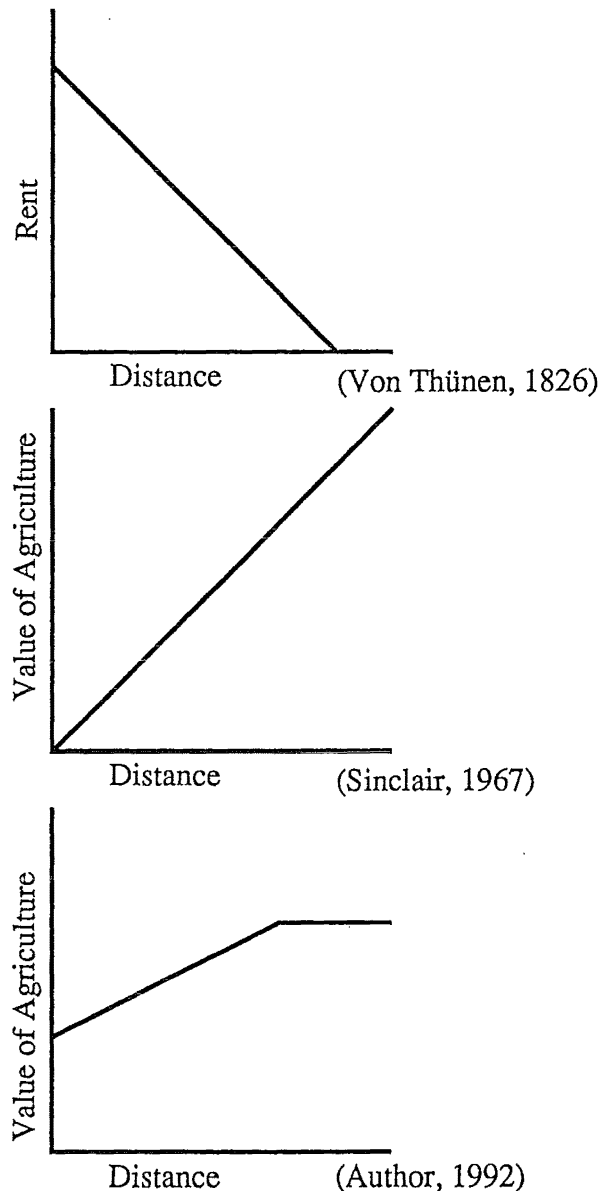


Figure 2.3: The Change in Agricultural Value of Land with Distance from the City.

Source: Sinclair (1967) and Author (1992).

2.2.1.2. Land Use Zones Around Christchurch.

Land use zones around Christchurch City vary and the patterns outlined by Von Thünen's and Sinclair's models of concentric zones need to be modified in order to be relevant to this study. The model in Figure 2.4 illustrates the

location of land uses within the urban periphery of Christchurch. These zones were devised from the examination of valuation reports which were recorded at the Christchurch office of Valuation New Zealand.

This model illustrates the dominant pattern of land uses within the study area over the last forty years, excluding the development of hobby farming. The distance from the urban centre is relatively short, 50 kilometres, but within this area there is a significant variety of land uses ranging from dairy farming

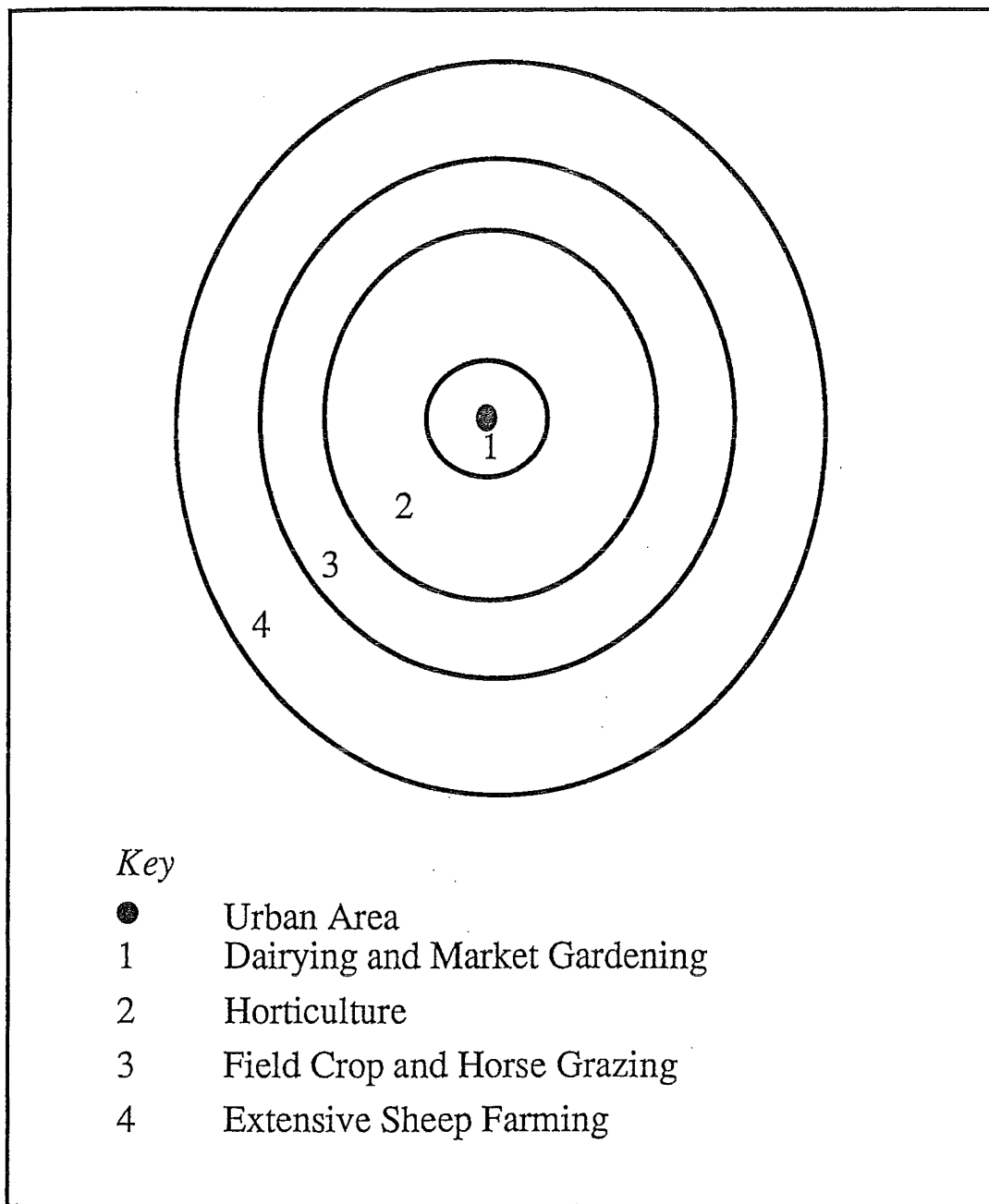


Figure 2.4: Concentric Zones of Land Use in the Urban Periphery of Christchurch.

Source: Author (1992).

and market gardening adjacent to the city, to horticulture or orcharding on land which is less fertile, to field crop and horse grazing, and ultimately medium intensity sheep farming on land which has low fertility and has lower land rates. The demand for land in the outer zones is less than that occurring in the first zone where dairy farming and market gardening are the dominant uses.

The patterns illustrated in this model are important to answering the research questions, particularly in relation to land use changes. As a result of the field study further modifications to this model will be able to show the influence of hobby farming in land use change. It may be that land use patterns in the urban periphery of Christchurch have not changed and that hobby farming plays no significant role in this phenomenon. Therefore Von Thünen's and Sinclair's concentric zone models are crucial to this study as they provide a theoretical base to the identification of land use change in the urban periphery and allow the role of hobby farming to be assessed and then placed in the model if the role is considered important.

Von Thünen's and subsequently Sinclair's theoretical insights, in relation to land use patterns, can not be related to this study without consideration of the causes of these patterns and why they exist in this way around metropolitan cities. The changes in land use patterns created by the urban sprawl of major cities is caused by the growth of the urban population and movements of the rural population sector. Migration flows of population within an area determine to a large extent the use of land and the practices undertaken upon it. The next section outlines population migration theory and its influence on land use change in the urban periphery.

2.2.2. Population Migration and Land Use in the Urban Periphery.

Population migration flows in this study are those of rural to urban, more commonly known as rural depopulation, and rural to urban, known as counterurbanisation. Both migration types can cause an increase in population numbers in the urban periphery region. Migrants from more distant rural areas locate themselves within the urban periphery zone, as they desire the benefits of the city and to enjoy the country lifestyle of which they are previously familiar. Counterurbanisation results in the development of farms in the urban periphery as urban dwellers establish residences in the countryside while still being able to enjoy the services and opportunities of

the city. This section will discuss briefly the major theoretical concepts of these two phenomena and will then discuss their relevance to land use change in the urban periphery and the role of hobby farming in that change.

2.2.2.1. Rural Depopulation.

Rural depopulation accounts for the growth in the urban periphery of metropolitan cities. While counterurbanisation has been the later migration type to transform the urban periphery population in large cities, rural depopulation also continues to occur. Rural depopulation in New Zealand began during the 1940s when employment in the rural sector was in decline after the Second World War and with the introduction of city based industry (Fairweather 1989). At the same time farm numbers declined further pushing workers and their families towards the city and employment within industrial sectors. Economic downturn in the agricultural sector can also be identified as causing rural depopulation. Rural depopulation continues worldwide and therefore influences the population movements in urban periphery regions. The determining factors influencing rural depopulation need to be discussed in order to illustrate the way in which it effects urban periphery land use change.

In the context of this study two important reasons for rural depopulation can be identified with the growth of urban periphery populations. The first is related to employment and the second is related to age characteristics. In the first instance downturns in rural employment and economy have caused the movement of both farm owners and workers into the urban periphery zone (McIntosh 1969). Those farmers who have sold their farms as a result of losing production profitability reinvested their money in smallholdings in the urban periphery zone where they could still engage in farming and enjoy the country lifestyle and participate in part-time or full-time off-farm work (OECD 1978). Similarly older farm workers, who were made redundant as farm labour was replaced by equipment moved to urban periphery locations where they were able to purchase a small piece of land which enabled them to enjoy the country lifestyle, work full-time within city industry and also manage to operate the farm unit (Drury 1978).

The second reason for rural depopulation which is relevant to this study is the influence of age characteristics. Some full-time farmers who have left farming and still wish to live within a rural environment and have convenient access to the services of the city, particularly in relation to goods supply and health services. These farmers have been able to buy smallholdings in the

urban periphery with capital they have gained from farm sales in outer rural areas (OECD 1978). Land use here is less profit orientated, because the farmers are unable to utilise their land in a profitable manner as a result of ailing health and age factors. Therefore land may be rented to off-farm inhabitants in the surrounding area.

2.2.2.2. Counterurbanisation.

Counterurbanisation theory developed in the 1970s and grew in acceptance in the 1980s, particularly by Western European rural geographers (Berry 1976; Vining and Kontuly 1978; Fielding 1982; Pacione 1984; Hugo and Smailes 1985a, Vartiainen 1989.). This development was a result of the turn around in population migration flows acknowledged to be occurring in western nations, particularly in the form of population decline in the major metropolitan cities and the increase in urban periphery and outer rural population regions. After the initial identification of this phenomenon some major studies were undertaken to outline the nature of this migration type and its driving forces.

Those areas which have been examined extensively are the United States, Britain and the wider Western Europe region. This is due to their highly industrialised settlement patterns and their high population levels. Studies by Fielding (1982), Vining and Kontuly (1978) and Champion (1983) all considered there was a continuing domination of urban migration to rural areas, which were intensifying the notions of decentralisation within large metropolitan cities. Pacione (1984) suggested that a multiple of factors in the global context had led to the trend of counterurbanisation ranging from governmental policies of decentralisation to increased disposable income and personal preference to technological development of rural living systems, such as increased electrification, water, sewerage and telecommunication networks. Perhaps the most significant factor derived from these studies is the growth in the acceptance and attraction of rural living.

Three concepts have been identified as the reasons for counterurbanisation in respect to the desirability of urban periphery living. Fielding (1982) concluded from his study of Western societies that the migrating population from metropolitan to peripheral and rural regions was increasing at a higher rate than rural to urban flows which had dominated from the 1950s. He concluded from this study that personal preferences of individuals were shaping the nature of this concept. These preferences were listed as the desire for a rural lifestyle in terms of: its closeness to nature; the feeling of freedom;

newness and competition. The major driving forces behind these preferences were identified as the desire to escape the stressful aspects of city living, such as: high crime rates; pollution; race hatred; traffic congestion and noise. To enable their desires to be fulfilled housing markets then adjusted to meet their needs.

In association with this reason for counterurbanisation Fielding (1982) also identified that such movement was especially common amongst middle class workers who were financially and physically able to visualise and reach their goals.

Finally Hugo and Smailes (1985) recognised that improvements in transportation systems have enabled people who were financially able to live in the urban periphery and to work within the city, therefore allowing them to enjoy the country lifestyle and urban opportunities.

Counterurbanisation therefore creates the population growth in urban periphery zones where land is made available for country lifestyle living. There exists the ability of these new developers to change land use types in this region as they do not possess the desire to undertake full-time farming. This results in the change of existing land use types and farm operations. However counterurbanisation is only one population migration concept that may only be relevant to large metropolitan cities and not smaller cities within less populated nations such as New Zealand. For this reason it is necessary to review the other dimension of migration flow within the urban periphery, urban to rural migration.

Population rise in the urban periphery of metropolitan cities is a result of both counterurbanisation and rural depopulation. It is possible that one of these migration types outweighs the other, however, both of these migration types are effecting land use change in this area as the demand for and establishment of small land units reduces the size of existing farms and therefore may cause change in land use type and productivity levels.

2.2.2.3. Migration Flow and Urban Periphery Land Use Change.

In this context this study aims to discover which of the two population migration types is dominating land use change in Christchurch's urban periphery. As part of the research question two important concepts must be

answered in order to successfully piece together the important characteristics of land use change. The first question raised relates to the land use types engaged on land which is operated by people who have migrated from either the rural sector or the urban sector. Changes in urban periphery land use may be different in areas which have a high proportion of rural to urban periphery migrants or vice versa.

The second question that needs to be addressed is the characteristics of these migrants by their migration type. This involves relating the retirement characteristics to the migration type and the associated ages and employment participation. By doing this it will enable land use change to be related to the area from which the farm operators migrated. This in turn will enable conclusions to be drawn with respect to both land use change and the relationship of migration flows to land use patterns as outlined within Von Thünen's and Sinclair's models and their subsequent modifications.

After describing the possible influence of population migration flows on land use patterns and change in the urban periphery, a final and more recent theoretical concept will be analysed and related to both the land use pattern model and migration flows. This is the concept of pluriactivity in the urban periphery zone.

2.2.3 Pluriactivity.

Pluriactivity is a recently recognised phenomenon occurring in rural areas. Initially it was identified during the early 1970s, however the conceptual thinking did not develop until recently (Le Heron 1992). Particular interest in pluriactivity has been centred on rural areas in Western Europe, however its characteristics have also been found in New Zealand. This section will focus on the importance of pluriactivity as an influence on hobby farming and subsequent land use change in the urban periphery.

2.2.3.1. What is Pluriactivity?

Pluriactivity is best described by Fuller (1990) as being a ..."multidimensional land-holding unit, in which farming and other activities are undertaken, both on and off the farm, for which different kinds of remuneration are received (earnings, incomes in-kind and transfers)." (Fuller, 1990, 367). This term is related to farm diversification which has been recognised in occurrence since the 1940s (Fuller, 1990). However

pluriactivity differs significantly from farm diversification. Farm diversification specifically relates to the multidimensional structure of farming/agricultural land use. For example, in relation to diversification, the change of land using systems from a singular type operation such as dairy production to include not only dairy production but the raising of beef cattle and also pig fattening, in other words a type of multi-functional land use system. Pluriactivity in contrast enables off-farm/non-farm activities to be undertaken by the income contributing farm household. These activities include: off-farm or non-farm work in the form of wage labour; non-agricultural enterprises on the farm; employment on other farms; development of agricultural related processing industries such as food processing for direct sale. Not only does pluriactivity signify multi-functional land use but also off-farm/non-farm employment and business activities.

Pluriactivity can affect full-time and hobby farms, as both types of farm operations undergo change to accommodate household and market changes (Shucksmith and Smith 1991). Shucksmith and Smith's (1991) farm household study in relation to pluriactivity in upland Scotland found that family farms took up pluriactivity as did new farming entrants who wanted to farm and still maintain their off-farm occupations. For example decreases in agricultural produce prices may require off-farm income to subsidise farm production. Once the farm household undertakes such change they are likely to continue in such activities after the economic downturn subsides (de Vries 1990). Fuller (1990) reinforced this by concluding that ..."pluriactivity is a perceived means of accommodating change, adapting to agricultural realities (e.g. minimizing risk), maximizing opportunities, raising a family and staying on the land." (Fuller, 1990, 367).

2.2.3.2. Pluriactivity: A Review.

The rising interest in pluriactivity has sparked a number of studies relating to the topic. As in the two previous theoretical structures much of the research has been undertaken in highly industrialised regions, in this case Western Europe. While pluriactivity does not deal only with hobby farming it does provide the balance between the changes within full-time agricultural units and also the developing part-time/hobby farming enterprises.

Literature from Europe and specifically the United Kingdom dominates pluriactivity research. Other studies from the United States and Australia are very limited, as has been the case in New Zealand, however recognition of such activity has still taken place. Fuller (1990) established that pluriactivity had become an 'integral' part of Western European farming. It is of

importance with respect to land use types, farm size, farm location, farm production rates and its effect on the natural environment.

Factors influencing pluriactivity in Western Europe relate largely to the agricultural economy but it is also possible that household structures and government policies are also significant. The United Kingdom, Thatcherist policy in the form of the Common Agricultural Policy devised a plan to encourage farm diversification. This was done by switching production types to produce a variety of goods which could be expanded on instead of simply producing a surplus of goods which were becoming increasingly difficult to off load to both the local and international market. This policy also allowed for the development of non-agricultural enterprise on land already participating in agricultural production. However Shucksmith and Winter (1990) suggested that farm household labour was ignored in this context and subsequently led to the surplus labour in each household to engage in off-farm employment rather than develop on-farm activities. They noted that this was particularly the case in relation to families on small farms. Coinciding with this Shucksmith and Smith (1991) in their Upland Scotland study found that pluriactivity was undertaken predominantly by farmers under 50 years of age and that those earning most of their income from non-farming activities came from non-farming backgrounds. The most dominant reason for farming by those who were engaged in pluriactivity was for the enjoyment of country living rather than farming for an income or using land as an investment. This is characteristic of the hobby farming community.

It can be concluded that pluriactivity plays a major role in the farming activities of Western Europe. Whilst more global studies are yet to become as substantial the examples taken from Western Europe act as a sound stepping stone to the New Zealand case and in particular hobby farming in general.

2.2.3.3. Pluriactivity and Land Use Change in the New Zealand Context.

Pluriactivity can be recognised as having a significant effect on land use change especially in the urban periphery zone. Development of pluriactivity in New Zealand has been recognised in conjunction with urban periphery locations and land use change (Moran *et al* 1980; Anderson and Moran 1983; Alexander 1990; Le Heron 1992). The main influence is the interaction between hobby farming and pluriactivity, specifically the participation of farm households in off-farm/non-farm employment. This in turn creates the

base for multi-functional land uses in the urban periphery zone where farmers are able to engage in paid off-farm employment and operating a farm.

In New Zealand pluriactivity was identified to be occurring since the 1970s (Le Heron, 1992). Le Heron (1992) states that pluriactivity became more dominant in the mid 1980s because of the loss of subsidies in the sheep and beef industries, droughts in arable farming areas such as Canterbury and the Wairarapa and the greater participation of women in the work force. From a of six selected areas of New Zealand farm households covering dairy, sheep/beef or apple farming in the late 1980s it was found that an average of 41% of farm households were pluriactive (Le Heron, 1992). This study also that twice as many women worked off-farm than men. Le Heron (1992) also stated that the type of off-farm work related specifically to proximity to a sizeable urban area.

Le Heron's (1992) findings relate to those found in the global context. The high proportion of pluriactive farms in his study closely follows the results of studies done in Western Europe (Arkleton Project, 1987, Shucksmith and Smith, 1991, Shucksmith and Winter, 1990). In turn this strengthens the link between land use change and pluriactive farming systems in western, industrialised nations. The relevance of pluriactivity to this research topic is strong as it not only focuses on new operations but also on pre-existing operations. This takes in two important links to the topic, land use change as a whole and the role of hobby farming, Pluriactivity can also result from the migration flows causing population growth in the urban periphery and the preferences of those newcomers, in terms of their land use and off-farm work.

2.3. CONCLUSION.

The three theoretical concepts which are identified in this chapter all interact in different ways to produce land use change and the development of hobby farming in the urban periphery region. Concentric land use zones within the urban periphery which have been extracted from Von Thünen and Sinclair's models have been influenced over time by the migrating population flows from the outer rural region of the urban region, which has in turn resulted in the development of pluriactive farming units. The model in *Figure 2.5* illustrates the inter-relationship of these three theoretical concepts and their influence on hobby farm development and land use change in the urban periphery.

The model identifies the way in which population migration flows and pluriactivity affect land use patterns which in turn results in land use change in the urban periphery. It also shows that migration flows influence pluriactivity as population migration particularly from the urban sector causes farmers to engage in farming operations which are subsidised by off-farm income and use multi-functional land uses which require less labour input. This exemplifies the preferences of urban periphery development of farms which are not operated to achieve economic agricultural production levels. It is also shown that each of these concepts can influence land use change in the urban periphery in singular ways with hobby farm development being influenced by pluriactivity and subsequently causing land use change. In turn land use change and land use patterns are interacting.

The next chapter identifies further New Zealand evidence which illustrates land use change in the urban periphery and the influence of hobby farming upon this change. Statistics from New Zealand agriculture and population projections will be used to discuss how the changes in the urban periphery can be understood in terms of Von Thünen's theory, population migration and pluriactivity.

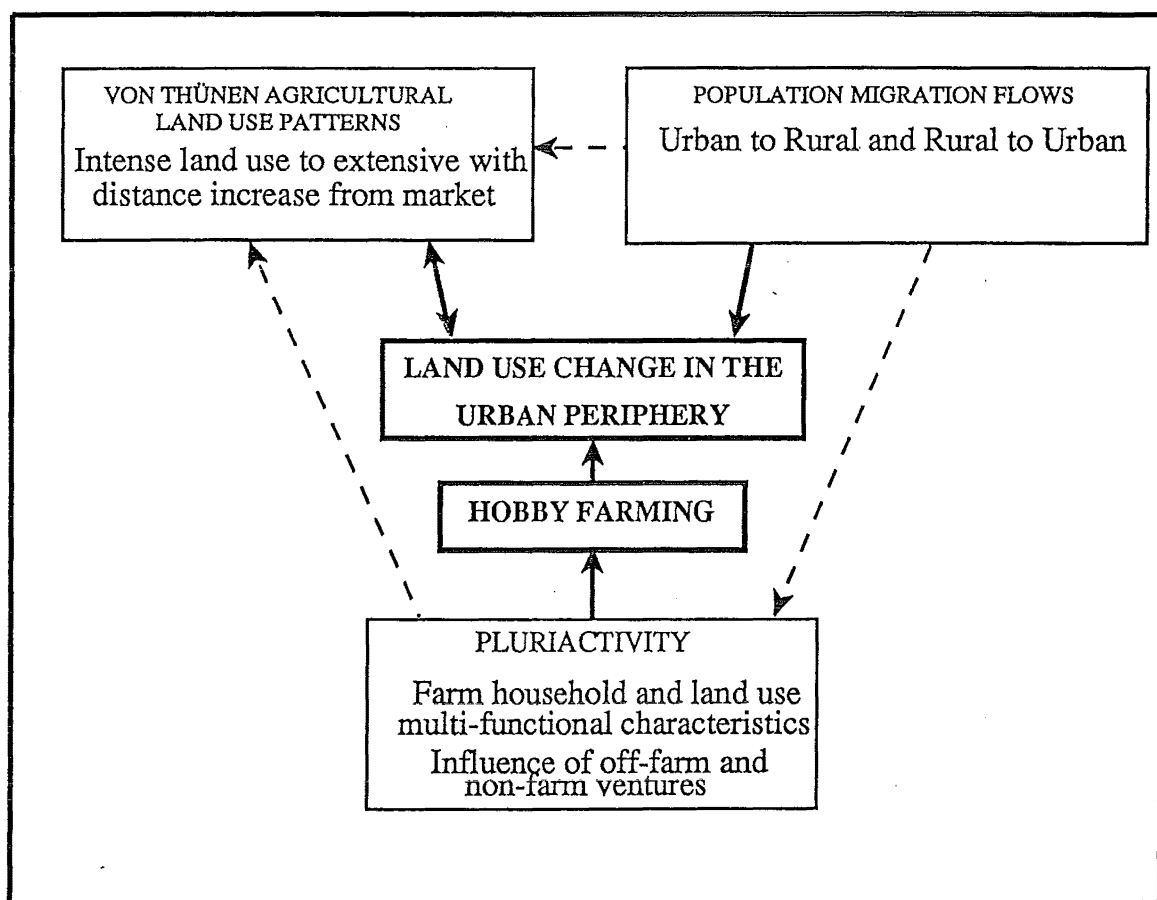


Figure 2.5: The Influence of Three Conceptual Theories on Land Use Change in the Urban Periphery and the Development of Hobby Farming.

Source: Author (1992).

CHAPTER THREE: NEW ZEALAND PERSPECTIVE.

3.1. INTRODUCTION.

Land use change in the urban periphery of metropolitan areas and the development of hobby farming is occurring at the global scale to a significant extent. This study focuses specifically on the occurrence of such change and development within the Christchurch area. Chapter Three will cover the gap between the information found at the local and global level and will give a New Zealand perspective to the chosen topic.

This chapter will establish the context in New Zealand of land use change in the urban periphery and the role of hobby farming in that change. Evidence will show how farm size change, farm employment and population change, rural subdivision and diversification, the location and characteristics of hobby farming, and finally land use planning have shaped the phenomenon in New Zealand. The information illustrated will relate specifically to the period from 1970 to 1992.

3.2. EVIDENCE OF LAND USE CHANGE IN NEW ZEALAND

Many different factors can be attributed to influencing land use change in the urban periphery of New Zealand cities. These are changes in planning policy, shifts in favoured product production types, changes in farm sizes, changes in farm employment movements, changes in population migration, and aspects of rural subdivision and diversification. Each of these factors has a direct influence on farming practice on the urban periphery. While they may be relevant to rural New Zealand as a whole, regardless of their location in relation to the city, critical evidence can be found to suggest that changes are occurring in the urban periphery. A discussion follows which outlines the evidence of such change and development in New Zealand.

3.2.1. Farm Size Change.

Throughout the 1970s there had been a steady increase in the area of land used for agricultural production in New Zealand, which then slowed in the 1980s as a result of the reduction of large sheep farming operations which were hit hard by drought, low wool prices and government removal of subsidies in 1984. Coinciding with this the number of farms increased. They rose from a total of 65 331 in 1970 to 80 904 in 1990 (NZ Department of Statistics 1990). However farm sizes have not stayed static. The graph in *Figure 3.1* illustrates the decrease in the average farm size since 1972 to 1988. This suggests that farms are decreasing in size and becoming more numerous.

While this data signifies the growth of smaller sized farms it is too superficial to positively acknowledge the onset of small farm development. Fairweather (1987) found that over the period of 1972 to 1984 there was a significant increase in the number of small sized farming units. These units were under 20 hectares in size and were dominated in growth type by sheep with beef farming units and horticultural development. Meanwhile medium sized units from 20 to 199 hectares and large sized units over 200 hectares stayed relatively constant in their numbers. Fairweather (1987) attributed this rise to the arrival and development of hobby farming operations which had a dependence on income from non-farm and off-farm employment.

These statistics and discussion do not pin point an increase in the number of small sized hobby farming units on the urban periphery. It can be established though that small farms are being developed in the urban periphery of New Zealand cities (Fairweather 1987). Recognition of the increase in smallholdings near urban areas was shown in a study undertaken in the urban periphery of Auckland (Moran *et al.* 1980). This study concluded that smallholdings had been established close to the urban area of Auckland as a result of their owners participating in either full-time or part-time work which was centred in the city. This study also concluded that the primary reason for development in this area was to seek a rural lifestyle and bring up their children in an attractive environment. Recognised from this study was the influence of the increasing population in rural areas, specifically in the urban periphery.

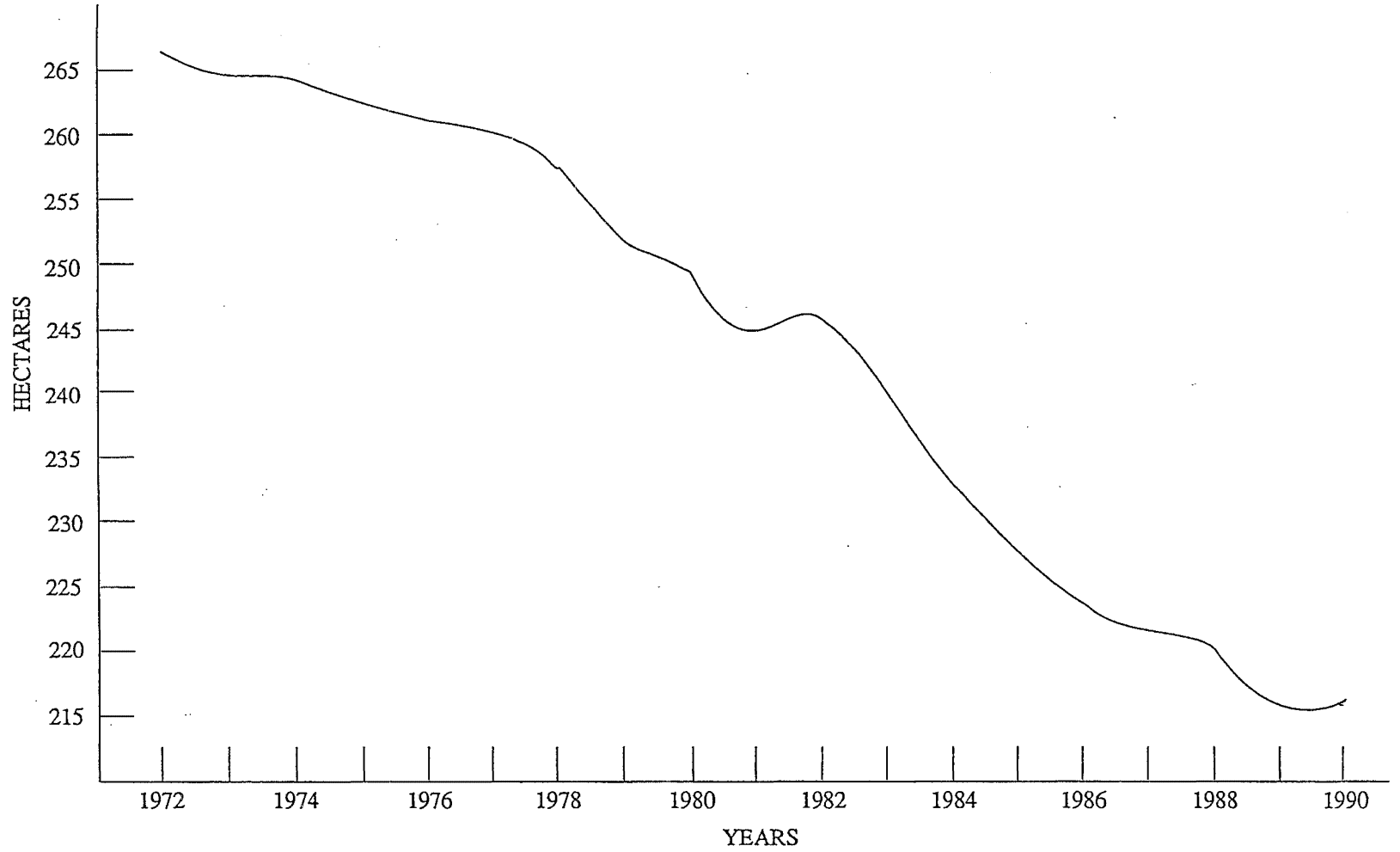


Figure 3.1: AVERAGE FARM SIZE IN HECTARES, 1972 TO 1990

Source: Redrawn (Fairweather, 1989)

3.2.2. Population Changes.

Rural population change is evident in New Zealand and can be recognised as beginning in the early 1920s (Fairweather 1989). While urban growth is continuing, it has slowed in its total rate while rural areas have continued to maintain a positive percentage of population change. After the Second World War urban areas grew constantly up until 1970. During the same period rural areas were subjected to out-migration during the late 1950s up to the early 1970s. Before this rural areas were subjected to periods of high growth rate and subsequent drops which were probably due to effects of the Second World War (NZ Department of Statistics 1990).

Figure 3.2 shows that New Zealand's rural population had undergone a period of slow decline from 1971. What is significant is that after this period the rate of decline had slowed to a constant 15% by 1991, while the urban population proportion had also slowed its rate of growth stabilised at 85% in 1991. This suggests that the total rural to urban migration of New Zealand's population has slowed and that the percentage of rural people relocating in the city is balancing the amount of urban residents which are relocating in rural areas.

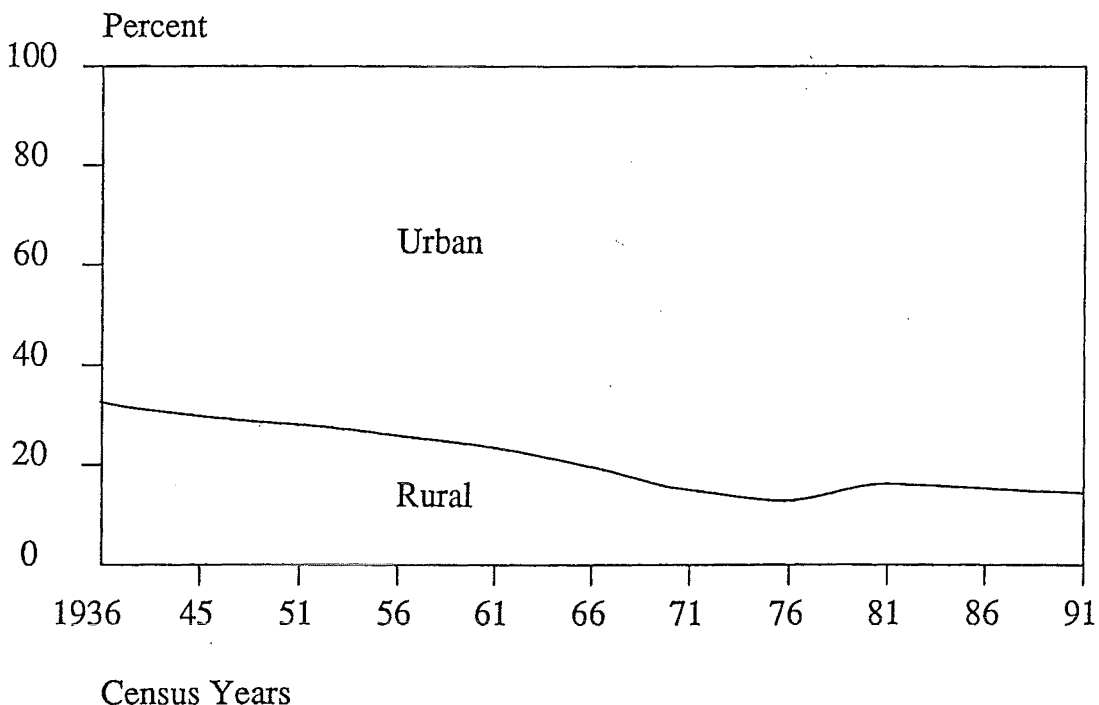


Figure 3.2: Ratio of Urban to Rural Population.

Source: Redrawn (NZ Department of Statistics 1991)

In relation to these findings it is important to remember that not all rural areas are or have been undergoing periods of growth. Studies, such as Cant's (1986), showed that areas of rural population increase were not widespread. This study showed that rural areas close to the city were increasing and that those more distant were declining. Fairweather (1989) concluded that the increase in the number of smallholding units had accompanied the rise in the rural population. Particularly he notes the ability to subdivide rural land units into smaller holdings has contributed to the rise in rural population rates. From this it is recognised that rural subdivision is more likely to occur in the urban periphery as the land is demanded by unsatisfied urban dwellers (Seator 1978).

Therefore population change in the rural environment in New Zealand is closely related to land use change in the urban periphery, and particularly in the establishment of hobby farms. As population rates have increased in the urban periphery, smaller farm sizes have occurred, thus requiring a more intensive land use and the possibility of requiring off-farm or non-farm financial input.

3.2.3. Rural Subdivision and Diversification.

Rural subdivision and farm diversification are two ways in which established farming units have dealt with the continuation of pressure from urban developers. This is specifically so in the case of long-time farmers in urban periphery zones, where urban sprawl has increased land rent and rate rise to an extent where land has become unprofitable to farm. Several studies have illustrated the increased nature of rural subdivision within the urban periphery zones in New Zealand.

Prangio (1980) found that rural land subdivision in the urban periphery had increased significantly within the Kairanga County. Similarly Meister (1981) recognised that rural subdivision within urban periphery zones was increasing and subsequently causing land use changes to all types of farm operations, either full-time or lifestyle orientated. Meister (1981) concluded that ...' the demand for rural subdivisions had increased dramatically and was something new.' (Meister, 1981, 5). This latter study also identified that a significant amount of 'would-be' smallholders were rapidly trying to develop land use operations in urban periphery zones. Regional and district councils also recognised that rural subdivision had rapidly increased since the 1960s and that this was a direct result of smallholding and hobby farm development (Canterbury Regional Council, 1990).

Subsequently Wallace (1987) stipulated that diversification and the development of small intensive land units were playing a large role in the development of more non-traditional and exotic land use systems, which were directed towards the export market. Such developments have been in the deer and goat industries in particular which is illustrated in *Figure 3.3*. In order to make small intensive farms profitable Wallace (1987) noted that successful product 'niches' had to be found and then utilised to their best ability in order to make the small land unit profitable. In relation to this the ability to keep such operations sustained is also fuelled by off-farm income which acts as a prop against market fluctuations.

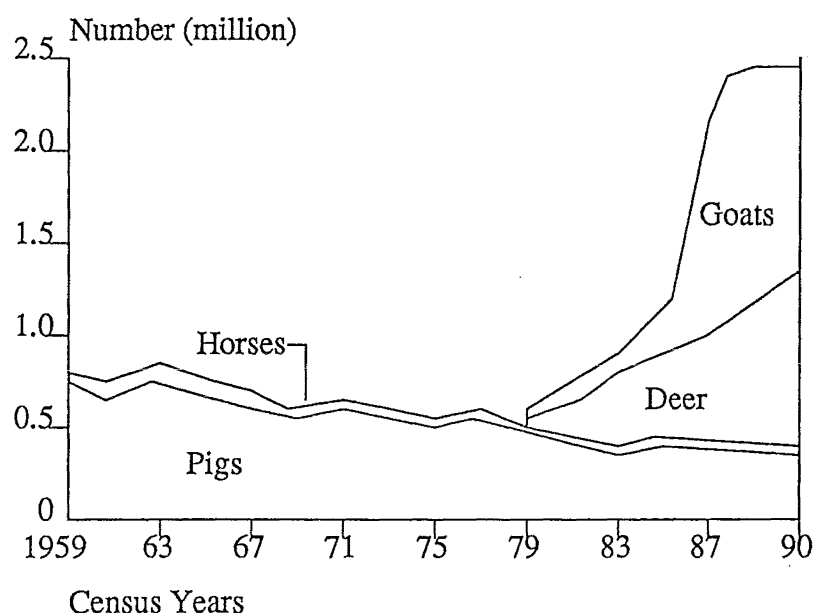


Figure 3.3: Non-Traditional Livestock On New Zealand Farms.

Source: Redrawn (New Zealand Department of Statistics, 1992)

Subdivision of urban periphery land is being developed for exotic and intensive land uses for export markets as, in most cases, dwelling development is not permitted on such small rural holdings unless an economic production unit is operated or proposed. Therefore subdivision and diversification can be attributed to land use change in the urban periphery in a direct way. Not only do they explain the emergence of small farms in the area but why they have occurred and what operations are being undertaken in these areas. In New Zealand such occurrences have proved significant in agricultural land use change.

3.2.4. Farm Employment Changes.

The analysis of the number of working farm owners, leaseholders and sharemilkers in New Zealand since 1970 enables insights to be drawn in regard to the development of small sized farm units. Hobby farms and smallholdings in the urban periphery zone have been recognised as being largely operated by their owners (Moran *et al.* 1980). These farming units have utilised low labour input land uses which allow them to be solely operated by the owner, part-owner or leaseholder. The graph in *Figure 3.4* illustrates the rise in the number of working land holders in New Zealand from 1970 to 1990.

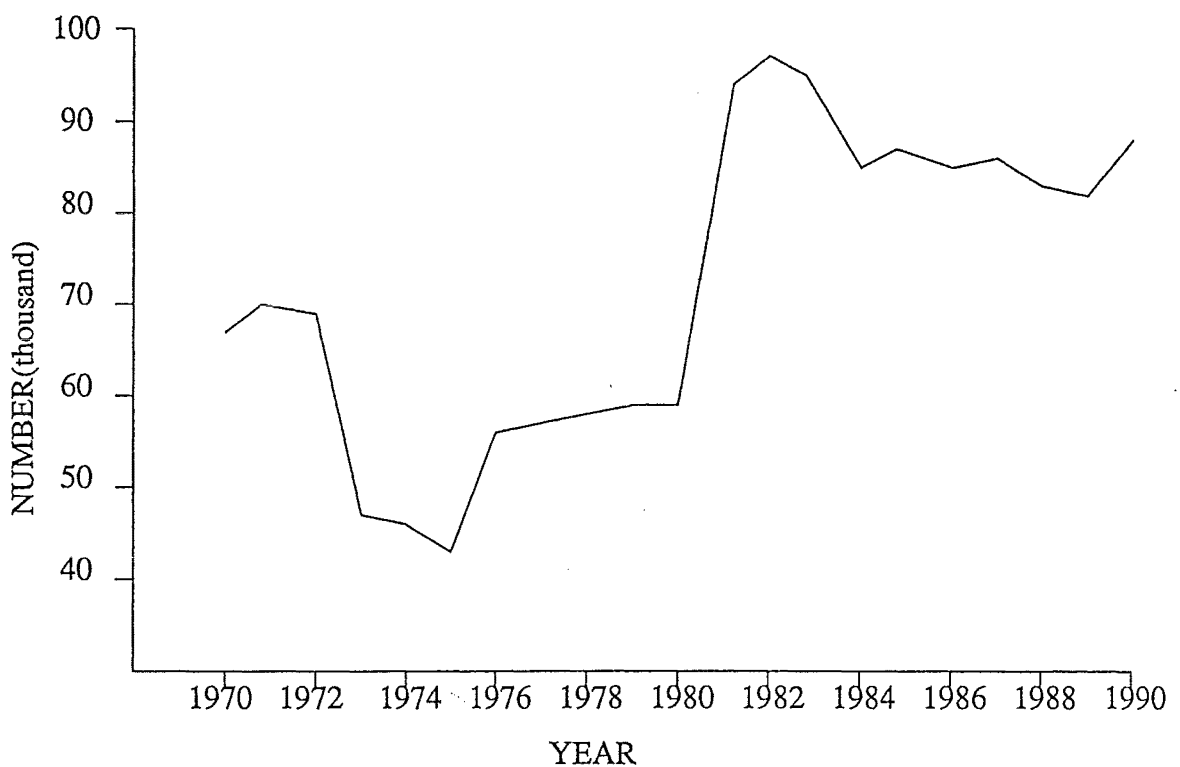


Figure 3.4: Number of Working Owners, Leaseholders and Sharemilkers in New Zealand.

Source: Redrawn (NZ Department of Statistics 1990)

Compared with the graph above, *Figure 3.5*, shows that the number of paid full-time permanent farm employees had decreased over the same period. This shows that the amount of working, on-unit, land holders has increased in the face of decreases in the number of workers employed on farms. Consequently the growth in small farms can be compared with the changes in owner/operator farm shifts, illustrating that small farms have increasingly been operated by their owner.

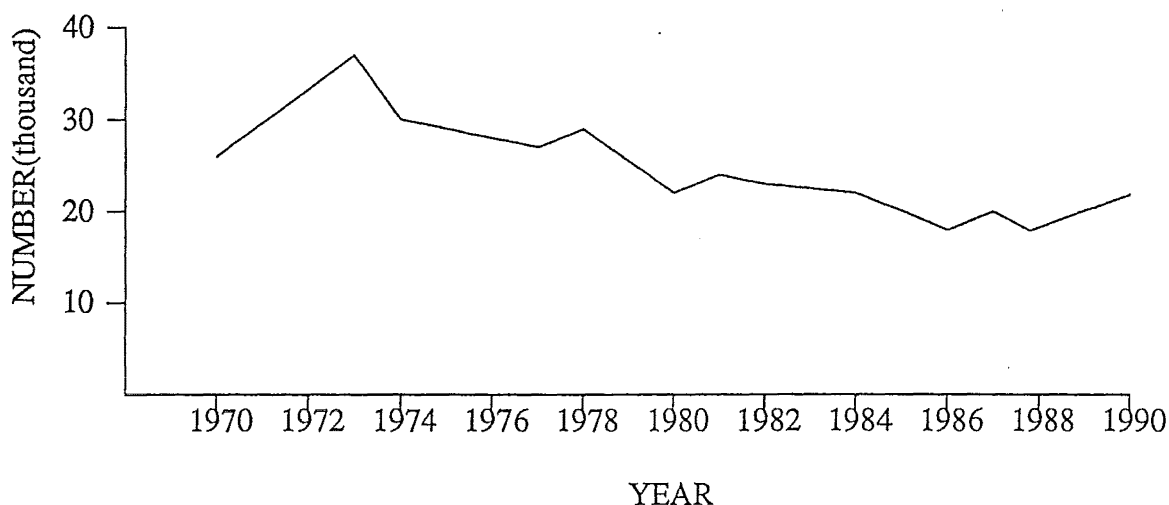


Figure 3.5: Number of Paid Full-time Permanent Employees on New Zealand Farms.

Source: Redrawn (NZ Department of Statistics 1990).

The agricultural downturn during the 1980s caused farmers to cut employment costs, however, these patterns also show that with the decline in farms sizes and the growth of the small farm, an increasing amount of farmers are no longer employing workers. Small sized farms in the urban periphery regions can be located within this sector.

Having discussed the various influences which have developed smallholding development in the urban periphery areas of New Zealand, literature relating to hobby farm development and urban periphery land use change can be reviewed.

3.2.5. Land Use Change On The Urban Periphery and Hobby Farming.

Research which shows the relationship of land use change in urban periphery zones and the role of hobby farming in New Zealand are limited. Up until recently research of hobby farming and its development has been characterised by the investigation of hobby farm characteristics. In the 1980s a growth in hobby farm research in regard to land use systems and productivity levels were witnessed. This section reviews such studies and creates the context for which this study can be based.

3.3. HOBBY FARMING IN NEW ZEALAND

Essentially hobby farming, as defined in this study, takes on the characteristics of what is known as part-time farming in most parts of the world including New Zealand. However as many small land units in the urban periphery have a multitude of different time labour inputs it seems more logical to group both together. This makes the one definition as clear and simple, without creating numerous discrepancies between whether the land units are operated as 30 hour per week or less and how much less, or how much income they generate and the number of people working on the farm unit. It seemed more relevant to select the most important aspects from all the differing definitions which were researched and to create one which best related to the study. While the definition of hobby farming is stated in Chapter Two it is virtually impossible to find any significant number of studies that have the same definition used in this study or in other previous studies, so in this section a hobby farm can be broadly described as being a farming unit which is not operated as the occupying household's dominant source of income.

Since the 1970s hobby farming has established itself in the rural environment. What suggests this further, and in addition to the statistics which provide evidence for its growth, is the amount of research which has been undertaken on this topic since then. In 1977 an official report to the O.E.C.D was undertaken by the New Zealand Ministry of Agriculture and Fisheries and it stipulated that there was approximately 8 000 part-time farms evident and that further small holdings, particularly in the urban periphery areas, were also apparent and were likely to be operated on a part-time basis. It is cited in this report that in the urban periphery ..."part-time farming becomes a norm rather than the exception."(Ministry of Agriculture and Fisheries, 1977,7).

While the O.E.C.D report (1977) supported the growth of part-time farming as an important phenomenon in relation to New Zealand agriculture, numerous studies have been undertaken on a more localised scale from which research surveys have been authorised and carried out within selected study areas, for example Moran *et al.* (1980), Alexander (1990), Mears (1974), Seator (1978), Evans (1981). All of these studies have strongly supported the development of part-time farming for reasons of the desirability for a country lifestyle and the accessibility of the city and its associated services. The most studied areas have been in the Auckland urban periphery with other studies being undertaken in Canterbury and Southland. The most common factors which have all been characterised in each study is that hobby or part-time farming is becoming a dominant agricultural farming structure. Ward (1979) revealed that there was approximately 27 000 part-time farms being operated

in New Zealand at that time and that most of these operations were situated around the densely populated urban areas of Auckland and Christchurch. What was more significant though was that of this number it was found that approximately half used the property for income gathering but that less than one quarter of the total households' incomes came from profit made from the land.

3.4. LAND USE PLANNING IN NEW ZEALAND.

Land use planning plays an important role in creating a national perspective to this topic. As the urban periphery zone is very susceptible to land use change, in relation to urban sprawl and land wastage, many specific land use planning initiatives are influential in land development. What is most important to this study is the way in which New Zealand planning operates in order to achieve the results of minimum urban sprawl onto productive land and the productive use of rural zoned land.

Essentially New Zealand land use planning has been controlled over the study period by the Local Government Act (1974), the Town and Country Planning Act (1977) and consequently the new centralising Resource Management Act (1991). The main control over land use in rural areas has been directed under regional and district schemes developed by both regional and district councils. While the 1974, 1977 and 1991 Acts all stipulate guidelines toward soil and water conservation, urban sprawl and rural development restrictions the more detailed and relevant information to this study is directed by the regional and district planning schemes which were compelled by law to be constructed under the three Acts. Currently the Resource Management Act (1991) enforces regional and district councils to construct schemes which must adhere to one another and then control the development with that region or area. Most pertinent to this study are the regional and district schemes which were developed under the Town and Country Planning Act (1977) as the new schemes are still being finalised at this point under the Resource Management Act (1991). These schemes however must be approved by central government.

Moran (1989) stated that three specific matters listed in Section Three of the Town and Country Planning Act (1977), in its revised form, related specifically to the problem of urban centres and the nearby agricultural land.

These were:

- ..."(d) The avoidance of encroachment of urban development on, and the protection of, land having a high actual or potential value for the ...[of]... food.
- (e) The prevention of sporadic subdivision and urban development in rural areas.
- (f) The avoidance of unnecessary expansion of urban areas into rural areas in or adjoining cities."

(Moran,1989, 252)

These clauses were introduced in 1973 and were aimed to protect large amounts of subdivision of agricultural land in the urban periphery.

The most important feature of land use planning in this topic is the regulation of subdivision and small land unit development in the urban periphery. The main concern of district and regional schemes is to restrict rural subdivision as it is perceived to waste productive land. Meister (1981) considered that such actions by councillors had caused a .."stifling of innovative activity, a slow down in the diversification of land use and an expensive search by would-be smallholders and others for ways to beat the system."(Meister, 1981,pp.5). The main problem is 'uncertainty'. By creating and allowing subdivision in the urban periphery there is the chance of having agricultural land becoming idle or underfarmed or what is usually termed by councillors as 'uneconomic'. To avoid such occurrence, district and regional councils have made their restrictions on subdivision very strict, not only for those who want to sell the subdivided land but those who want to develop upon it. The main restrictions aim to stop the development of smallholdings which are used purely for residential purposes. Proof of economic viability is a main prerequisite for successful development which involves a legal tie over a stipulated number of years which can lead to court action if the proposed land uses are not undertaken. This is specifically the case where a dwelling is proposed to be built. By creating such restrictions the economic capability of a unit is guaranteed over a specific period, however once smallholdings are sold there becomes the ability for such economic practices to be reduced.

Land use planning in New Zealand and especially that which relates to urban periphery subdivision plays a major role in land use change in the urban periphery. It regulates the type of land use system operated and the operation of the household, but more importantly regulates the size and intensity of the land unit. The benefits and disadvantages of rural land use planning in the urban periphery will be discussed in more depth in relation to this study in Chapter Seven.

3.5. CONCLUSION.

By creating a New Zealand perspective to this study it is possible to obtain a more complete illustration of the important factors of land use change in the urban periphery and hobby farming in the local context. The use of statistical information aids in providing a real and factual base from which insights can be derived. However the need to back up such conclusions with the appropriate research data is essential in creating a wholistic picture. Therefore in conclusion land use change in the urban periphery and the role of hobby farming in that change is related directly and indirectly to farm size, farm employment and population change, rural subdivision and diversification, the location and characteristics of hobby farming and finally land use planning systems. Having constructed the national context for this study it is now possible to engage in the discussion and analysis of the field study and the relationship it has to the national and international context.

CHAPTER FOUR: THE STUDY AREAS.

4.1. INTRODUCTION.

Central to this study is the first hand collection, quantification and analysis of up-to-date data in areas considered to be actively engaged in hobby farming. Not only does this allow insights to be drawn into the occurrences in a particular district, but it also allows for the calculated and analysed results from them to be related to the larger national and international spectrum. The research undertaken at the local level can also provide for the relevant comparison of what is found within the wider theoretical context, in turn allowing for new aspects to be introduced and modifications to be made.

The research required the selective choice of study areas within the urban periphery of Christchurch. Each local area was chosen for its difference in location and land use type, therefore making the study representative of the whole urban periphery district of Christchurch. Areas which displayed signs of hobby farm development were specifically chosen. Careful and selective research led to the construction of the final study areas' location, size, land use type, population, physical characteristics and structural practices, which were required to achieve the study objectives.

This chapter describes how the study areas were chosen. A description and analysis of these selected areas is also set out for the stipulated study time 1970 to 1992. Maps are used to provide an accurate visualisation of the crux of this research and a clearer understanding of the general scenario of the total study, which needs to be put into context.

4.2. SELECTION OF THE STUDY AREAS.

Four areas were selected to provide insights into changes taking place as a result of hobby farming. Each had significant amounts of hobby farming and together they covered a range of locations, soil types, topography, aesthetic beauty and valuation. It was also required that these areas had undergone varying degrees of subdivision. This would enable comparisons to be made between those groups who had recently been subdivided and those which had not. Staff from Valuation New Zealand in Christchurch were particularly helpful in this context. They were able to give advice on which areas would

The shape, size and nature of land use type all played a significant role in the selection of the study areas. Their situation within district council boundaries was also important as different council bodies had different regulations and specifications on land development and use. The map shown in *Figure 4.2* shows the location of the study areas in relation to their governing district council as they existed before the restructuring of the district and regional/ united council system.

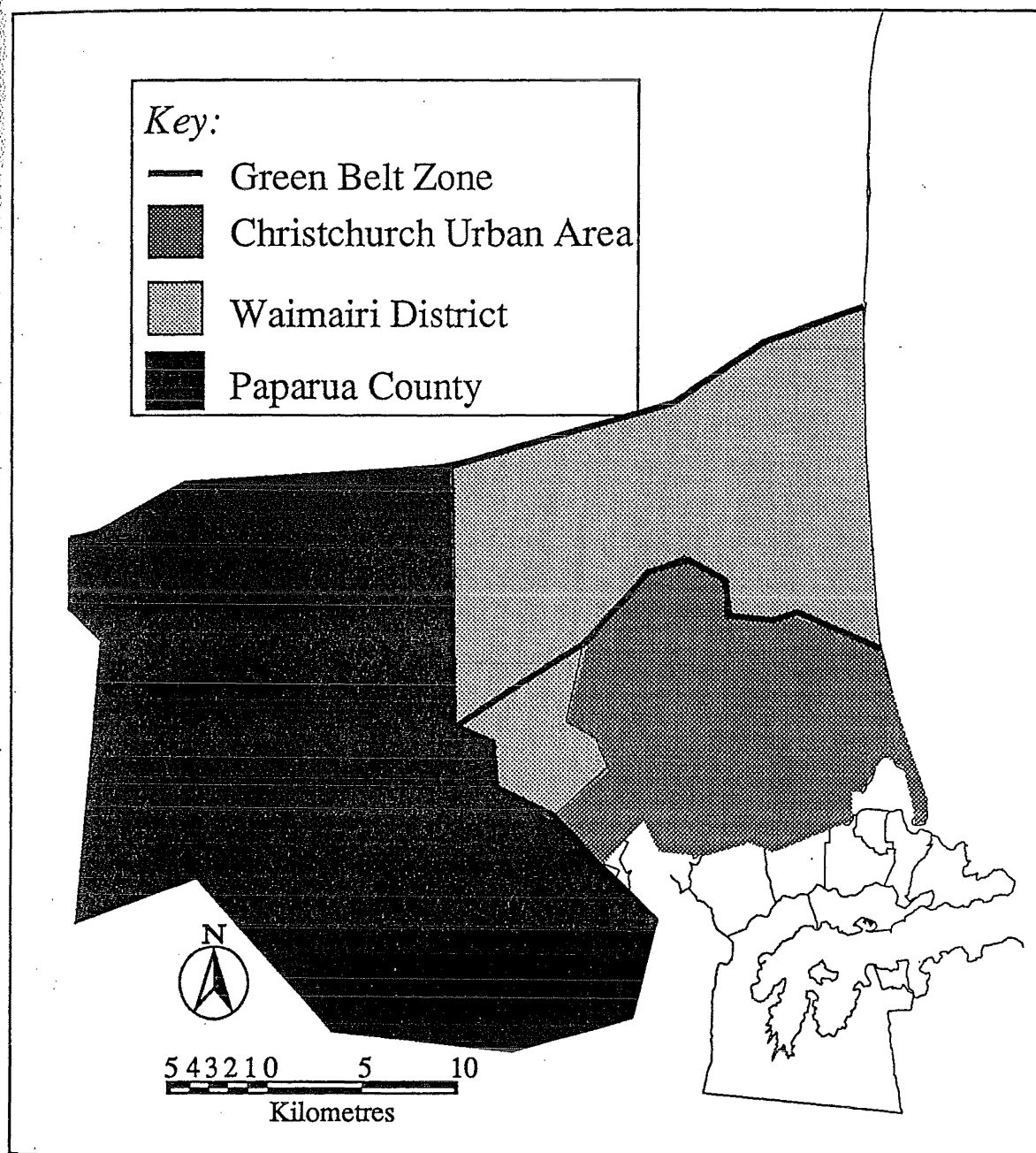


Figure 4.2: Location of District Councils and the Green Belt Zone.

While this map outlines the past boundaries of Christchurch City, Paparua County Council and Waimairi District Council it does not supply the current boundaries of the newly formed Christchurch City Council or the Selwyn District Council which now govern the areas shown in *Figure 4.2*. Their exclusion is because the new councils are still currently using the stipulated regulations which adhere to the previous councils' boundaries. However at the time of writing this thesis the new councils were engaged in drawing up new district plans. This will see the end of the practice of existing ones relating to land development and other regulations relating to urban sprawl.

Figure 4.2, when compared with *Figure 4.1*, shows that the study areas are located within the Waimairi District and Paparua County Council zones. Only one study area was located within the Waimairi District as this council zone was smaller. Three areas were located within the larger Paparua County. To compensate for the uneven distribution between the number of study areas in each district, a more populated area was located in the Waimairi District. This was to enable a more comprehensive understanding of that area in relation to the information gathered from the other areas. The size of each area being relative to the number of populated dwellings was more important in the decision on each area's size as a preconceived number of surveys was envisaged before the study areas were chosen. While the size of each area in hectare measurements was still significant to the study, it was not however the main guiding characteristic in the initial selection process. By limiting the selection of the study areas to similar sizes in land mass would have disregarded the number of properties in each area. This may have resulted in the selection of areas which were different in size and structure which would not have been successfully comparative. Therefore the number of properties within each study area range from a total of 22 to 30 with the total size of each area ranging in total from 117 hectares to 332 hectares.

The area sizes were chosen mainly on the number of properties in each, it was aimed that each area would have a total surveyable number of properties between 20 and 30. It is interesting to note here that the area with the highest number of surveyable properties was actually calculated as having the smallest total land size. Such differences may also be attributed to soil types in each area and their ability to sustain production as they have a significant influence on land use types. For example those areas that contain smaller properties may be most suited to very intensive types of land use, such as dairy farming or market gardening, because they are situated in an area of good water supply and fertile soils. While it may also be found that the larger land sized study areas with a similar or a lower number of properties, may be less intensively operated due to the unavailability of a regular water supply and the reduced ability of the soil to sustain intensive land use types.

The boundaries of the chosen study areas are guided by road transport routes. Two of the total study areas however are divided within road bounded blocks of land, but no property boundaries have been sacrificed. Some areas were deleted from suggested blocks within road boundaries as a number of properties were unsuitable for surveying. Their unsuitability was due to their inability to fit the criteria of being a land unit used for primary agricultural production or participation. For example some areas were allocated to residential development while others were occupied by schools with an area of land being used for recreational purposes. It is also important to note here that all the chosen study areas are located within the 'Green Belt' zone. Its boundary is also shown in *Figure 4.2*.

The Green Belt zone encapsulates part of the Waimairi District Council area and all of the Paparua County. This zone was put in place by the governing regional council, the Canterbury Regional Council and previously the Canterbury United Council, for purposes of regulating development on urban periphery land and protecting this zone from urban sprawl. Development within this zone is guided strictly towards sustainable land use.

This outline has summarised the location, boundaries and governing authorities of the chosen study areas. The general size and property amounts have also been discussed. It is important to this research to discuss the reasons for the selection of each study area as particular areas have been shaped and selected in order to efficiently fulfil the objectives. The second part of this chapter will examine the individual shape and nature of each of the study areas selected.

4.3. THE STUDY AREAS.

4.3.1. Study Area One: Ladbrooks.

The location of the Ladbrooks study area in relation to Christchurch City and the other three remaining areas was shown in *Figure 4.1*. Ladbrooks is located south of the city and is situated within a distance of two kilometres from the nearest suburban residential zone. Ladbrooks is located within the past Paparua County district and is 331.9 hectares in size. The properties within this area range from 0.8 hectares in size to 44 hectares with an average size of 15 hectares. The nature of the Ladbrooks area is shown in *Figure 4.3*. This area is bounded by an imaginary line which surrounds selected individual properties but also follows the line of Ellesmere Road in the west and Hayes Road in the southeast region. The reason for using property

boundary lines and roads as boundary guides, is due to the suitability of the assorted properties on both sides of Leadleys Road and McDrurys Road. These properties are relatively small in size, below 25 hectares, and were observed to be operating hobby farm ventures.

Within the study area it was found that five properties were not suitable for survey. These areas have been shaded and can be seen in *Figure 4.3*. Their exclusion was because they were residential land units, meaning the land surrounding the located dwellings and buildings was used only as garden space or storage. Also in this area is a small two-room primary school which occupies approximately one hectare of land and contains a school house and hall.

The soil type in this region is rich in fertility which has allowed the area to be intensively farmed on small land units. Much of the soil composition can be recognised as Kaiapoi silt loam covering a clay and sand base which allows for the growth of both commercial crops, pastures and market gardening ventures. Some properties in this area are located on a zone of peat soil making it moist and devoid of irrigation systems. Therefore the soil type in this area enables any of the farming ventures to be free of severe drought conditions even if there is a low level of rainfall in a certain season. The traditional land use in this area was identified as dairy farming.

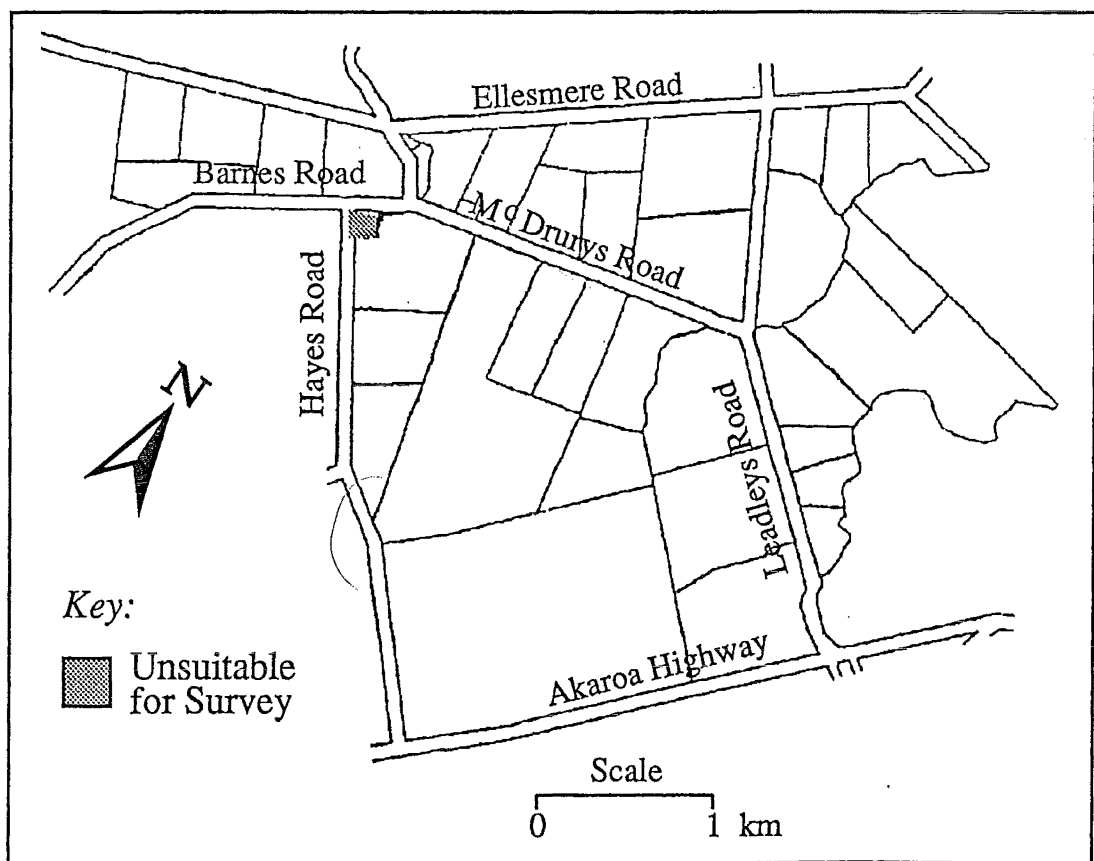


Figure 4.3: Ladbroke Study Area.

4.3.2. Study Area Two: Prebbleton.

The Prebbleton study area, also situated within the past Paparua County district, is located southwest of Christchurch. Like Ladbroke it is located within a distance of two kilometres of the nearest suburban residential development. *Figure 4.4* gives a clearer indication of the exact size and structure of the area. This study area is partially bounded by road transport lines and property boundaries. Excluded from this area is a substantial section of residentially zoned properties. These properties are part of the settlement at Prebbleton. In total this area is spread over 236 hectares of land and includes 27 properties with the average size of each property being 8.7 hectares in size. However the range of the size of properties range from one hectare to 22.8 hectares in size, therefore showing there may be some differences in land use on each property and that there may also be differences in the way these properties are operated, for example were they being operated on a full-time or part-time basis.

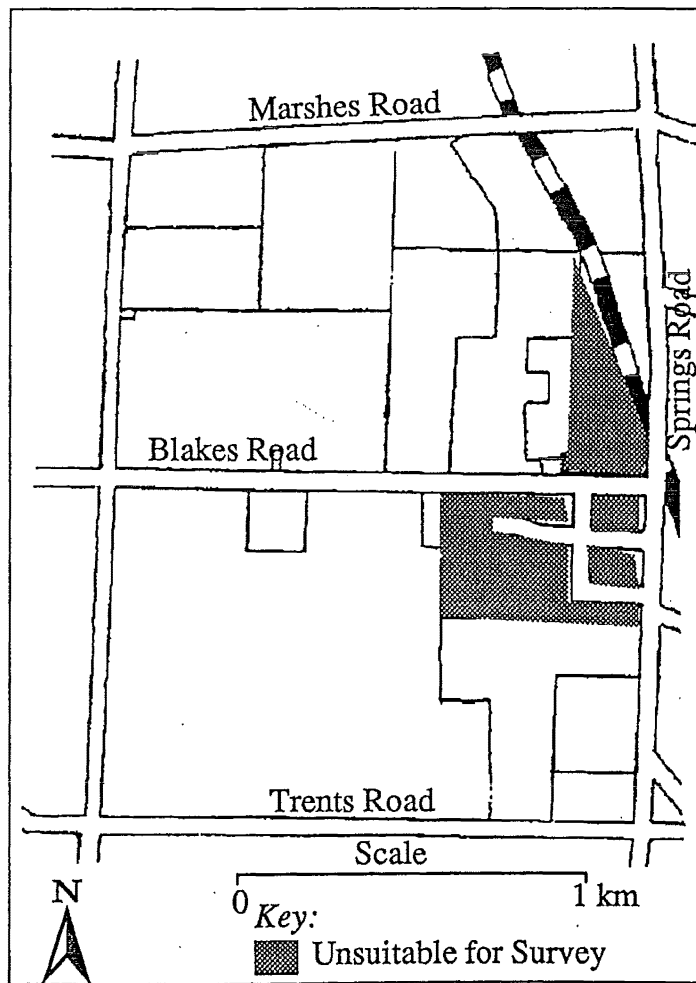


Figure 4.4: Prebbleton Study Area.

This particular study area was chosen because it had recently undergone a considerable amount of farm subdivision. One particular farm had been reduced from a total of 125 hectares to allow for the provision of 16 lots of separate titled land that had been sold and is still for sale. These lots have ranged from one hectare to 8.4 hectares in size. The importance of this phenomenon is that it provides variation from the other selected areas which have not undergone such large subdivision of land as recent as this case. This will also help to provide comparisons later in the research.

This area differs in terms of soil type and fertility thus having an immediate influence on the type of land use operations. While most of the area is Eyre-Paparua silt loam it also includes a fine sand, making the area drier than the Ladbrooks area. This is a consequence of the area being higher above sea level than that of Ladbrooks. Prebbleton is situated 25 metres above sea level while Ladbrooks is only 15 metres. This therefore allows for faster drainage in the Prebbleton area. Consequently horse grazing and training and market gardening have been recognised as the traditional land use.

4.3.3. Study Area Three: West Melton.

The West Melton area is located west of Christchurch City, approximately 3 kilometres from the nearest suburban residential zone. The structure of the area is shown in *Figure 4.5*. Unlike the previous two study areas, the West Melton area is completely bounded by transport routes, but also lies within the past Paparua County Council district. The total size of this selected area amounts to 308.7 hectares, with the average size of each property being calculated as 11 hectares, their sizes ranging from the smallest of 2.8 hectares to the largest of 33.4 hectares. Also differing from the other two areas is the non-exclusion of any property within the allotted area. All the properties are pertinent to the study. This area was chosen for study because it was further from a suburban region than any of the other study areas, but still remained within the 'Green Belt'.

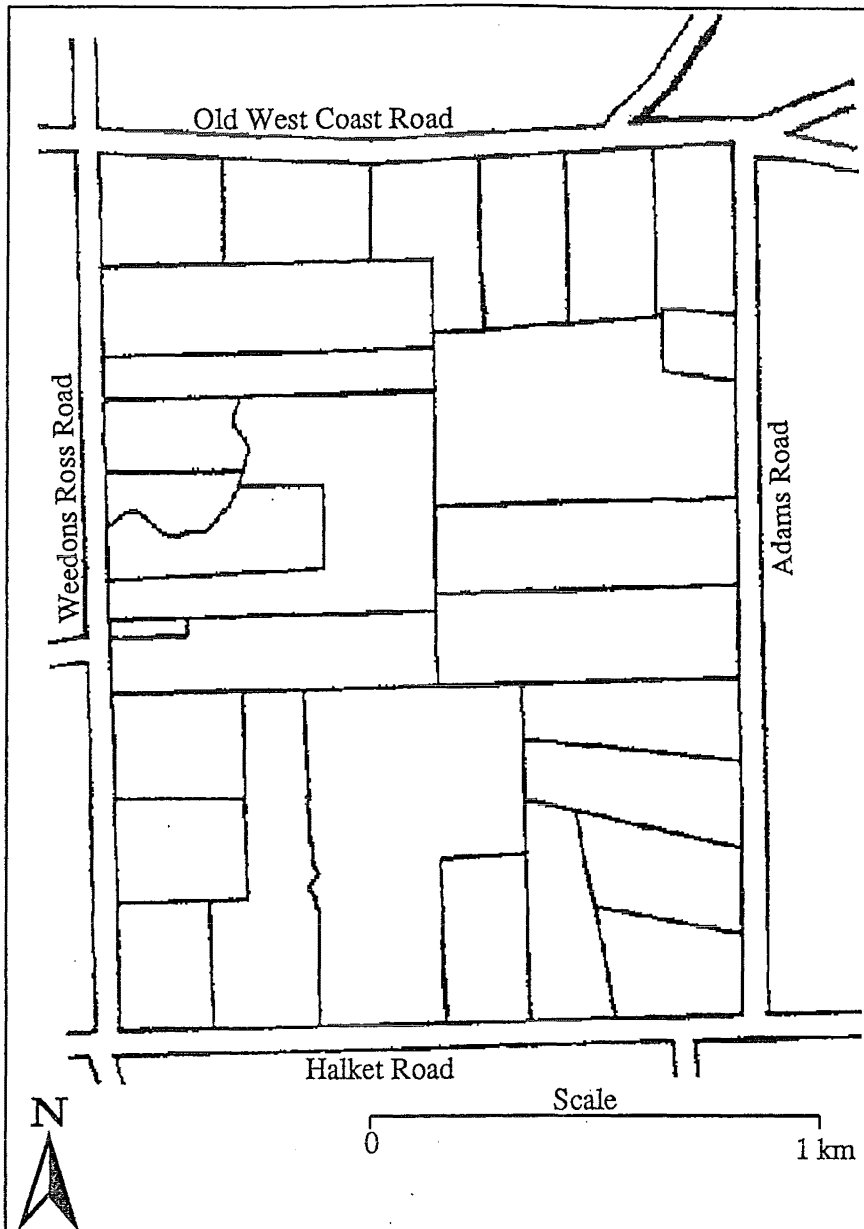


Figure 4.5: West Melton Study Area.

This area is prone to very dry soil conditions even though it is situated close to the Waimakariri River. Several factors contribute to the dryness and lack of natural soil fertility. Due to its considerable height above sea level, 25 metres, this area drains quickly leaving the soil low in natural water capacity, similar to the Prebbleton case. Although the area consists mainly of a shallow Eyre-Paparua silt loam which has been deposited by the nearby river, there is also the composition of Halkett Yellow Brown sands which contribute to the dryness of the area. The soil is also very stony. With dry soils and its stony nature, this area requires extensive rock extraction and irrigation in order for it to be used for any intensive market gardening, orcharding or cropping operations. Not only does the soil composition deter much of this type of development but the added influence of strong, warm and dry northwesterly winds makes the area prone to extremely dry summers and requires extensive

shelterbelt protection in the form of live hedges. The traditional land use was recognised as sheep farming and horse grazing.

4.3.4. Study Area Four: Marshland.

The fourth and final area which was surveyed in this research was located in the district of Marshland which is situated in a northwards direction of Christchurch. This area is within the past Waimairi District Council region. The smallest of the four study areas, Marshland covers 117 hectares but includes the largest number of land units, 30 in total, ranging from 1.7 hectares to 7.7 hectares in size, with an average size of 3.9 hectares. This area lies within one kilometre of the nearest suburban residential settlement.

The complete structure of this area is shown in *Figure 4.6*. There was only one land unit, a primary school, which was excluded from the survey. The area is made up of two blocks which are separated by Quaid's Road. Marshland was chosen specifically because it varied from the other three in terms of soil composition, land use types and its location within a close range of an urban settlement, and also because it was located within a different district council boundary. With the area being located within a different district council zone it also enabled comparisons in development to be drawn between the other three areas. Not only would this enable the planning restrictions on land use to be compared but also their influence upon the operation of hobby farms and full-time farms in the area.

In terms of soil characteristics this area consists of a low lying, swamp-like structure which is predominantly a wet Tai Tapu Gley. The need for irrigation here is minimal if not non-existent as the land stays moist year round and can be affected by surface flooding in winter months and times of heavy rainfall. The traditional land use types in this area have been dairy farming and market gardening. Therefore this area provides a contrast between two different council planning authorities, different soil types and land use along with the influence of a very near residential zone.

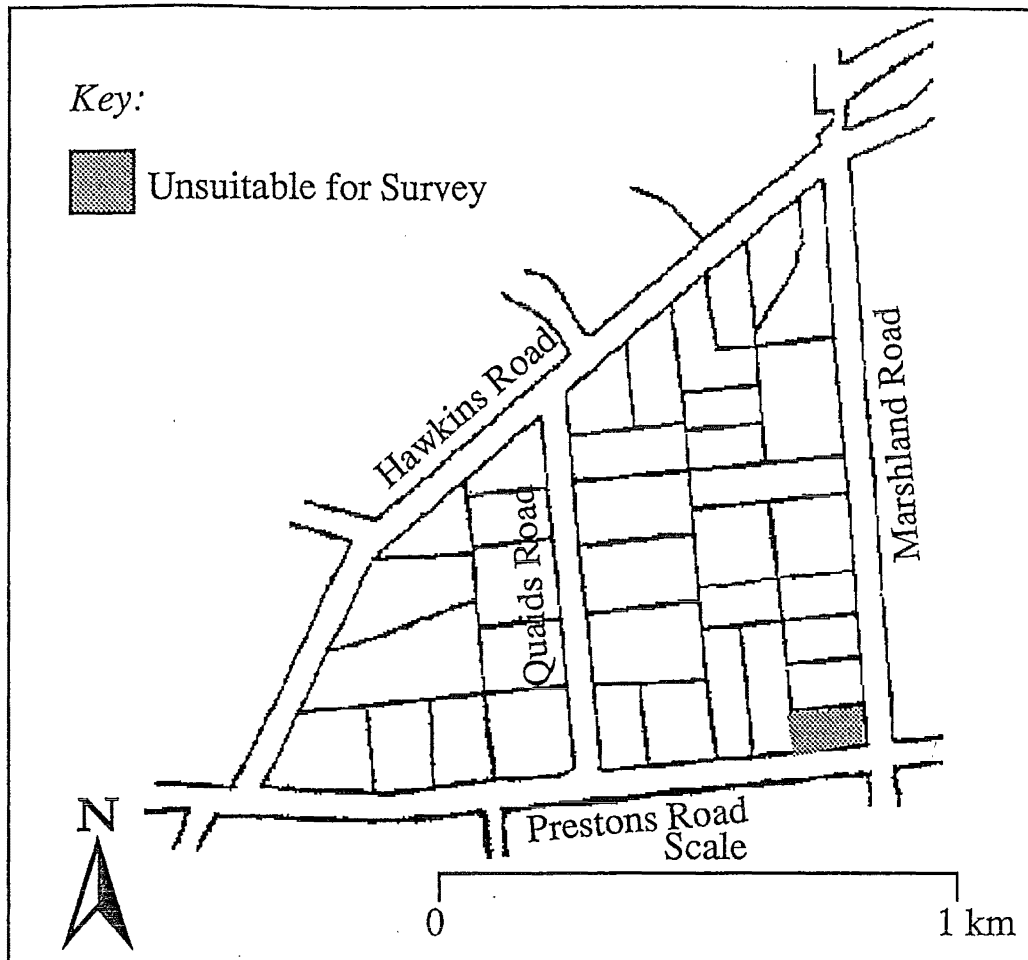


Figure 4.6: Marshland Study Area.

4.4. CONCLUSION.

From the outline of the composition of each study area a background is given for the reasoning of selection of each area and the way in which they intend to help illustrate the role of hobby farming in land use change in the urban periphery of Christchurch. While one large area could have been chosen for study it seemed more practical and more representative to select four different areas which showed a comprehensive view of the whole of the Christchurch urban periphery, not just part. By selecting areas that have differences also allows for the comparison of each area with the others and provides more conclusive and representative results to be drawn.

Having outlined the nature of the study areas it is now possible to discuss the research methodology.

CHAPTER FIVE: RESEARCH METHODOLOGY.

5.1. INTRODUCTION.

This study has required the use of many types of information gathering techniques. It included consultation of wide ranging texts and the analysis of base level field data. To support the rest of the study, study areas were selected within the urban periphery of Christchurch City. Within each area data was collected in the form of observations of each land unit; information collected from Valuation New Zealand in Christchurch; information tabulated from a questionnaire which was distributed to each land unit, which contained a household living unit and information from the Canterbury Regional Council and the Christchurch City Council.

This chapter explains the field work. A description is given of the nature of the field work undertaken in each study area and the analysis of data recorded from the relevant institutions. While the results gathered from the distributed questionnaire provides the main emphasis of the study much was also owed to the back-up information gathered from Valuation New Zealand, the Canterbury Regional and Christchurch City Councils, all of whom supplied planning information. Not only did the data extracted from these establishments allow for additional insights to be drawn, but they also provided access to data which was unable to be gathered from the field.

An explanation of the data processing is also given in this chapter. Problems with the design and practice of the data gathering will be discussed as they also play an important role in the accuracy and success of any research which involves a high content of practical application within a given zone.

5.2. BASE DATA.

The initial steps undertaken in this study involved the investigation of suitable areas in which a questionnaire survey could be distributed. As already outlined in Chapter Four, the four selected study areas were chosen with the assistance of staff at Valuation New Zealand. Their knowledge of the type of land uses and farm structures in the urban periphery was invaluable. Property title maps were made available for observation, thus

aiding the location of the land units located in the study areas. Use of the title records held by Valuation New Zealand were made available on a purely confidential basis, on the understanding that no information relating to individual properties would be published.

Valuation New Zealand is a national company which is directly involved in valuation of properties for both public and private use. Most, if not all, New Zealand property titles are located within a valuation district with each property containing its own descriptive information records. These records included the past and present valuation of each titled property including the valuation of the land itself and also the dwelling valuation. Also available on these records were the current and past land use type of each property and also the type of land zoning within which each property fell, whether it be residential, rural residential or rural. Lists and plans of dwellings along with descriptions of associated buildings and permit notifications were also available, as were soil type descriptions.

To acquire the relevant information which was required for this study a search through each title card for all the land unit uses, ownership and valuation information, for the past and present was done. The last recorded valuation dates were in 1991. From the series of cards which accompanied each land title the following information was recorded: the location of each land unit; the name or names of the present owner/owners; the size of each unit; the collective value of the land unit; the value of the land unit alone - disregarding any building values; the assigned land categorisation; the assigned land zone according to district councils; the assigned land use category; the value for which the land unit was last sold; the soil type characteristics of each land unit and the comments on land use made by the valuer in relation to each individual land unit.

The information held on the present useable cards held a significant amount of past data, specifically in terms of land use systems, some of which dated back to the mid 1950s. This enabled a clear knowledge of each area to be formulated. Information was gathered for the study time period and previous to 1970 so a clearer background of the study areas could be examined.

From the information gathered from these cards specific land category histories were able to be pieced together for each land unit. The land use data was of most importance to this study. The land use data gave an individual summary and background to each unit and was the most important factor in determining land use change in each selected area. Notification of each land unit category also helped in the determining of the units' current operation whether it be a dairy farm or operated as a small holding signifying the possibility of hobby farming operations. The coded nature of much of the

valuation information enabled the relevant data to be collected both quickly and with ease.

5.3. QUESTIONNAIRE DESIGN.

A questionnaire was designed and subsequently administered in all of the selected study areas. The nature of the questionnaire design was carefully programmed to best extract the relevant information needed for this study. While a lot of land use data was collected from Valuation New Zealand, first hand knowledge was necessary to fully compliment the previously collected data. By using both data systems accurate information could be recorded. Valuation New Zealand data was used as a back up vehicle to the questionnaire results.

The aim of the questionnaire was to gather present and past data with the most simple, understandable and adequate technique. The questionnaire which was distributed in each study area can be viewed in Appendix I. The same questionnaire was distributed in each area and to each individual land unit therefore no discrepancies in results can be attributed to differing questionnaire designs.

The questionnaire aimed to do six tasks. The first to find whether the land unit was occupied on a full-time or hobby/part-time basis. Secondly to determine the current use of the land. The third aim of the questionnaire was to uncover what changes had taken place in terms of land use or operation since either 1970 or the date of the current owner's and/or operator's purchase or management. It was also important to establish whether land was being leased and whether or not the stock or crop grown was important to determining what type of operation was occurring; combined with this was the finding of the proportion of household income coming from each land unit. Finally the questionnaire aimed to acquire knowledge about perceptions of planning regulations.

The questionnaire asked a series of questions which either required the listing of livestock or crop numbers and types, explanations of the operations in progress and related planning information, and the ticking of boxes in relation to specific questions. This provided a mixture of answering types allowing for the most comprehensive gathering of data. By restricting the answers to be gathered from only one type of technique may have resulted in a number of problems in terms of calculating results. The use of written explanation, while valuable in describing the types of operations that occur on each land unit, can not be always be related to the question. Different

people can interpret questions in different ways. Written explanations are more likely to be affected by the person's ability to make their thoughts clear and the influence of time. While some people may take a considerable amount of time to comprehensively answer the given question, others may simply provide a brief explanation which may not fully satisfy the aims of the question because limited time has placed a restriction on this.

A complete system of box ticking was also considered unsuitable as it allows only for the regimented answering of questions which can cause some variations to answers to be excluded. This in turn may lead to the exclusion of important information which was unforeseen by the distributor. This also applies to the listing of livestock and crop numbers and reasons, as they can also leave out information that may not be obvious.

An important aim of the questionnaire design was to make it of a reasonable length without having to ask the land unit owner or operator to give up a significant amount of time. It was important that the interviewee did not turn down the answering of the questionnaire because they considered it too time consuming at first glance. Therefore it was important that the questions were made as simple and less time consuming as possible without sacrificing their ability to comprehensively detail the current and past land use systems and operations.

The final composition of the questionnaire was decided upon after two sample designs were tested on two land units within the Ladbrooks study area. By analysing the answers from these questionnaires and considering whether the answers were best fitted to the study and the information required, the questionnaire design was then revised and re-tested and used in a trial analysis which led to the final design which appears in Appendix I.

5.4. QUESTIONNAIRE DISTRIBUTION AND COLLECTION.

The questionnaire was distributed to each land unit with a dwelling or some type of fixed accommodation or building which was observed to include human activity within it. In most cases each separate land unit had a dwelling located on it.

A total of 100 questionnaires were distributed over the four study areas. In the majority of cases this meant the administering of an interview face-to-face with the land unit holder or a 'first contact and recall' system. In the first instance, where and when possible, the questionnaire was undertaken with

the researcher and land unit holder present with the questionnaire being completed on the first and only visit. Other questionnaires, which were considered as the most successful in relation to the accuracy and amount of information gathered, were conducted using a 'first contact and recall' system. In this situation the questionnaire was handed in person to the land unit holder who then filled out their answers to the questions in their own time and without the presence of the surveyor. Following the initial contact the questionnaire was subsequently left with the land unit holder for a period of two days, thus enabling them enough time to consider each question and answer thoroughly. The advantage of this system over the previous one was that more time and thought was given in the answering of the questions therefore resulting in more developed information. First hand contact with the land unit holder also meant that a full understanding of the questionnaire's aim was given and that total confidentiality would be kept in relation to their answers. While this system carried the uncertainty successful retrieval it did allow those that did complete it to submit detailed answers while those done in the presence of the surveyor were often rushed and brief in content.

Collection of the completed questionnaires in the land unit holder's time was either made in person, or if the land unit holder was out, on the arranged day of pick up. If the land holder was unavailable on that day then the questionnaire was placed in their mail box for the surveyor to collect. In cases where there was no person found on properties at the initial time of calling, the questionnaire was distributed in the household mailbox accompanied by an explanatory letter and instructions along with a date of collection. While this technique was the least successful in terms of response, in many cases it was the only practical system as many people worked in employment situated off the land unit. However in these scenarios the collection was undertaken outside of normal working hours thus strengthening the ability to make personal contact with the land unit holder and therefore either collecting the questionnaire or to explain in person the importance of the questions to the study and arrange for a subsequent collection date.

Each questionnaire distribution was started and completed in each study area before distribution began in the next study area. This was to prevent any confusion between data collection dates and times. These surveys were spread over a period of two months, so a maximum of fourteen days was allowed for questionnaire distribution, completion and collection within each individual study area. These were begun on April 5 1992 and completed on May 30 1992. This time was chosen as the weather was conducive to fieldwork and was a time when busy summer season harvesting and production had slowed, therefore allowing land unit holders more leisure time and consequently more time to successfully answer the questionnaire.

The distribution and collection of the questionnaires was also undertaken at a specific time each day. Considering and assuming that each land unit may have a certain production activity which required an amount of labour input, it was decided that a mid-day or lunchtime calling on the study area households would provide the most opportune time to gain the participation of the land unit owner or operator. In cases where upon several calls to the same household did not result in any questionnaire collection a recalling note was distributed which stipulated that if the owner or operator of the land unit was not available at the assigned time then it was asked that the either completed or uncompleted questionnaire be left in their mailbox for subsequent collection. In a number of cases several calls were made upon the same households with no successful completion of the questionnaires. A maximum number of four recalls were made in these cases. On the final call if no questionnaire was collected an immediate interview was undertaken where possible. In cases where no questionnaire was collected the information gathered from neighbouring land units and Valuation New Zealand data provided a more than adequate back-up as was used in the case of questionnaire refusal.

5.5. PLANNING RESEARCH.

Valuation New Zealand information and the conduction of a questionnaire survey in the allotted study areas provided a good insight into the land use changes that had occurred since 1970 on the urban periphery of Christchurch City. However planning and policy changes also play a major role in the occurrence and development of hobby farming since 1970. Such policies can regulate the location and land use type of hobby farms and can also have a significant influence on the subdivision of land units and also the activities undertaken on full-time farming operations.

In the context of this study it was deemed important that both regional and district authority policies be studied as they both interacted and influenced directly the type of land use activities occurring in the Christchurch City urban periphery. In order to gain information at this level a number of interviews and text searches were undertaken to assist with policy analysis. The most important organisations here were the Canterbury Regional Council and the Christchurch City Council and within them their specific planning departments.

While the Christchurch City Council held information on the formation and related policies of the former Paparua County Council and Waimairi District

Council, important data was also acknowledged to be appropriate in the study in relation to the operations of the Canterbury Regional Council and its predecessor, the Canterbury United Council. Most important to this study was the policy structures and operations enforced by these authorities within their regional and district schemes. These schemes were developed in conjunction with national level government acts in the form of the Local Government Act, which was revised in 1974 to compliment and integrate the Town and Country Planning Act. The Town and Country Planning Act was subsequently revised in 1977, and was subsequently redeveloped under the broad and centralised Resource Management Act of 1991. Within the guidelines of these national governmental policies both the Regional and District level authorities were authorised to develop schemes which would enable the regulation and development of all operations in each area. District schemes had to adhere to the upper level governing policies set out in the Regional schemes.

Both the Regional and District schemes of the relevant authorities are important in this study as they directly influence the land use type, organisation and change within the urban periphery of Christchurch City. Research here involved interviews with planning personnel and also the gathering of important policy data from the Regional Scheme and District Council Schemes in relation to settlement distribution, regional development and rural zoning.

5.6. ADDITIONAL RESEARCH METHODS.

In addition to the research methods already discussed specific correspondence was undertaken with the Ministry of Agriculture and Fisheries. Here they were able to offer information from farm monitoring reports and the use of reports relating to the practice of hobby farming.

Other important information was able to be gathered from local media resources in the Canterbury region. Over the period of time since the beginning and before this study various newspaper articles implemented the growing interest in land use change in the urban periphery of Christchurch and the increasing amount of hobby farming operations. Not only has this involved searching writings and reports in metropolitan newspapers such as the Christchurch Press, but reports have also been identified in local newspapers which are circulated within the former district council zones of Paparua County and Waimairi District.

These additional research components and resources have helped to extend the accuracy of the information that was collected in the field and the data collected from Valuation New Zealand, the Canterbury Regional Council and the Christchurch City Council. They are perhaps most useful in the formation of conclusions which will draw upon both the results of the fieldwork and the data provided by planning and property organisations.

5.7. PROBLEMS.

No major research problems were encountered during the course of this study. The advantage of having a back-up system for the data collected by practical means meant that any gaps left by one type of information source could be filled by information from another source. This relates specifically to the survey data and the data recorded from Valuation New Zealand.

The only real problems which occurred in the practical data collection could be identified as the inability to gain a completed questionnaire from every land unit owner or operator. While the survey had a 70 percent response rate, a rate in the closer to 100 percent would have been more representative. Minor set backs occurred when it was found that several questions in some instances were not answered due to the respondent's desire for personal information not to be divulged, specifically peoples age, employment type and their proportion of income derived from their land unit.

In some cases the Valuation New Zealand land use data was incomplete and this made the identification of land use change more difficult. However where gaps occurred there was the ability to use on-site information or utilise the knowledge of the qualified valuers in each study area in relation to particular land units. This therefore enabled any large gaps in information to be filled either partially or totally.

In relation to other research methods much interest and enthusiasm was directed towards this study and most information was made freely available for any length of time.

5.8. SUMMARY.

The methods of research and the chosen research data were specifically chosen to best illustrate and identify the critical information needed in this study. While the questionnaire survey provided the basis of this study, valuation, regional planning and district planning information also contributed significantly to the formulation and display of results and conclusions. The tabulation and projection of the results of this research were analysed and consequently displayed in the following chapters. By using a number of different research sources this has allowed for a more accurate and detailed understanding of the land use changes that have occurred in the chosen study areas from 1970 to 1992, the causes of these changes and the role of hobby farming in them.

CHAPTER SIX: LAND USE CHANGE IN THE URBAN PERIPHERY OF CHRISTCHURCH.

6.1. INTRODUCTION.

The aim of the field study was to investigate the changes of land use systems in the urban periphery of Christchurch, combined with an examination of the influence of hobby farming in the study area. Local influences are particularly important here. This chapter uses the results from the questionnaire survey which was undertaken in the four selected study areas, on-site observations and data collected from Valuation New Zealand. Information from each individual area is combined to provide an overall summary and a series of plotted graphs to enable conclusions to be drawn.

Discussion is initially centred on: land use systems at their present stage and back to 1970; changes in the size of land units with specific reference to farm subdivision; land unit values; land use change on hobby farm units and full-time farm units. Following this an analysis of hobby farming as a cause of land use change is undertaken. In conclusion, comparisons will be made with respect to land use change and the influence of hobby farming over the given time period.

6.2. LAND USE SYSTEMS.

It is possible to identify present and past land use systems from the questionnaire data supplemented by information gathered from Valuation New Zealand. These systems were grouped into two categories; full-time farms and hobby farms. *Table 6.1* shows the total number of farms within each category by the study area location.

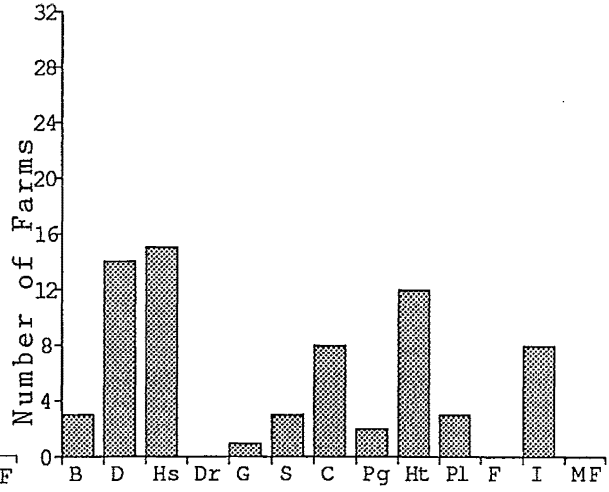
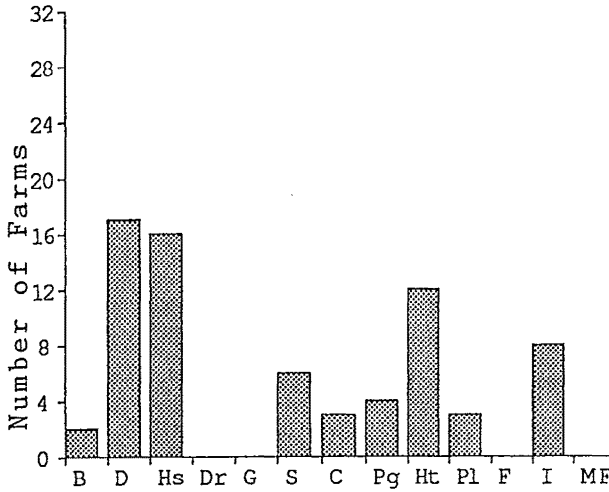
Table 6.1: Number of Full-time and Hobby Farms Surveyed In Each Study Area.

<i>Study Area</i>	<i>Full-time</i>	<i>Hobby</i>
Ladbrooks	6	13
Prebbleton	12	6
West Melton	7	10
Belfast	3	13
<i>Total</i>	28	42

Within these areas it is possible to calculate the land use changes over time. These results are illustrated within *Figure 6.1*. The land uses on each farm were calculated at 5 yearly intervals from 1975 onwards. Here land use data has been graphed in relation to the number of farms within each land use type.

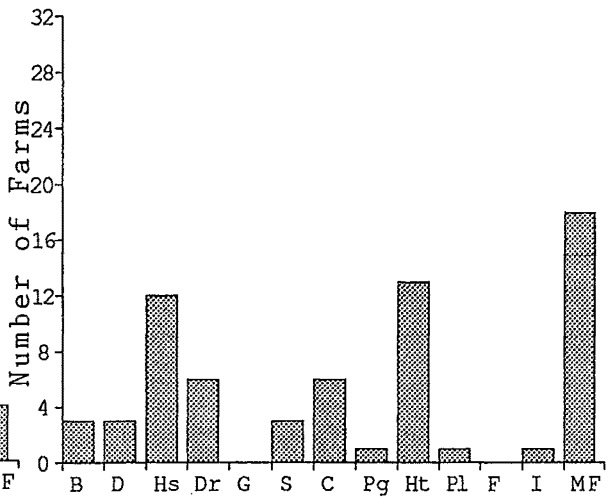
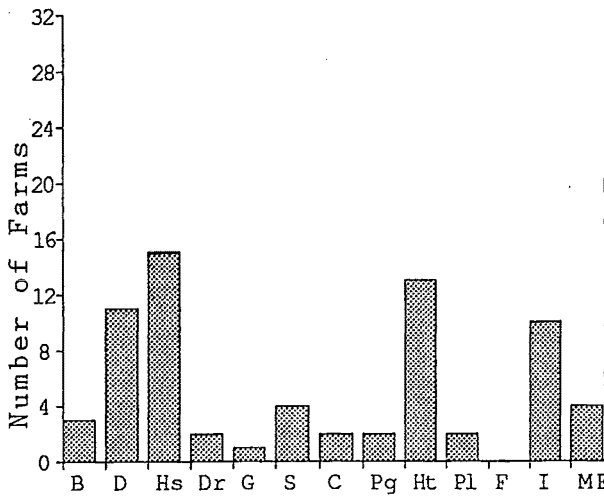
1975

1980



1985

1990



1992

Key to Land Uses:

- B Beef Cattle Unit
- D Dairy Unit
- Hs Horse Training/Grazing Unit
- Dr Deer Unit
- G Goat Unit
- S Sheep Unit
- C Crop Unit
- Pg Pig Unit
- Ht Horticulture Unit
- Pl Poultry Unit
- F Forest Unit
- I Idle Land Unit
- MF Multi-Functional Unit

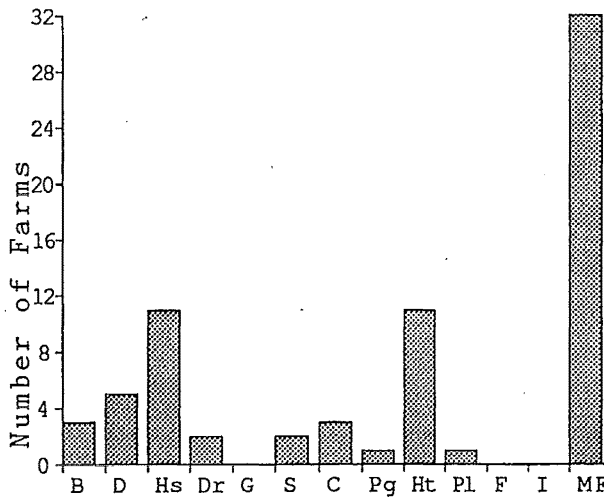


Figure 6.1: Land Use Systems from 1975 to 1992 in the Combined Study Areas.

6.3. OVERALL TRENDS

From *Figure 6.1* significant changes and trends can be recognised in relation to land use change in the urban periphery of Christchurch. The graphs here illustrate how significantly land uses have changed since 1975. During the 1980s, dairying, cropping, pigs, and poultry operations decreased, while grazing of horses and training establishments increased, as did sheep. However the most significant change over this period was recorded in the area of idle or vacant land. While the amount of vacant land consistently increased from 1975 to 1985, there was a dramatic turn around between 1985 and 1992 which suggests idle farms had been redeveloped into functioning units over this period. Coinciding with this has been the high increase in multi-functional or diversified land uses. Diversified land is associated with full-time farming which has developed an additional land use to support the main existing system, while multi-functional land use is related to both hobby and full-time farms which undertake a number of different land use operations with no one type being more dominant than the others overall.

Surprisingly the number of beef cattle units has stayed at a significantly low level throughout. This type of farming is an intensive type of land use but is one that has not expanded within the study areas. However a number of multi-functional units include beef cattle grazing. The raising of such cattle can result in high economic return in a short period of time and requires only a small area of land. To develop a singular beef cattle unit which is full-time a larger area of land would need to be used than is available on holdings in the urban periphery. Therefore beef cattle are more prevalent in small numbers within multi-functional units.

Dairy farming, which has been a traditional use on the urban periphery, has decreased significantly over the study period. Unlike beef cattle, dairying has not moved significantly into the multi-functional zone. This is because dairying units have been redeveloped as new land use systems either by the same owner or new owner. Only a small number of dairying units have incorporated other land use systems to become multi-functional units. The same type of scenario has occurred in relation to pig farming units which have either diversified or have been redeveloped. Horse grazing units have diminished but a number of horses are now grazed within multi-functional units in conjunction with beef cattle and sheep grazing.

One of the most significant overall trends, besides the erosion of traditional land uses, has been the elimination of idle land units in the study areas. This signifies that land previously unused and unproductive has now been

transformed into a some form of agricultural activity, most frequently multi-functional.

The multi-functional category has had the highest increase in farm numbers has occurred. This is as a result of both full-time and hobby farm developments. Hobby farms have a variety of land uses and the intensification on full-time farms since 1975 has often taken the form of diversification. Results from the questionnaire survey showed that 39% of the full-time farms had diversified their land use system. The reasons for this were varied. A portion of those questioned attributed diversification to the need to raise their income due to the rate increases which accompanied the rise in land unit values, while others reasoned that restructuring of food production industries or personal preference were the main cause.

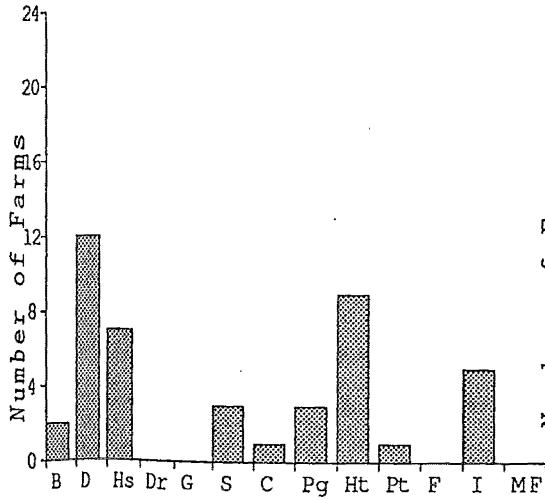
Within the other land use categories only small changes have occurred. Poultry and pig operations have declined marginally while fluctuations in the deer and goat systems have reached the point where there are only two deer farms and no goat farming establishments. However it is their participation in other forms of production which has also contributed to the increase of the multi-functional category.

6.4. LAND USE CHANGE AND HOBBY FARMING.

The development of hobby farms has brought about land use change. A significant number of current hobby farm units have been located on past dairy farm, horse grazing and horticultural units. Land from such operations has been sold and redeveloped as non-full-time units using the land for multi-functional purposes with a varying mixture of horse, sheep, beef cattle and horticulture. *Figure 6.2* illustrates the land use systems on land units which are now operated as hobby farms. One basic trend emerges from this information.

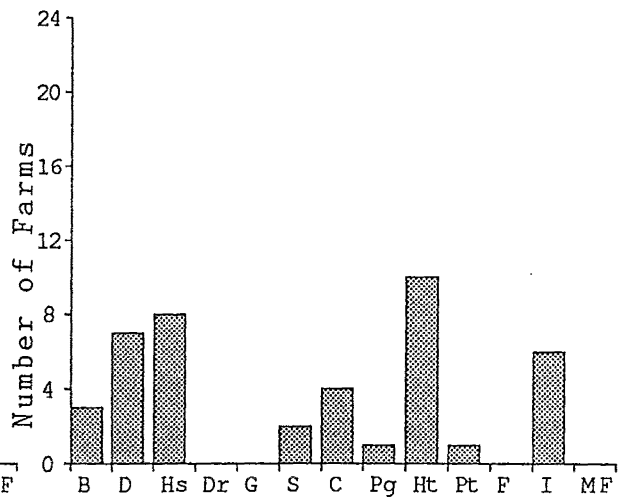
Traditional land use systems in the face of hobby farm development have diminished since 1975. *Figure 6.2* shows how dairy farming and horticultural activities in this area have diminished. This is a direct result of hobby farming developments being undertaken on land once used for these operations on a full-time basis. In turn multi-functional land uses have grown in number. Therefore demonstrating further the influences of hobby farming on land use change, as hobby farms develop multi-functional land uses at the out set and then cause diversification to occur on neighbouring full-time units. Another pattern that emerged during the mid 1980s was the establishment of deer and

1975

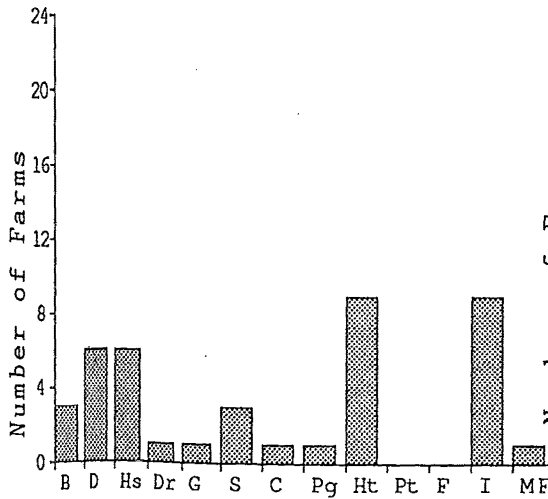


1985

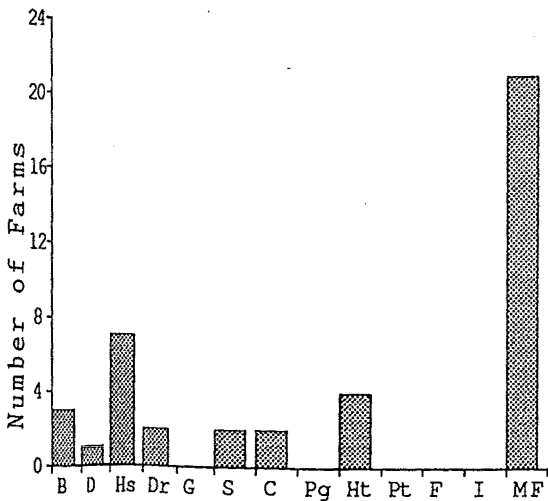
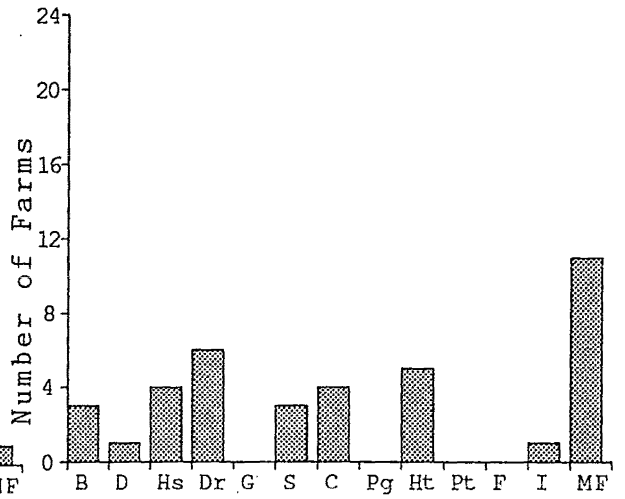
1980



1990



1992



Key to Land Uses:

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- Pl Poultry Unit
- F Forest Unit
- I Idle Land Unit
- MF Multi-Functional Unit

Figure 6.2: Land Use on Hobby Farm Land Units, from 1975 to 1992.

goat operations, as a result of hobby farming. Deer and goat farming is a highly intensive and productive land use which offers a high return on low labour input and is suitable for smallholding farming, however its growth has diminished somewhat in the early 1990s. Accompanying these shifts has been the constant level of horse grazing or training establishments and beef cattle units. Both of which are suitable for hobby or full-time farming.

One feature which provides an interesting insight into the role of hobby farming in urban periphery land use change is the decreased level of idle land in the study areas. Since 1975 hobby farms have eliminated land units which have had no degree of production, thus dispelling the belief that hobby farms create large areas of unused land. While it is still possible that hobby farms do not utilise land to its full potential it can no longer be assumed that they create unproductive residential lots in the urban periphery of Christchurch.

These results show that land use change in the urban periphery of Christchurch has been caused by the development of hobby farm operations. The most dominant trends can be characterised as being the growth of multi-functional farms and the decline of traditional farms in the urban periphery of Christchurch. While this describes some of the phenomena occurring in the study areas it does not suggest clearly the contributing factors to these changes. The following sections of this chapter will address the reasons for these land use changes.

6.5. CHANGES IN UNIT SIZE.

Changes in land unit size give insights into how land use in the urban periphery has changed. As land units become smaller in size they become incapable of sustaining an extensive land use. For example dairy farming can not be operated as full-time commercial units if located on only 4 hectares of land.

From the selected study areas it was found that a total of ten farms had either sold a portion of their total land unit, which was owned in a separate title, or they subdivided a portion of their total land unit owned under one title. In each case the total land unit size was reduced and consequently led to land use change. *Table 6.2* lists the number and areas of land where land units have been sold and subdivided.

Table 6.2: Land Title Sale And Subdivision Since 1970.

<i>Study Area</i>	<i>Units Subdivided</i>	<i>Units Created</i>	<i>Land Area (ha)</i>
Ladbrooks	5	11	81.0
Prebbleton	2	17	181.4
West Melton	1	2	10.9
Marshland	2	4	14.8
<i>Total</i>	10	33	288.1

The number and size of land subdivision varied between each area. Most were undertaken within the Ladbrooks and Prebbleton areas and their activities make up the majority of the resulting totals in the number of units created and the land area. The total area of land which was affected by land subdivision or land title sale was high in relation to the small size of the study areas and this contributes to the land use change which has occurred.

Subdivision and land title sale have provided a number of new units which are smaller in size and suitable for hobby farms. This is particularly the case on small units. *Figure 6.3* illustrates the way in which hobby farms are located on small sized land units and compares this with full-time farm sizes.

Hobby farms have had a significant influence on land use change. They are larger in number and smaller in average land unit size, 7.25 hectares. Of those developed from previous full-time farms, 85% were associated with land use change. In the case of the Prebbleton subdivision those 16 lots sold have resulted in full-time operations as they are required to do so under the regulations set out by the operating district scheme. As such changes have occurred in farm size it can be assumed that this has also affected land prices in Christchurch's urban periphery. The development of smallholdings and their demand has created an increase in land values, not only on these units but also on adjacent land which is occupied by full-time farmers, therefore increasing the need for land use change.

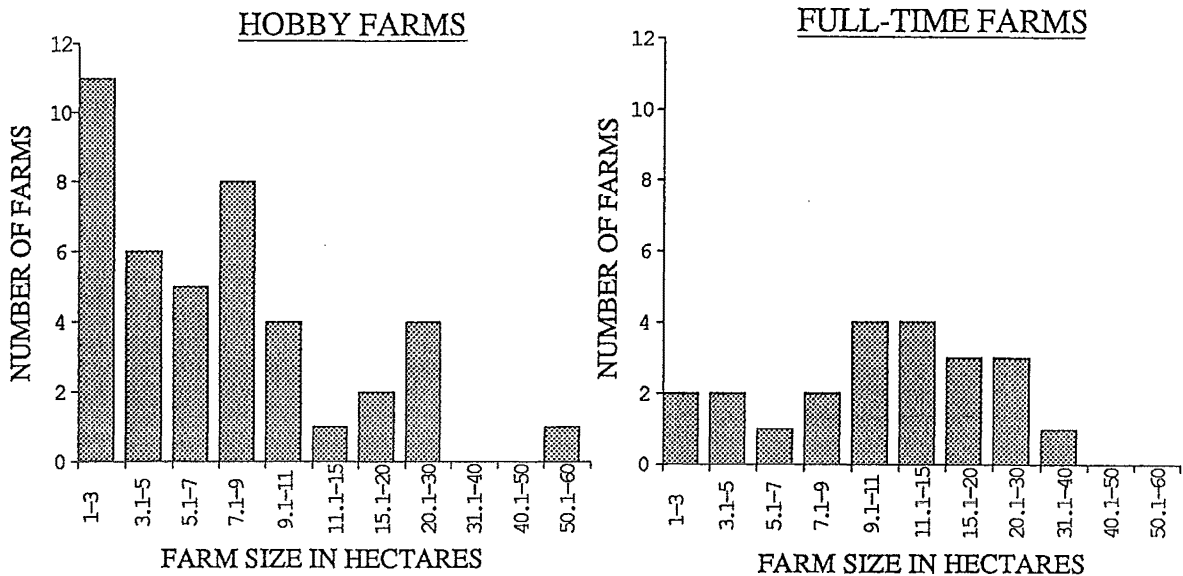


Figure 6.3: Distribution of Farm Sizes 1992.

6.6. LAND UNIT VALUE CHANGE.

Significant increases have occurred in land prices in the urban periphery of Christchurch City. From the surveyed units it was possible to calculate the average collective value of each land unit. Collective land value is the value of both the land and improvements, such as fencing and housing. Land values are solely the value of the land, without improvements. While inflation and land market values fluctuate it is possible to recognise the changes that have occurred during the study period and amongst the questioned land units. Figure 6.4 illustrates the rise in average land value and collective land value over the total study areas.

This graph shows that significant increases in land values have occurred since 1970. While the land value has risen significantly, doubling over the 1975 to 1980 period, the increase in the collective value of land in the areas has consistently increased from 1970 at a higher level than land values. This phenomenon, to a large extent, was due to the increased number of houses built on small properties. As more dwellings are built on land units the land value increases thus causing local authority rate levies to increase.

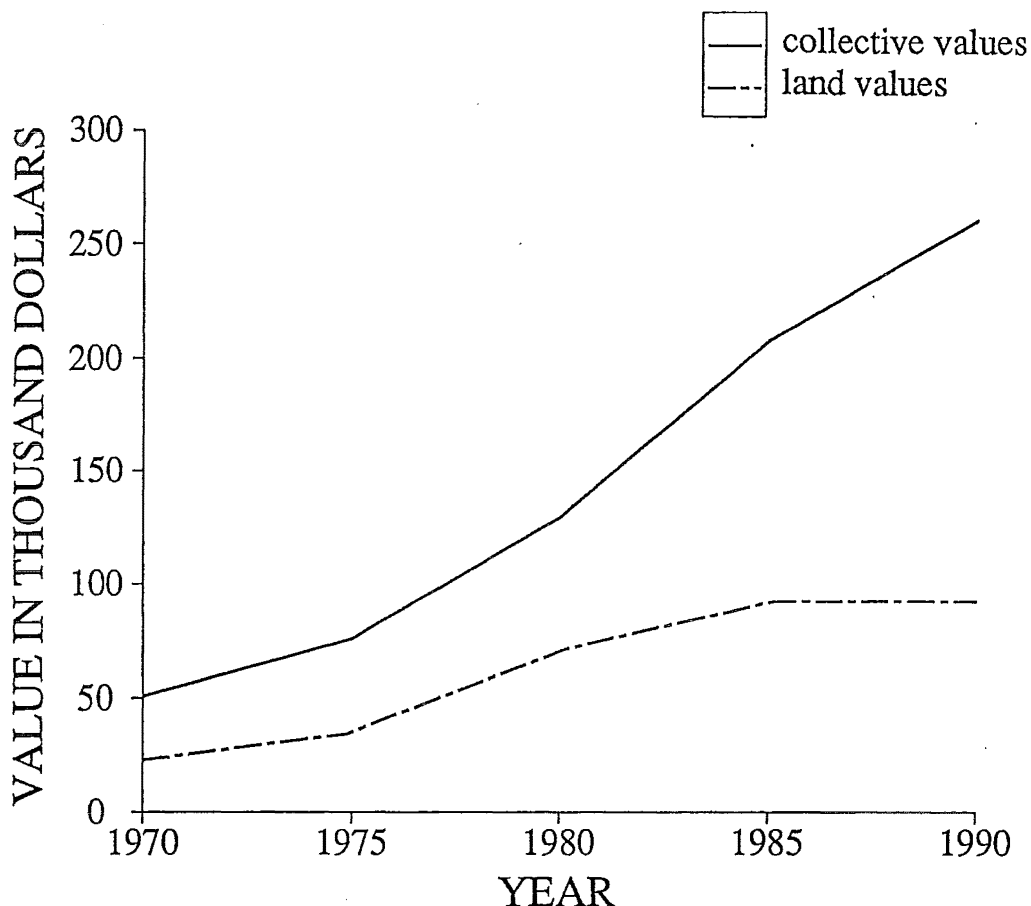


Figure 6.4: Land And Collective Unit Value Change, 1970 to 1990.
 Source: Valuation New Zealand (1992).

Figure 6.5 breaks down the data displayed in Figure 6.4 into farm categories. From these graphs two scenarios can be identified. The first is that hobby farm collective values mirrored land value increases. Secondly full-time farms have displayed that their collective values have increased at a higher rate than their land values. This signifies that the gap between collective and land values is higher amongst full-time farm units. In turn this identifies that full-time farms have more value placed on their improvements than their land area. Consequently this highlights that the value of hobby farms increases at a higher rate than land value on full-time farms. This is a result of the increased demand for hobby farm units in the urban periphery of Christchurch.

In relation to land use change, an important issue which has been recognised is the effect of increasing land values. District council land rates are constructed on the valuation of land units from Valuation New Zealand, as the collective and land values rise so does the amount of payable land rates. As rates rise there is a need for extra farm income or off-farm income to compensate for the increase in outgoings. This has resulted in the involvement of full-time farm operators in off-farm employment, land use intensification in the form of diversification or the leasing and sale of land, therefore contributing to land use change. Hobby farms may also need to

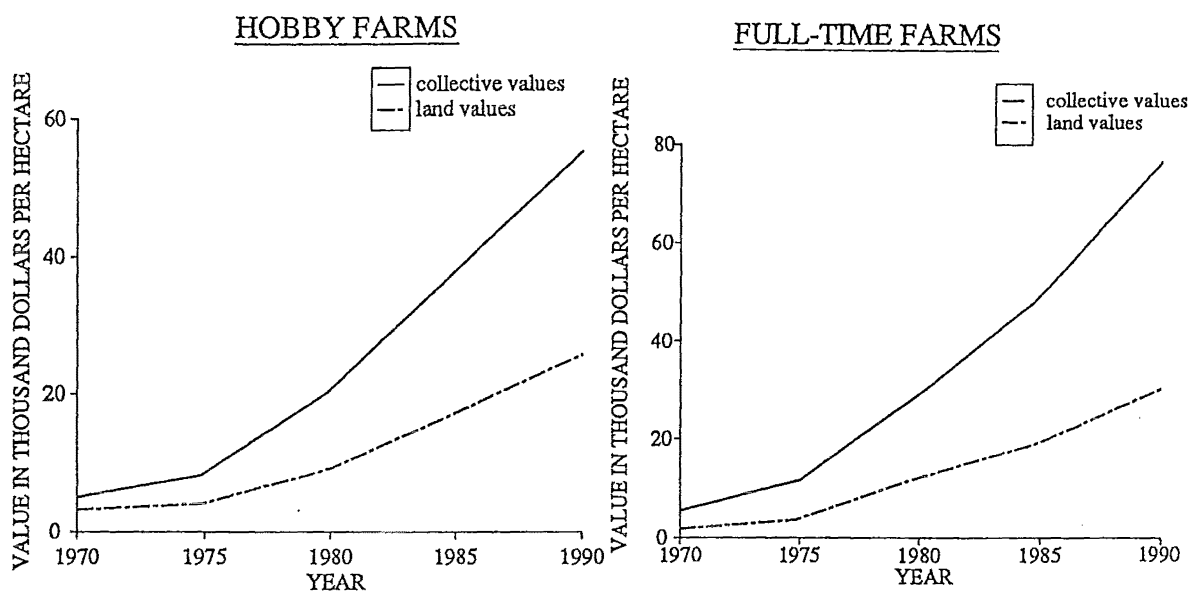


Figure 6.5: Land and Collective Values from 1970 to 1990.
 Source: Valuation New Zealand (1992).

undertake similar actions but it is less likely to occur in their case as they are already subsidising their operations with off-farm income.

Land use change and land value change are closely linked within urban periphery zones. Hobby farming on smallholdings has caused land values to rise resulting in the change of land operation and use with both hobby farming and particularly full-time farming sectors. This section has identified the land value changes caused by hobby farming. The following section closely examines the other impacts of hobby farming as a cause of change in addition to those already discussed.

6.7. HOBBY FARMING AS A CAUSE OF CHANGE.

The structure of hobby farms has a significant impact on the land use systems which are operated on them. The main influences which result in land use change in the urban periphery of Christchurch are displayed in *Table 6.3*. This table provides insights into the structure of hobby farming and its

comparison to full-time farm operations. The most important factor influencing land use change is the hobby farmers' desire to have a country lifestyle and participate in off-farm and non-farm employment.

Three specific dimensions of hobby farm characteristics are connected to the land use systems engaged on their land units. These are: the ownership type and participation in which time category of employment; the age and gender of off-farm workers; the type of employment undertaken off-farm. Firstly, *Table 6.3* illustrates the type of ownership and operation undertaken on both farm categories. Both full-time and hobby farms are owned within the dominant owner/operator and owner sectors, characterising them as privately owned units where the owners make most of the decisions and provide labour and financial inputs. However the difference between these two farm categories is the proportion of off-farm employment undertaken by them. From *Table 6.3* it is clear that hobby farmers engage in off-farm full-time employment more than full-time farmers, while full-time farm off-farm workers are more common in the part-time sector. This illustrates that there is more time available for farm operation by full-time farmers as their off-farm employment roles are less time consuming. In relation to land use systems full-time farms are more capable of operating land use types which are labour intensive, cost effective and more traditional in type.

The age and gender of off-farm workers also demonstrates how hobby farm, off-farm employment is undertaken largely by males aged between 31 and 50 years of age. In comparison full-time farm, off-farm employment is more likely to be undertaken by females aged between 15 and 30 years and 41 to 50 years. This signifies that hobby farms are run as lifestyle units and operated on a part-time basis by occupants with full-time occupations. Full-time farms, on the other hand, are supported by young and middle aged female workers who have part-time jobs. As full-time farms in the study areas are occupied by owner/operators it is likely that they are family farms which would have once used family household members to help work the land, however, now any excess labour, usually female, is sent off-farm to help gain more income to support the the farm unit. These factors are supported by the type of employment undertaken by such workers.

Off-farm employment from hobby farming units is typically high in socio-economic status. This is because expenses related to land unit operation are high if they are not economically maintained thus resulting in the need for highly paid employment revenue to subsidise the farm operation. *Table 6.3* illustrates how hobby farmers are occupied within more financially rewarding and skilled jobs than their counterparts in the full-time farm category. Full-time farm, off-farm workers, who are more likely to be female, are employed within less time consuming and career orientated jobs such as retail and

Table 6.3: Characteristics of Hobby Farms and Full-time Farms Compared.

<i>Characteristic</i>	<i>Farm Category</i>	
	<i>Hobby</i>	<i>Full-time</i>
Ownership Type		
owner/operator	47%	50%
owner	45%	36%
part-owner/operator	8%	6%
part-owner	--	4%
manager	--	4%
Off-farm Work		
Full-time	83%	42%
Part-time	30%	54%
Age of Off-farm workers		
15-30 years	17%	29%
31-40 years	35%	16%
41-50 years	32%	37%
51-60+ years	14%	16%
Type of Off-farm Employment		
business owner	26%	15%
professional	11%	7%
managerial	9%	7%
service	14%	7%
clerical	9%	3%
retail	15%	19%
skilled labour	14%	31%
unskilled labour	2%	11%
Gender of Off-farm Workers		
female	33%	57%
male	67%	43%

skilled labour occupations. Participation within business ventures and professional/managerial employment is not possible for full-time farm, off-farm, workers as they have a commitment to on-farm operations.

Therefore these three important characteristics show that hobby farms are incapable of supporting land uses which are time and labour consuming, for example traditional land uses on larger land units. This may further explain why hobby farms are prevalent within the multi-functional land use category, where labour requirements are lower. The figures in *Table 6.3* reflect that hobby farmers are either unable to or do not want to develop their land unit as a full-time operation. Their land unit is small and they utilise either intensive farming systems or those that require low labour input and they gain their income off-farm in order to sustain the land unit. Coinciding with this information is the characteristics of hobby farms operation in relation to full-time farms. these are tabulated in *Table 6.4*.

Similarities are evident between both farm categories regarding past land use change and change in the future. *Table 6.4* shows that both hobby and full-time farms are equally likely to change their farm land use types. Similarly they both recorded corresponding results in regard to the anticipation of farm change in the future, whether it be in farm structure or land use. Similarities also occur between the two farm categories in relation to the anticipation of increasing livestock numbers and the selling of the total unit. Three dissimilarities occur though, these relate to the high level of anticipated change in livestock types by hobby farmers, the hobby farmer's anticipation of the sale of a portion of their land unit and the anticipation of crop production by full-time farmers. Overall, the hobby farmers seemed more willing to change their stock type and sell a portion of their land than the full-time farmers. This is because hobby farmers are more financially capable to run risks as their household income does not rely on farm income. This also explains their readiness to sell a portion of their land as they do not rely on it for a high proportion of household income. The relatively high anticipation of reduction of crop production by full-time farmers is a result of the amount of crop production undergone by hobby farmers, which is low. While similarities outweigh the dissimilarities between the two farm categories it was found that the reasons behind the anticipation of change were quite different and that they may be the main cause for land use change.

The table shows that hobby farms were more likely to lease a portion of their land in the future and it was subsequently found that a higher proportion of hobby farmers already leased a portion of their land unit to off-farm operators. However the reasons for leasing this land differ between the two farm categories. The results show that full-time farmers leased out a portion of their land in order to gain income from it, however, the hobby farmers did

Table 6.4: Characteristics of Farm Operations, 1992.

<i>Characteristic</i>	<i>Farm Category</i>	
	<i>Hobby</i>	<i>Full-time</i>
Anticipation of Farm Change	57%	47%
Anticipated Type of Change		
sell total land unit and relocate	12%	15%
sell portion of land unit	12%	--
buy more land	9%	9%
increase livestock numbers	22%	24%
reduce livestock numbers	3%	5%
change livestock type	21%	--
increase crop production	6%	9%
reduce crop production	3%	14%
develop horticultural production	6%	9%
complete land use change	--	5%
lease out portion of land unit	9%	5%
lease in portion of additional land	3%	5%
Proportion of Existing Farms That Had Undertaken Land Use Change Since 1970 or Ownership		
	50%	50%
Proportion of Farms That Leased Land to Off-farm Operators		
	17%	8%
Reasons for Leasing Land to Off-farm Operators		
to gain income from land unit	42%	100%
lack of time due to employment	42%	--
personal preference	16%	--
Proportion of Farms with an Area of Unused Land		
	29%	10%
Reasons for Unused Land		
no development finance	22%	100%
no available time to develop land	75%	--
age restriction	3%	--

so because they wanted to gain an income from land which they did not have time to operate due to their involvement in off-farm employment. Coinciding with this was the proportion of land units which had areas of unused land, hobby farmers again rated higher than the full-time farmers here and the hobby farmers' reasons for this were largely a result of the unavailability of time to develop the land and the lack of finance to develop it. In the full-time farming case land was unused solely because they did not have the finance to develop it.

From all the information analysed in this section one main pattern emerges: hobby farms cause land use change in the urban periphery of Christchurch because they are operated to fulfil the owners' desire to live within the countryside and yet still participate within full-time employment in the city. Hobby farms are run as a sideline to off-farm employment which is the dominant form of household income. In opposition to this full-time farms operate land use systems which are economic land units and more traditional in type and this is reflected in their reluctance to take risks in terms of new land uses as small changes can affect the total land unit operation and consequently the household income.

6.8. CONCLUSION.

From the study undertaken it was found that land use changes in the urban periphery of Christchurch have occurred and that they differ between hobby farming and full-time farming. Evidence has also showed that hobby farming has played a significant role in these changes. Not only have they changed the structure and type of land use on their own land units, but they have also influenced the changes on adjacent full-time units.

Hobby farms have strongly influenced this change by increasing the value of land and subsequently raising rate levies. This in turn has caused full-time farmers to intensify and diversify their land units in order to compensate for higher costs. Connected with this phenomenon is the change in land sizes within the urban periphery, resulting in the intensive or multi-functional use of land by hobby farmers who develop the land for lifestyle purposes.

The structure and farm characteristics of hobby farms also influence the type of land use operated on smallholdings in the urban periphery. This is because they have the ability to engage in full-time work outside the farm, in turn making cost effective, full-time, agricultural production difficult to operate. In most cases they did not want to be full-time farmers. While similarities

were found to exist between full-time operations and hobby types, in terms of the anticipation of land use change it was found that the reasons for this were somewhat different between the two farm categories and may result in further divergent changes in the future.

This chapter has concentrated on the overall patterns and changes of land use in the study areas. In order to probe these changes in more depth we now turn to the four selected study areas to examine the role of hobby farming in each area and to discuss the influence of planning policies upon them.

CHAPTER SEVEN: COMPARISONS.

7.1. INTRODUCTION.

The previous chapter has summarised the aggregate results of the holding surveys for the four study areas. This chapter compares the four individual study areas in relation to hobby farming. Land operation data and planning information have been used to illustrate the changes in land use types and hobby farm development.

Three of the study areas, Ladbroke, Prebbleton, West Melton, are located within the past Paparua County Council while Marshland is situated within the smaller district of the past Waimairi District Council. Comparisons made between the two council zones have provided answers to the influences on hobby farm development. They have been in the form of land development and use and land subdivision. Because the district and county councils were responsible to regional authorities it is also important to acknowledge the influence of the latter especially in regard to green belt boundary location and policies.

7.2. COMPARISONS OF HOBBY FARMING IN THE STUDY AREAS.

This section compares the different characteristics related to land use change in the four study areas. These characteristics relate to land use systems on current hobby farm units, changing land unit values and farm size change. In certain areas similar characteristics and patterns have been discovered.

7.2.1. Land Use On Hobby Farm Units.

The data graphed in *Figures 7.1.1 to 7.1.4* shows the changes of land use on land units now occupied by hobby farms in each study area. Differences in change in each area can be identified. Hobby farms in Ladbroke have undergone a transition from dairy farming and cropping to multi-functional hobby farms. Significant changes took place in this study area between 1985 and 1992. Between 1985 and 1990 dairy farming and beef cattle operations diminished significantly and were then operated as cropping, deer or multi-functional units. *Figure 7.1.1* shows that by 1992 more land use changes had

occurred and resulted in the development of additional multi-functional units at the expense of horticultural, horse grazing and sheep grazing units. The multi-functional units were noted as being both sheep - goat and sheep - crop units.

Prebbleton has undergone only a small amount of land use change since 1975. *Figure 7.1.2* illustrates that between 1980 and 1990 a small number of land units were classed as idle. Before 1980 and after 1990 these areas of land were either operating horse grazing or training establishments, or horticultural units.

Like Ladbroke, West Melton hobby farm units have transformed land into multi-functional operations. This is illustrated in *Figure 7.1.3*. West Melton's multi-functional hobby farms have been developed on land which was once used for pig fattening and horticulture or lay idle. Up until 1980 there was a significant number of land units which were idle and unproductive and an even spread of deer, pig, horticulture and poultry operations. After this period land use on areas now occupied by hobby farms began to be more productive and resulted in the development of multi-functional units with a number of horse training and grazing, dairy cattle grazing and beef cattle grazing units. Multi-functional operations were noted as being sheep - horticulture units.

In the Marshland study area differences to the other study zones are more marked. *Figure 7.1.4* shows that by 1992 multi-functional land uses had developed but not to the extent found in the other study areas. Since 1975 when dairy farming and horticultural market gardening units were the main land uses, this area has undergone significant land use change. Dairy farming operations and market gardens have now been developed as beef, horse, deer, sheep grazing units along with a small amount of cropping. Dairy farming land units were redeveloped at a faster rate than market gardens which were still being operated until 1990 when a drop in number was calculated.

Therefore hobby farming has created land use change in all the study areas except Prebbleton. Ladbroke and West Melton underwent significant multi-functional hobby farm development after redeveloping land used for full-time dairy and crop production, especially in the Ladbroke case, while pig fattening and horticulture full-time units were found in West Melton. In Marshland a more diverse and balanced land use system developed as a result of hobby farms being developed on land units which had been previously operated as full-time dairy farming and market gardening establishments. These changes have reflected changes in land values.

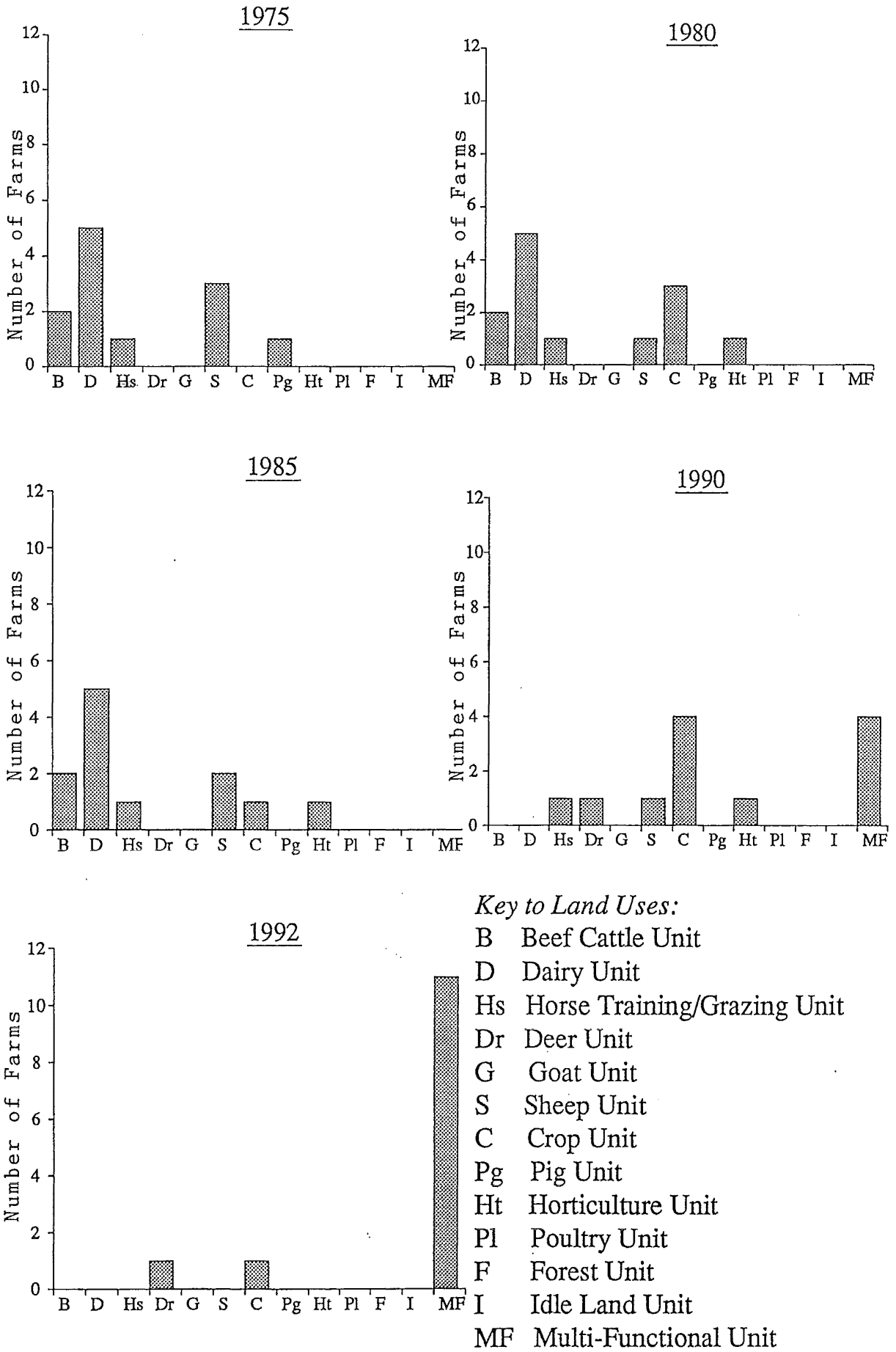


Figure 7.1.1: Land Use Types on Current Hobby Farm Land Units in Ladbrooks, from 1975 to 1992.

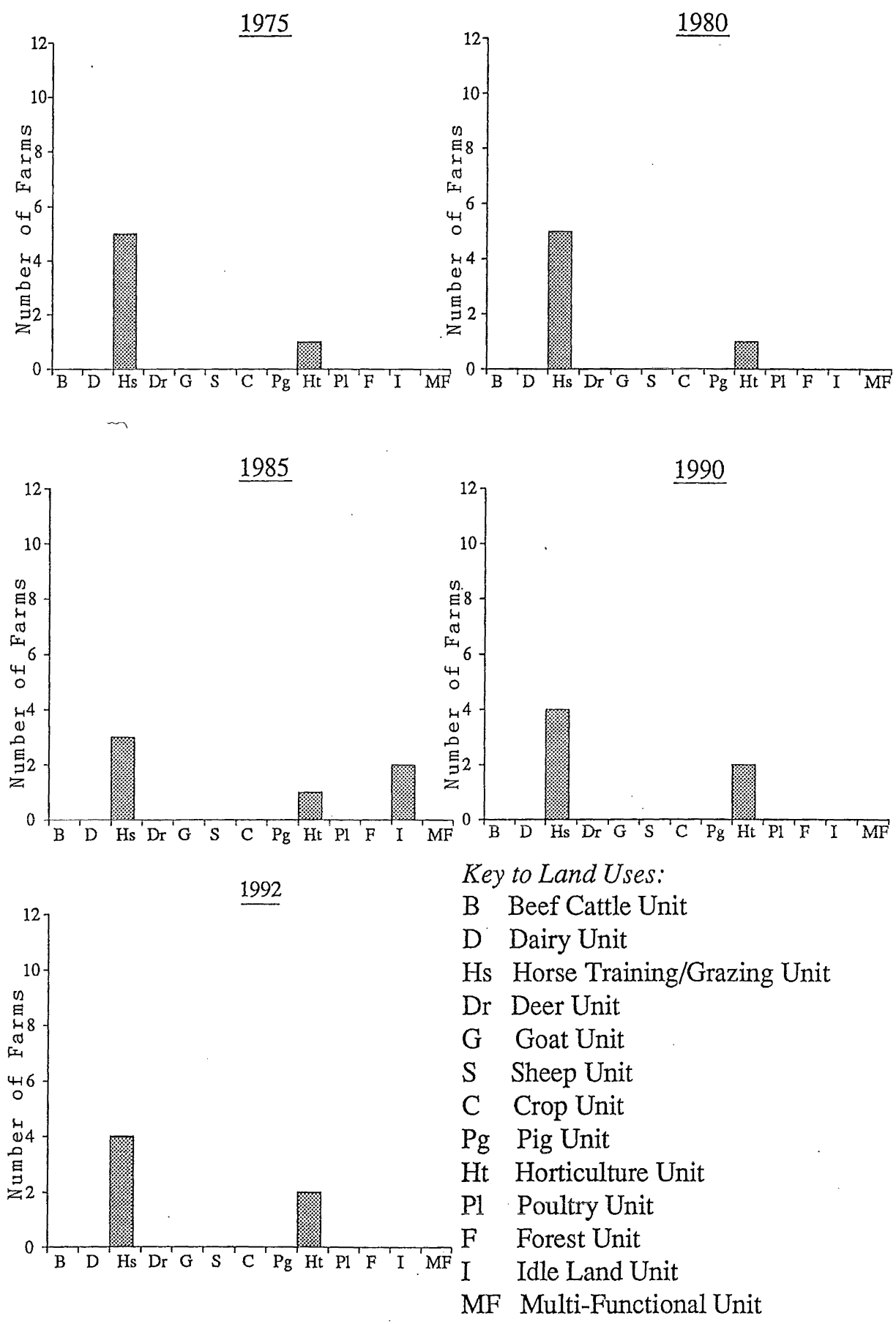


Figure 7.1.2: Land Use Types on Current Hobby Farm Land Units in Prebbleton, from 1975 to 1992.

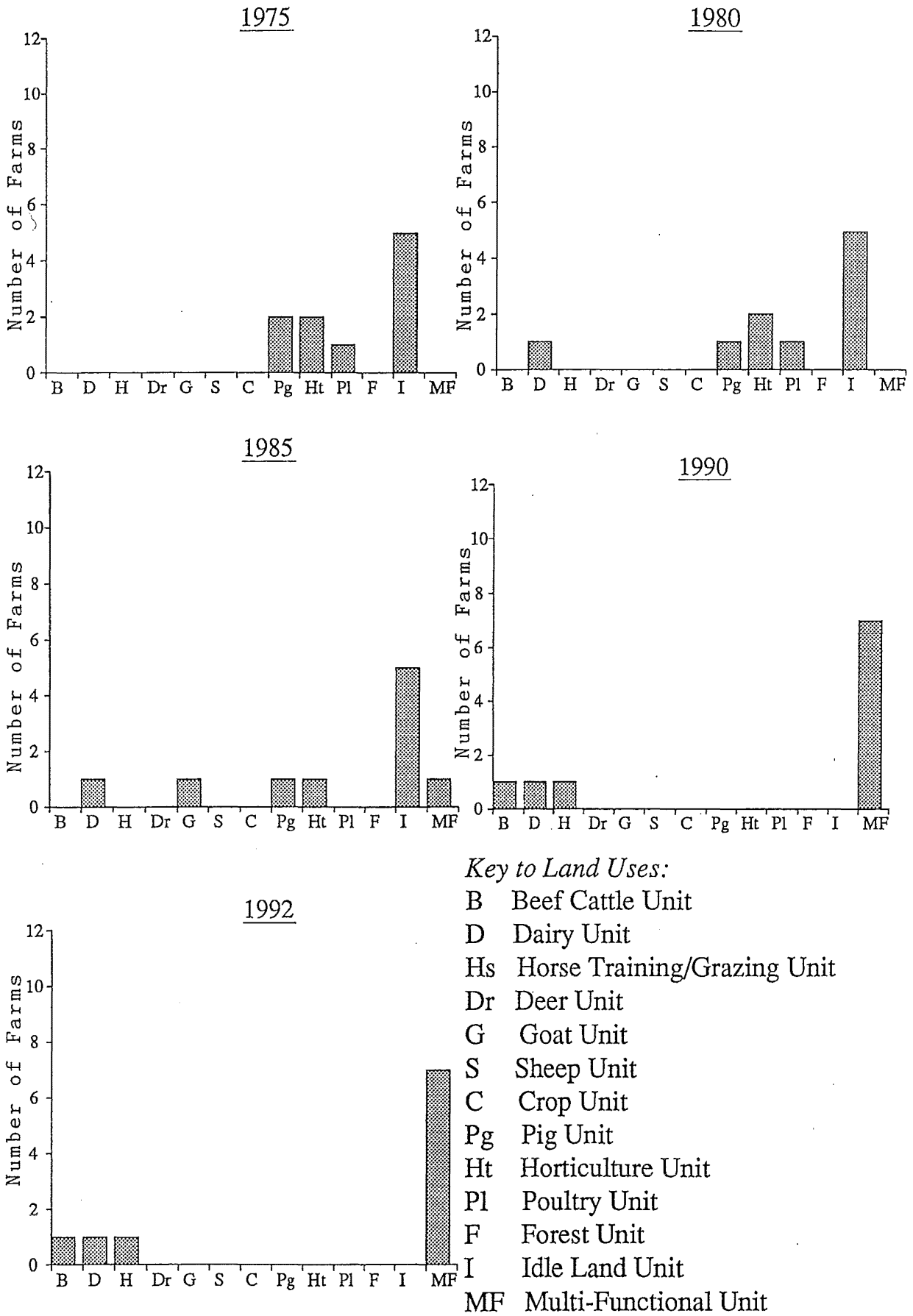
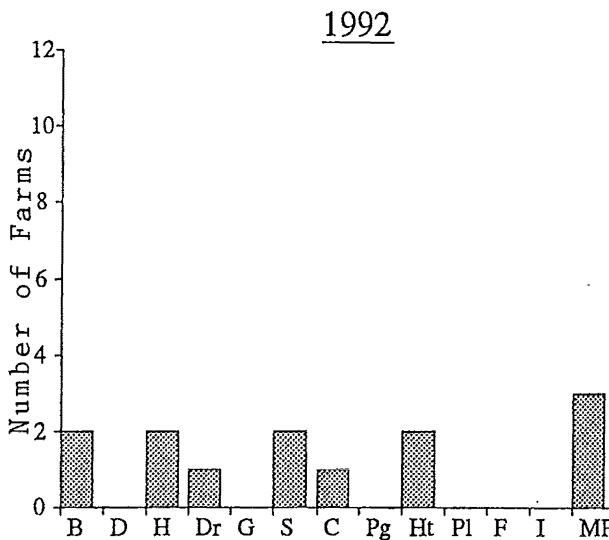
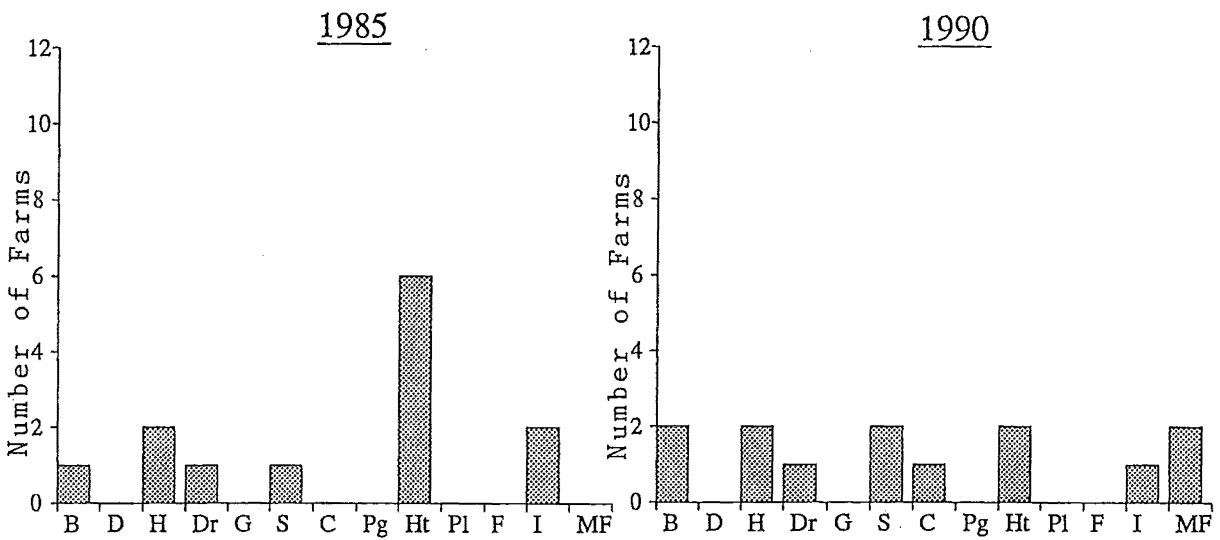
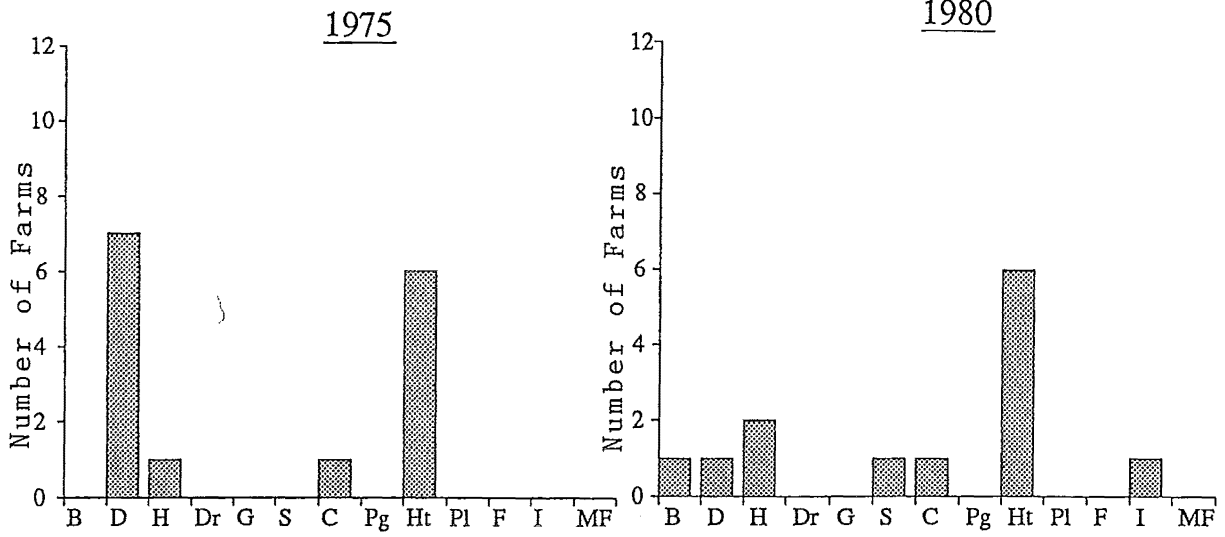


Figure 7.1.3: Land Use Types on Current Hobby Farm Land Units in West Melton, from 1975 to 1992.



Key to Land Uses:

- B Beef Cattle Unit
- D Dairy Unit
- Hs Horse Training/Grazing Unit
- Dr Deer Unit
- G Goat Unit
- S Sheep Unit
- C Crop Unit
- Pg Pig Unit
- Ht Horticulture Unit
- Pl Poultry Unit
- F Forest Unit
- I Idle Land Unit
- MF Multi-Functional Unit

Figure 7.1.4: Land Use Types on Current Hobby Farm Land Units in Marshland, from 1975 to 1992.

7.2.2. Land Values.

Land values have a significant influence on land use change in the urban periphery of Christchurch, especially on hobby farms. As land is subdivided and dwellings are erected land units become valued at a higher rate, thus causing land rates payable to the district council to rise. This is particularly so on the smaller land units. *Table 7.1* shows that the average collective value, the value of house and land, on hobby farms is greater in those areas where land use change has been marked, namely, Ladbrooks, West Melton and Marshland. In comparison to this phenomenon is the average land value, land excluding housing value, per hectare which shows that the Prebbleton and Marshland study areas have the highest average land value as they have the

Table 7.1: Hobby Farm Land and Collective Values.

<i>Characteristic</i>	<i>Ladbrooks</i>	<i>Prebbleton</i>	<i>West Melton</i>	<i>Marshland</i>
<i>Average Collective Value</i>				
1975	\$ 75 138	\$ 35 000 *	\$ 57 600	\$ 40 000*
1980	\$140 192	\$ 64 333	\$131 900	\$ 81 615
1985	\$191 769	\$111 333	\$186 700	\$166 769
1990	\$248 307	\$151 133	\$233 300	\$222 615
<i>Average Land Value</i>				
<i>Per Hectare</i>				
1975	\$ 4 905	\$ 8 000*	\$ 2 662	\$ 7 000*
1980	\$ 7 434	\$11 963	\$ 5 813	\$10 523
1985	\$ 7 989	\$15 296	\$ 8 259	\$20 484
1990	\$11 011	\$23 378	\$ 9 715	\$28 992

* denotes estimate

Source: Valuation New Zealand (1992)
smaller hobby farms.

Therefore hobby farms and land values have influenced land use change in the areas. As hobby farms have developed more in the urban periphery of Christchurch and adjacent to full-time farms they have increased the rates that all farmers in this area have to pay, especially in the Prebbleton and Marshland areas. Land use systems have responded to this by becoming more productive in those areas where land was more costly to sustain. This explains the continuation of traditional land use systems in Prebbleton as they were the most economic. In the Marshland case high average land values have changed land use systems to be operated as hobby farms in which off-

farm labour assists the payment of rates. Marshland land use, therefore, is more diverse in type as land is not utilised for economic return, *Table 6.1* supports this as it illustrates that hobby farms far outnumbered full-time farms in this area.

7.2.3. Farm Size.

Farm size change in the four study areas has played a significant role in the land use systems which now operate. *Table 7.2* shows the average size of

Table 7.2: Average Hobby Farm Size.

<i>Characteristic</i>	<i>Ladbrooks</i>	<i>Prebbleton</i>	<i>West Melton</i>	<i>Marshland</i>
Average Farm Size (ha)	12.6	3.6	8.8	3.9

hobby farms in each study area. The most interesting comparison here is between the Ladbrooks and West Melton study areas and the Prebbleton and Marshland study areas. Ladbrooks and West Melton have a larger, average, hobby farm size than the Prebbleton and Marshland regions. In the Ladbrooks case this is a result of the development of hobby farms on land which was sold largely in title blocks and not subdivided. In West Melton the larger hobby farm sizes occurred because the area was originally subdivided into large sized units. In Marshland hobby farms were smaller in size. This was because land units were originally smaller here after subdivision was undertaken well before 1970. The original size of the land units in Marshland were small because they were market gardening units. In Prebbleton hobby farm sizes were also small because subdivision had taken place, however subdivision here had been undertaken in more recent times. The next section illustrates the influence that subdivision and hobby farming have had on land use change.

7.2.3.1. Periphery Subdivision.

Subdivision of land into smaller units along with land title sale has been a cause of land use change. *Table 6.2* in Chapter Six tabulated the amount of land which was subdivided and sold within each study area. A larger area and number of units were subdivided in Ladbrooks and Prebbleton. These boundary changes are highlighted in *Figures 7.2.1* to *7.2.4*. Subsequently these maps also show the land use changes which have accompanied the areas of subdivided land.

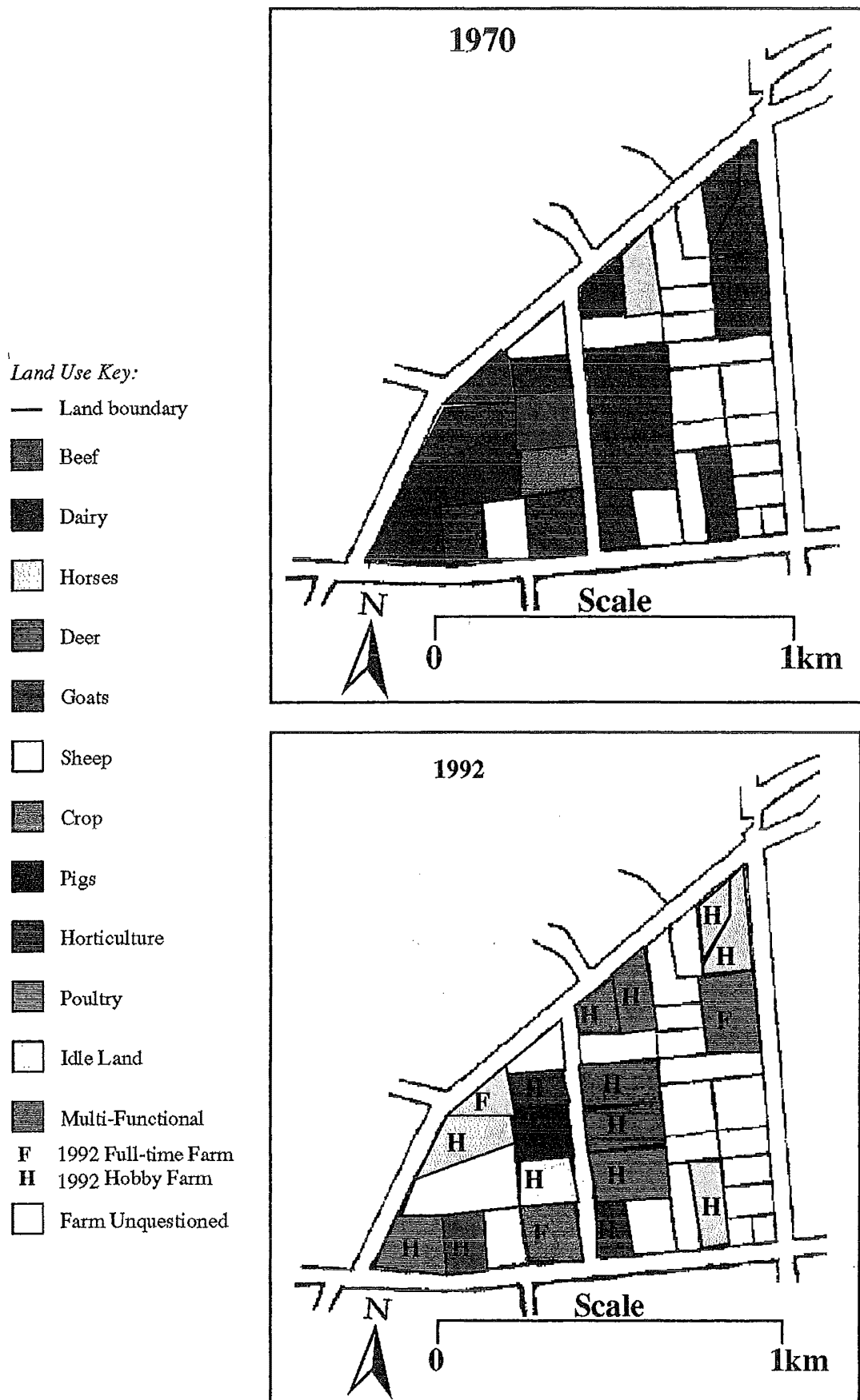


Figure 7.2.1: Land Use Change in the Marshland Study Area.

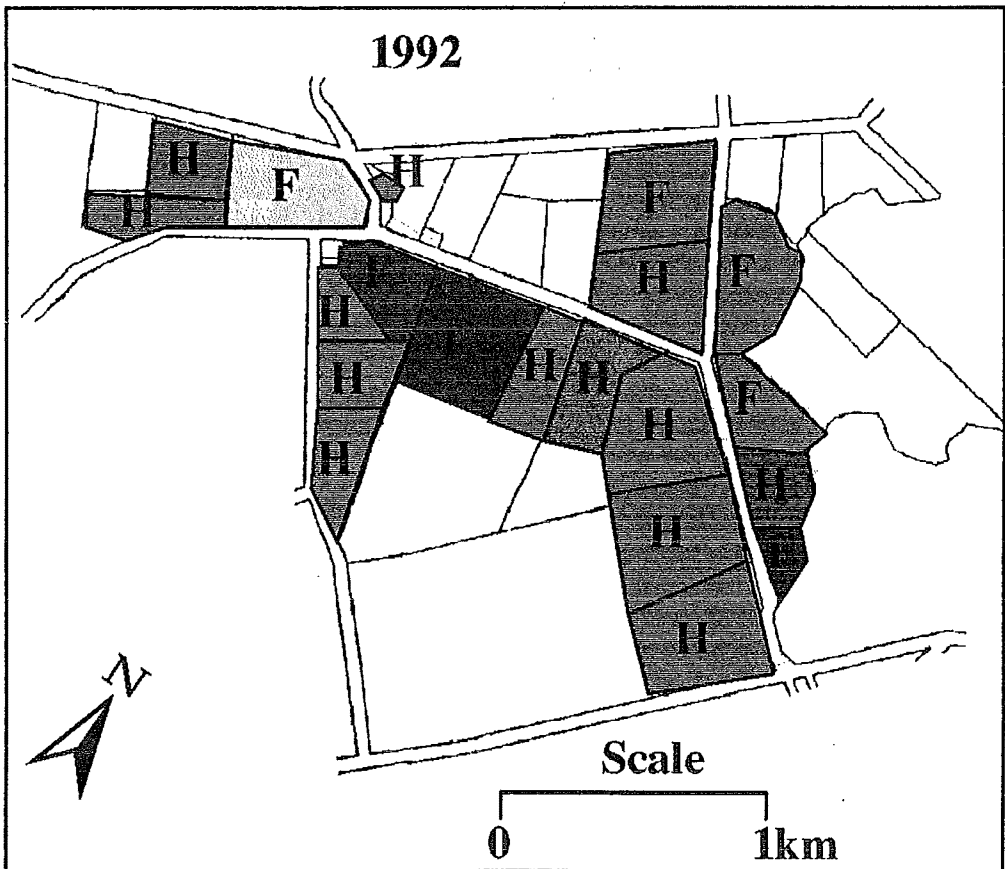
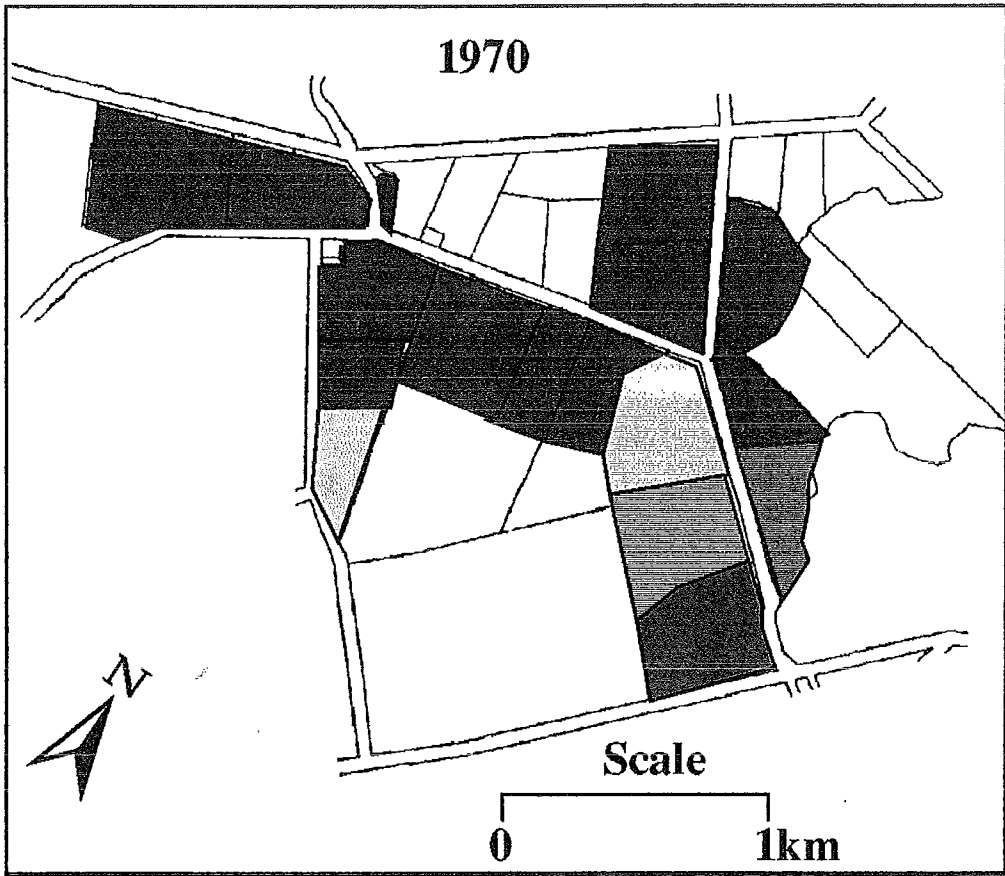


Figure 7.2.2: Land Use Change in the Ladbrooks Study Area.

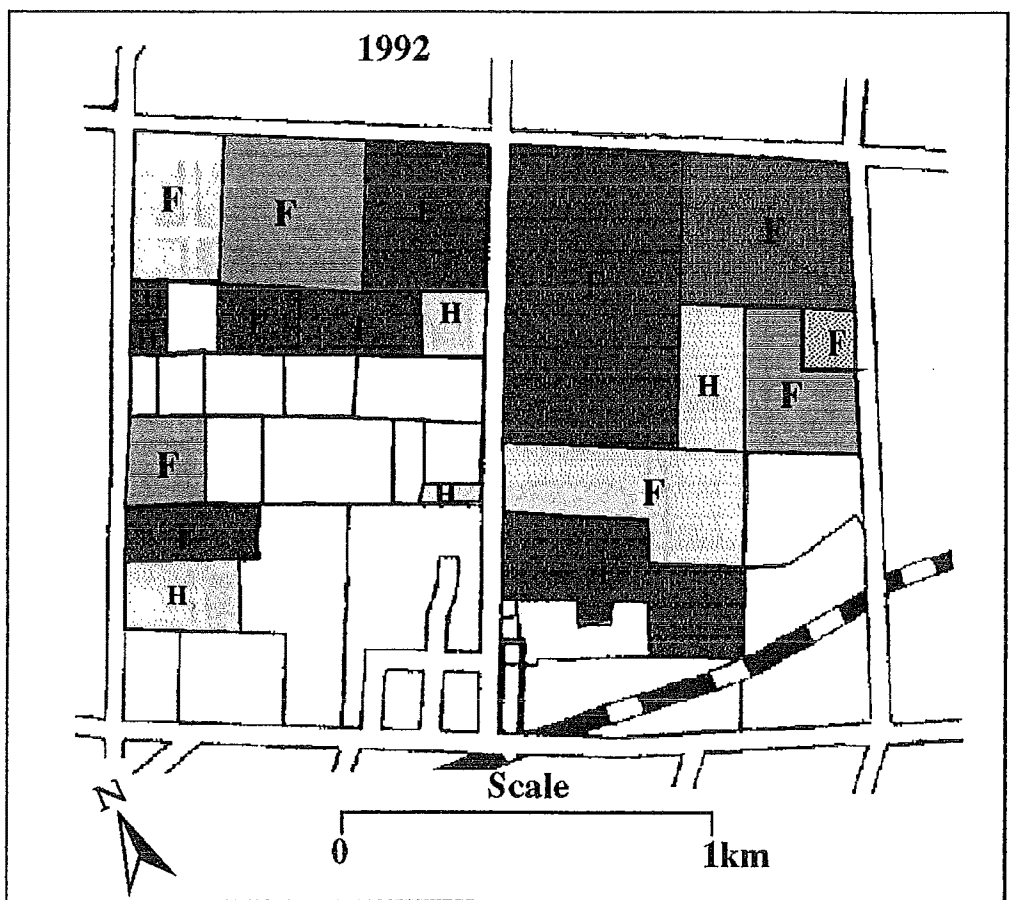
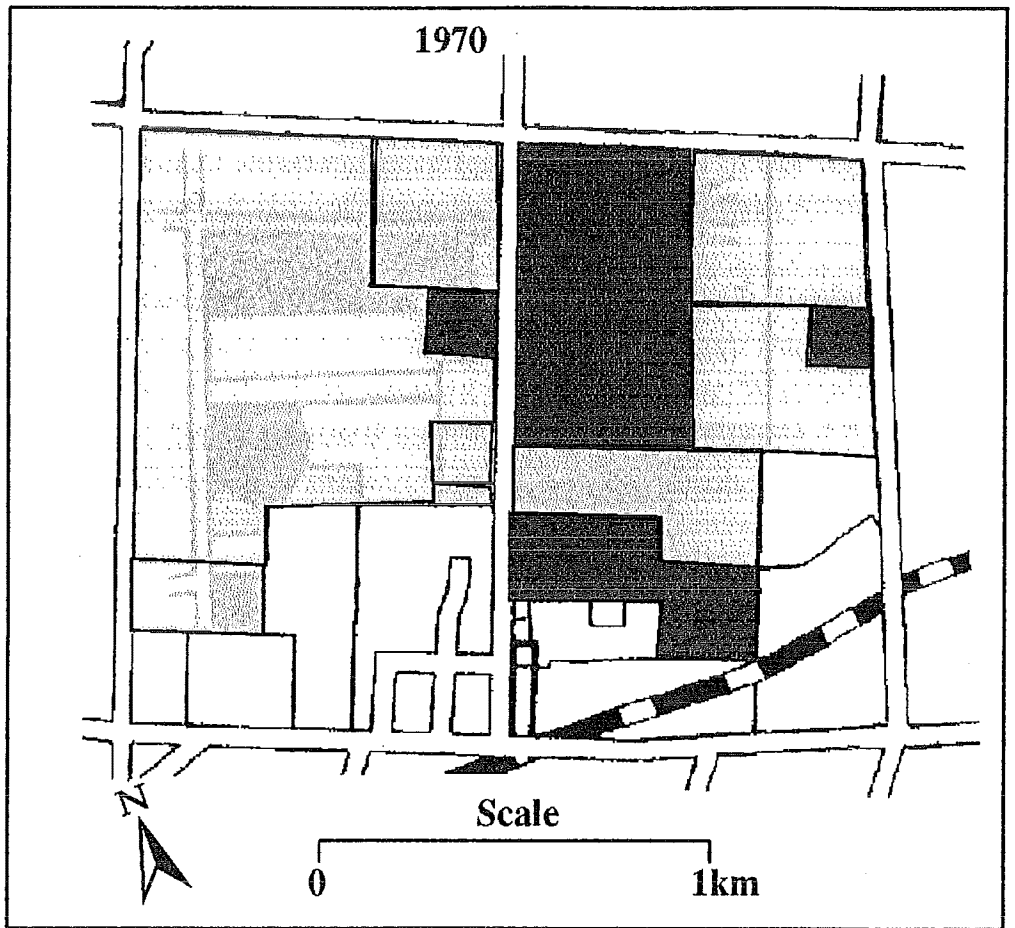


Figure 7.2.3: Land Use Change in the Prebbleton Study Area.

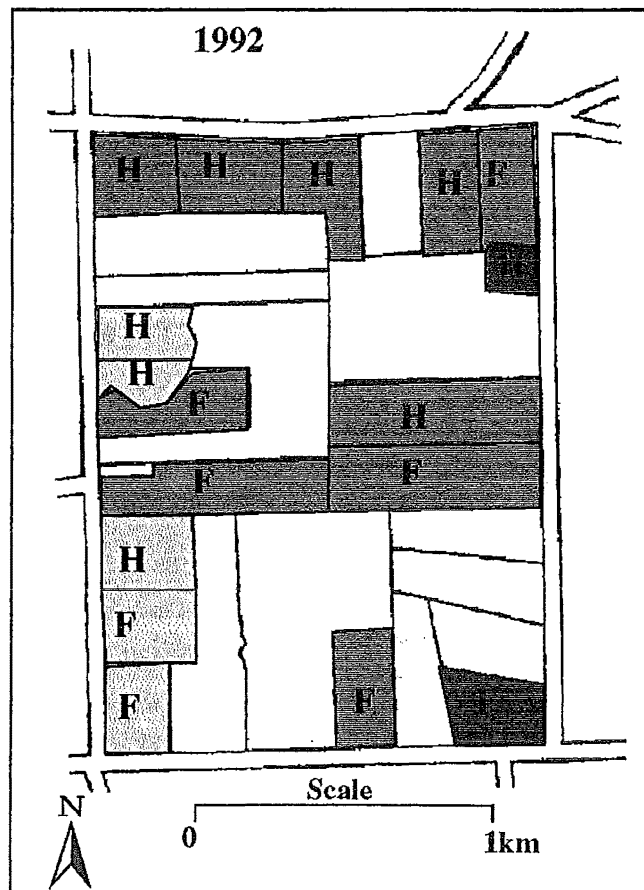
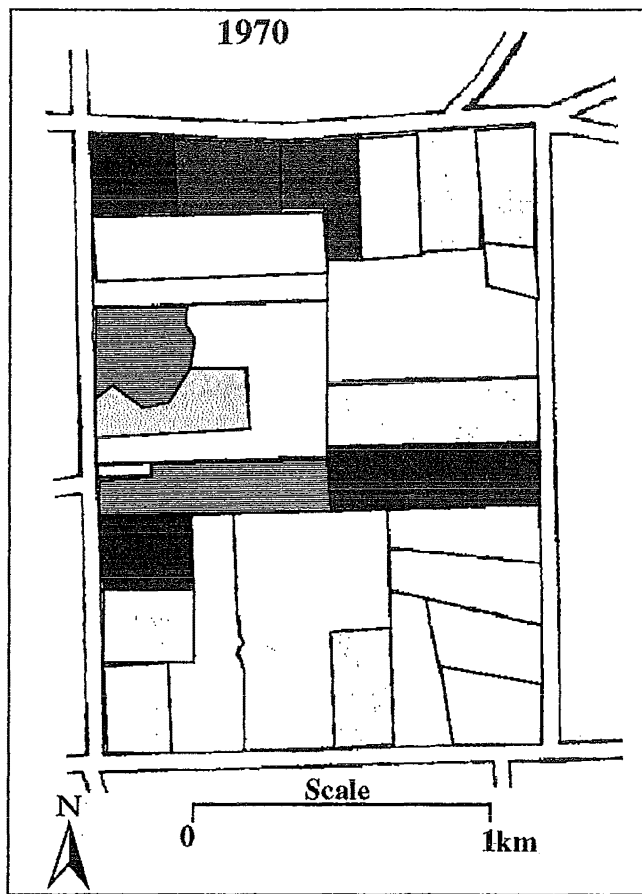


Figure 7.2.4: Land Use Change in the West Melton Study Area.

West Melton and Marshland are noted as having undergone only a small amount of subdivision during the study period. Even though land units on which hobby farms are located are still small they have not been developed as a result of subdivision during the study period. Small sized land units in these two areas are the result of subdivision of land before 1970 in the West Melton case, and the original small size of farms in the Marshland case.

Three of the four study areas are located within the same district council: Ladbroke, Prebbleton and West Melton within the past Papanui County Council region; Marshland being situated within the past Waimairi District Council region. Past district council location is shown in *Figure 4.2*. This has resulted in different farm sizes and land uses on hobby farm units in the areas concerned.

Regional and District planning legislation has shaped the nature of subdivision in the study areas. Regional planning, regulated by the Canterbury Regional Council, previously the Canterbury United Council and the Canterbury Planning Authority, has developed the Green Belt zone which places restrictions on land subdivision and development within its boundaries. The Christchurch Green Belt was illustrated in *Figure 4.2*. The Regional Council administers the regulations of the Green Belt zone in relation to land development. These regulations aim to protect land which has a ..."high actual or potential value for the production of food, ...[to]... encourage the wise use and management of agricultural, forest and mineral resources"... (Canterbury United Council, 1985, pp. 23), and to prevent unplanned settlement in the urban periphery of Christchurch. Hobby farming was only allowed to develop if it is located on the outer rim of the Green Belt zone. The Regional Council's role is to provide guidelines for the district planning schemes.

The Regional Council regulates the number of subdivisions undertaken in the Green Belt region. *Figure 7.3* illustrates the number of subdivisions approved in the Green Belt region from 1983 to 1989, showing that subdivisions have increased in this zone over that time period. Prior to 1983 rural subdivision had increased dramatically resulting in the introduction of more stringent regulations by district councils (Papanui County Council, 1985, 8). Consequently this has resulted in the land use change identified in the study areas in relation to hobby farm development, particularly between the 1985 and 1992 period, when urban periphery subdivision re-established itself. Connected with the pattern of subdivision is the approval of dwelling permits in the district council regions.

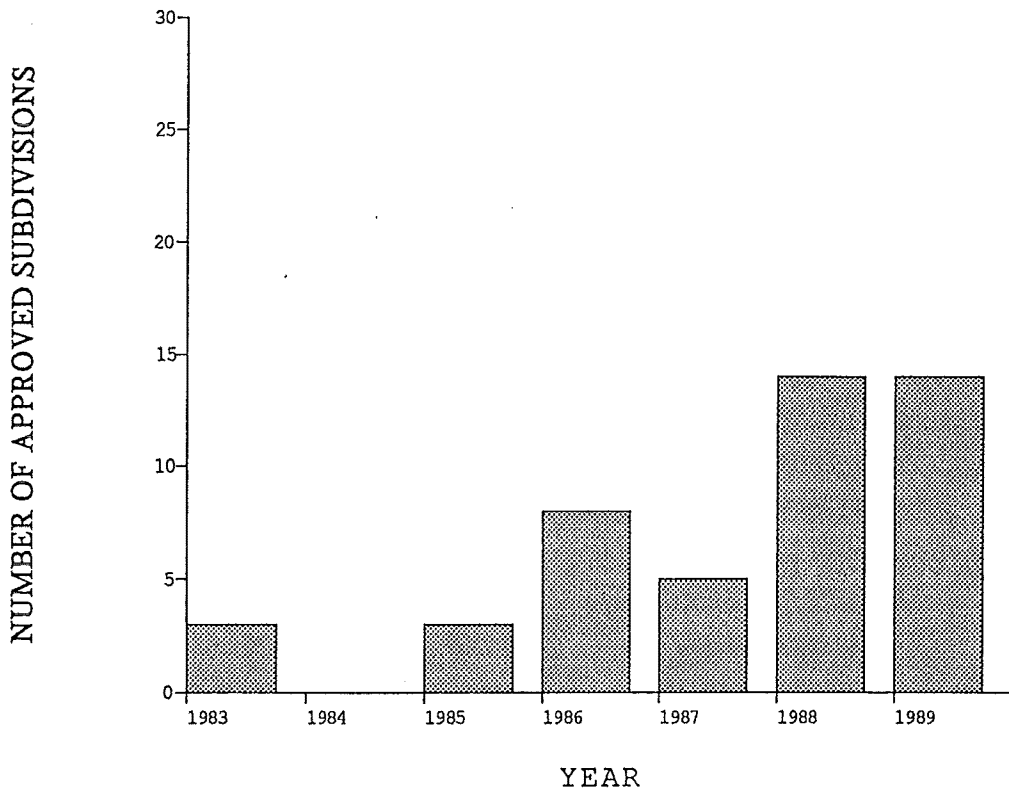


Figure 7.3: Number Of Green Belt Subdivisions From 1983 to 1989.

Source: Canterbury Regional Council (1990).

7.2.3.2. Development Restrictions and Influences.

Dwelling erection on subdivided land is related to land use change in the urban periphery. Hobby farmers aim to create a rural lifestyle and to enhance it they require houses. Since the mid 1970s the Paparua County and Waimairi District Councils have taken steps to slow down the rate of urban periphery lifestyle development. Two different occurrences have shaped hobby farm development in the four different study areas.

Prior to 1970s dwelling permits were approved for any land title in both district council zones regardless of the type of land use and farm structure proposed. Since 1970 significant changes have taken place in order to control dwelling erection on land that may become agriculturally unproductive. Two different scenarios have been identified under each of the district schemes.

In the Paparua County zone three specific policies have been identified that influence both hobby farm development and land use change. The first is the allotment of specific areas of land for hobby farm development. Eight of these zones exist on the outer boundaries of the Green Belt. None of the

three study areas in this region fall within these allotted zones, therefore proving that hobby farm development has not successfully been restricted. By zoning these areas the aim was to allow hobby farming to be established on land that had a low productivity level and had already been subdivided. Secondly in 1976 the Paparua County Council changed the size of the minimum subdivision level from ..."the existing 20 acres to 300 acres for Class 11 land, 150 acres for irrigated land, and 100 acres for Class 1 land."(McBride, 1990, 65). Finally in 1990 the introduction of a three year legal bonding system was introduced in the Paparua County region. This bond required any new land development and housing proposal to be tied to its initial proposal which had been approved by the district council. Each new development had to show the ability to sustain a full-time labour unit and an economic land use system. Failing to comply with these laws over the three year period would lead to court proceedings. *Figure 7.4* illustrates the down turn in housing development in the Paparua County Council Green Belt zone since stringent planning restrictions were implemented during the late 1970s.

These policies have had a varied effect on hobby farm development in the

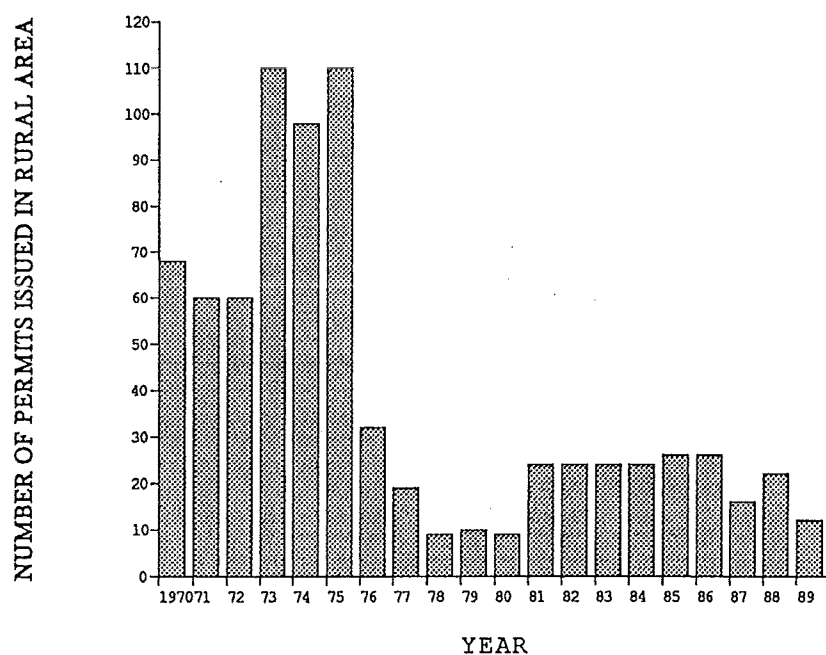


Figure 7.4: Permits Issued In The Paparua County Council Green Belt Region, 1970 to 1989.

Source: Paparua County Council(1985) and Canterbury Regional Council(1990).

selected study areas within the Paparua County Council region. Ladbroke and West Melton have been least affected. Land subdivision in the West Melton region was undertaken before the study period so dwelling development was less scrutinised as land titles were already developed and were not newly developed subdivisions. Ladbroke was influenced to a higher degree as several land unit titles were sold from larger farms in the

1980s. These land units were able to develop households if they were able to prove economic use and this encourages the development of multi-functional farming in this area.

In Prebbleton a different pattern has emerged from the other two areas within Paparua County. Prebbleton's large subdivision which created 16 lots was undertaken in 1987 and has been subsequently shaped in relation to all of the policies which were developed during the 1980s and 1990s. Consequently this has resulted in land uses which are capable of utilising a full-time labour unit, although not all of them are capable of doing this yet. At the same time this has created a high number of new housing developments, thus threatening the ability to contain non-sporadic urban development. This explains why land use in the Prebbleton region has stayed the same over the study period.

Marshland is the only study area within the Waimairi District Council. The planning restrictions within this study area have been less dominant in shaping the development of hobby farming. This is because land subdivision and house erection was established before 1970. Therefore the establishment of stringent regulations on economic land development and housing permit criterium has not influenced hobby farm development to any great degree. *Figure 7.5* illustrates how housing permits in the Green Belt area of the Waimairi District Council have increased from 1981 to 1989. This illustrates not only that restrictions have had no obvious bearing on land development but also how it is much different to the decrease which occurred in the Paparua County over the same period.

Marshland's land use change is therefore due to the early and unrestricted development of hobby farms in the area. Their development has caused the land use types to become more varied with no one type being the principle use.

NUMBER OF PERMITS ISSUED IN THE WAIMAIRI GREEN BELT

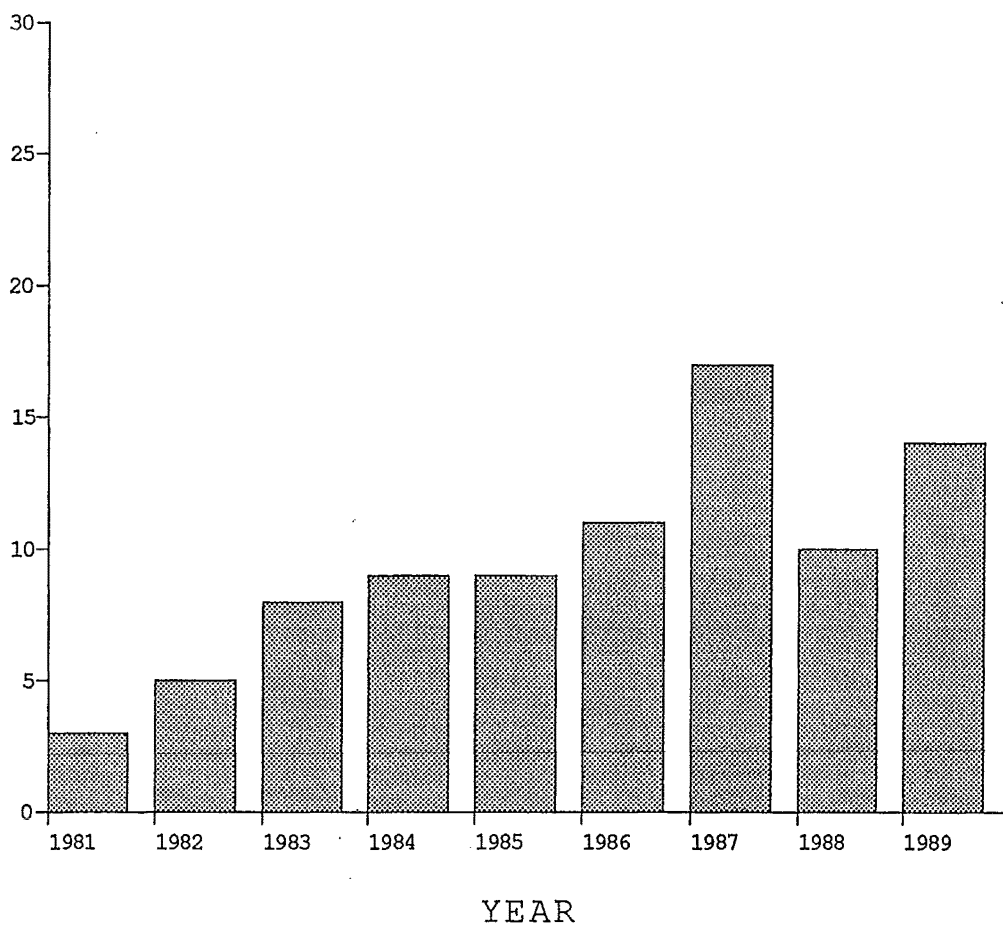


Figure 7.5: Number Of Approved Dwelling Permits In The Waimairi District Green Belt, From 1981 to 1989.

Source: Canterbury Regional Council (1990).

Therefore in summary land use has been affected by farm size change. As farms have become smaller and developed as hobby units their land uses have changed. This is so in all the cases except in Prebbleton where horse grazing and training and horticulture units are still being operated. The changes that have occurred have been as a result of land subdivision and the regulations that coincide with it in the form of scrutinised dwelling permits.

7.3. SUMMARY.

The comparisons undertaken in the previous sections have highlighted the differences between land use change in each study area on current hobby farm land units. Overall there is one specific scenario which stands out from the rest. This is the pattern identified in the Marshland area. As the planning regulations which were less restricting in this study area, and the size and value of hobby farm land units, it resulted in the more diverse nature of land use in the area. While differences still occur in the other study areas they are not as constant and outstanding as the ones characterised in the Marshland area. Ladbroke is more orientated towards agricultural production in the form of multi-functional land uses, while Prebbleton is more traditional in land use types it is still less likely to engage in full-time farming practice on these units. West Melton's trends are similar to Prebbleton's but land use type is not traditional, it is multi-functional and this is as a result of West Melton's subdivision being undertaken before stringent development policies were implanted by Paparua County, unlike the Prebbleton case.

As planning and district council policy has had a large influence on land use patterns and hobby farm development in the study areas it was discovered that several different perceptions and attitudes had arisen in relation to planning initiatives and hobby farm development. The next chapter presents the planning dimensions which relate to land use change and hobby farm development in the urban periphery of Christchurch.

CHAPTER EIGHT: PLANNING DIMENSIONS.

8.1. INTRODUCTION.

This chapter highlights the planning dimensions involved with land subdivision and hobby farm development in the urban periphery of Christchurch. One of the aims of the survey was to identify the attitudes of the four interest groups in relation to land use change in the urban periphery of Christchurch and the hobby farm development. The four interest groups were identified as the hobby farmers, full-time farmers who supported subdivision, full-time farmers who did not support hobby farm development, and the urban periphery planners. Essentially the planning authorities act as the final decision makers in the region's land development procedures, trying to balance the views and desires of both the full-time farmers and the hobby farmers, and at the same time preserve the Green Belt from urban encroachment. This section analyses the results of the questionnaire, which relate to the planning process, and the interviews undertaken with both regional and district planning staff.

8.2. THE HOBBY FARM DIMENSION.

The results from the survey showed that hobby farm units have developed in the study areas because the owners seek a country lifestyle. This is illustrated in *Table 8.1* where it is identified that this reason far out numbers the others. Hobby farmers develop in this area as they are able to participate in rural activities and the outdoor lifestyle and yet they can still engage in employment and other activities within the urban sector. This has resulted in land use types on hobby farms requiring low labour input and time consumption. The other reasons recognised as contributing to hobby farm development were minor.

The survey also identified that hobby farm developers had encountered many restraints imposed on them by planning authorities. A number of hobby farmers also stipulated that they were dissatisfied with the current planning policies which were affecting their developments. These were outlined earlier in relation to periphery subdivision and land development. It is possible that

Table 8.1: Hobby Farm Development Perceptions.

<i>Characteristic</i>	<i>Percentage</i>
Reason for Hobby Farm Development	
desire for country lifestyle	90%
increase household income in addition to off-farm employment	4%
for family and friendship	3%
enhance leisure capabilities	2%
tax relief	1%
Overall Percentage of Hobby Farmers	
Not Aiming To Make Their Land Unit A Full-time Operation	81%
Percentage Affected By Development Restraints	
Percentage Dissatisfied With Current Development Policies	31%

these constraints are born from the perception by other groups that hobby farming is not economically beneficial to urban periphery agriculture systems.

From the interviews and results collated from the questionnaire survey many hobby farmers identified that planning procedures in relation to hobby farm development and the establishment of operations on newly subdivided blocks, were considered costly and time consuming. One questionnaire report from a hobby farming unit in Prebbleton recognised that planning regulations and implementation in that area were 'inconsistent' and 'infuriating'. Similarities were reported amongst other hobby farmers in the same area. The main problem outlined by the hobby farming group was the desire to develop a hobby farming unit, but not being able to because of the restrictions placed on them by the district council schemes. These schemes required that land units had to be cost effective and able to sustain one full-

time labour unit. This was not what was desired by the hobby farmers.

Overall, the hobby farming community voiced that they were not happy with the new planning implementations affecting their land unit development. This group identified that more balanced regulations should be utilised in the urban periphery. The economic viability of full-time land units operating in the same area was the uppermost concern for hobby farmers. They recognised that their part-time operations may be more cost effective than the full-time units and that more stringent planning regulations should also be placed on this sector. One hobby farmer supported the idea of implanting legal bonds on full-time operations as well to enforce their cost effective land usage on larger holdings. At this point the full-time farming perspectives can be introduced.

8.3. THE FULL-TIME FARM DIMENSIONS.

There are two perspectives within the full-time farming sector which can be highlighted in respect to planning initiatives. There are the full-time farmers who support land unit subdivision, and full-time farmers who oppose land subdivision and hobby farm development. Therefore the full-time farming sector is split between both over planning developments.

The first view, which supports subdivision of urban periphery land, is held by full-time farmers who are nearing retirement or are scaling down their farming operation for a more relaxed lifestyle. They wish to subdivide their units in order to gain finance for retirement and increase their income. In this case hobby farming is not perceived in a derogatory fashion. The full-time farmers in this category support hobby farming as it enables them to gain a higher price for their land when it is sold in small sections. This has been the case on some full-time farms in the Ladbroke and Prebbleton region where large family farms, which had been operated since 1920, had become less economic. In most of these cases it was found that those who had undertaken such subdivision had themselves participated in the establishment of hobby farms by keeping a portion of their 'home' block and using it as a retirement unit. The survey evidence suggests that some 32% of full-time farmers are in this category.

In the second view, that of opposition towards hobby farm development and urban periphery subdivision, full-time farmers voiced the opinion that hobby farming was wastage of prime land, brought about rate increases and increased the possibility of intensifying animal disease and traffic flows. The

main concern for these full-time farmers was the threat of increased rate levels. As more smallholdings with dwellings are developed then the value of surrounding land increases, resulting in the continual rise of rate levies. Full-time farmers in this case saw that the increased rates would make their operation uneconomic as it was unable to produce more output to compensate for the expenditure on rates. These full-time farmers were also opposed to land subdivision as they saw it as resulting in land wastage as hobby farmers develop lifestyle units upon land which was once used for economic agricultural production. One full-time farmer in this category suggested that hobby farms may also bring about disease in the urban periphery. This meant that hobby farming of exotic animals may threaten traditional full-time land uses which are adjacent to such operations and are incapable of combating new exotic diseases. Finally these full-time farmers also noted that increased traffic flows as a result of hobby farm development with residential establishments may cause hazards for animals such as dairy cattle and horses on roads.

Therefore full-time farmers are divided with regard to hobby farm development in Christchurch's urban periphery. Both groups put forward strong cases for careful planning of urban periphery subdivision and hobby farm development.

8.4. THE PLANNER'S HEADACHE.

Hobby farming control and approval in the urban periphery of Christchurch creates problems for the planning sector. Meister (1981) described councils and planners as having a planning 'headache' in relation to land use systems in the urban periphery. The Christchurch urban periphery is no exception. It is a 'headache' for both regional and district councils and their planners. This section will identify the problems which face the Canterbury Regional Council and the councils which have operated in the study.

The Canterbury Regional Council administers the development of subdivision within the whole Canterbury region including the Christchurch Green Belt. Their aim is to stipulate the best possible location of rural subdivision, where productive land use systems will not be sacrificed. During 1992 the Regional Council called four meetings to discuss the impact of rural subdivisions on the outskirts of Christchurch. Reports from these meetings (Hay, 1992) displayed the fears that the council had in relation to sustainable land use systems and their possible disappearance. Max Barber, the

Canterbury Regional Council's Manager of Planning, was reported as saying that there is now ..."a need to find out what are people's expectations of their environment and how these can be met in rural and urban situations."(Central Canterbury News, May 20, 1992). Mr. Barber also went on to say that ..."rural subdivision has put pressure on, not only the landscape but also the natural resources to the extent that the existing planning approaches need to be overhauled to preserve the environment for future generations."(Central Canterbury News, May 20, 1992). This emphasised that regional planning is going to address the issue of urban periphery subdivision more carefully in the development of their new regional scheme which is currently being formulated. This statement was supported by rural real estate agents who reported that in Christchurch the demand for lifestyle blocks out numbers their availability(Central Canterbury News, May 20, 1992).

In the context of district planning new initiatives are being undertaken in the formation of district plans to successfully control subdivision and hobby farm development in the Christchurch urban periphery. An interview with a senior planner within the past Paparua County Council planning department, now part of the Christchurch City Council, highlighted that subdivision in the urban periphery was a "very controversial subject"(pers. com. 1992). He noted that although specific policies set out that smallholding development must now be done so on the prerequisite that land use will support one full-time labour unit, and that the type of land use is not detrimental to the wider community, he also said that "councillors do not have a full understanding of what an economic unit is and this is a very shady area."(pers. com. 1992), in regard to approval of land use. He also went on to say that "there is now no 'concrete' legislation which stipulates what size a land unit has to be before it can be used for a specific type of land use. In some cases four hectare blocks have been made into two, two hectare blocks, because it has been proved that they are economic, while other blocks have been denied rights to enlarge."(pers. com. 1992). In his opinion councillors were 'inconsistent' and 'long-winded' in their approach to development. The view that he voiced was similar to the dissatisfaction identified by the hobby farmers. This was particularly the case in the recent Prebbleton subdivision within the selected study area.

The issues raised in this interview were also comparable to those voiced by the full-time farmers who had subdivided and were contemplating subdivision. They also recognised that many of the decisions made by councillors were often variant amongst different cases and that these farmers failed to see any consistency within their decisions.

A step in the right direction however has been a questionnaire survey by the new Selwyn District Council in the area which was once part of Papanui County Council. This questionnaire was distributed during 1992 and the results from it are unavailable as yet. However the questions did ask the reasons why: land unit holders had decided to establish an operation in this area; were they wanting to subdivide in the future; their preferred property size and where they think rural development should take place. This in turn will aim to help this council to construct a district scheme which will balance land development in the urban periphery with the attitudes of the four interest groups.

It is possible however that even after these efforts have been made to reduce the controversy over land subdivision in Christchurch's urban periphery, that there will still be problems with gaining complete satisfaction in all the interest groups. It will not be an easy task to please all the interest groups. The district and regional councils may either satisfy the second category of full-time farmers and consequently dissatisfy the first category of full-time farmers and hobby farmers, or vice versa. The future of land use in the urban periphery of Christchurch lies in the hands of the district councils.

8.5. CONCLUSION.

In conclusion this chapter has identified the four interest groups which interact and influence land use changes in the urban periphery of Christchurch. The hobby farm group identified that planning regulations were directed in the favour of full-time operations and that hobby farm development was perceived as being detrimental to the urban periphery by one of the full-time farming groups. Hobby farmers also perceived that district councils did not take seriously the development of such units as cost effective operations. This group considered that small intensive units which were subsidised by off-farm employment were just as productive as larger full-time units.

The first category of full-time farmers also argued that planning regulations were not balanced in their approach to subdivision approval and that the time and finance required to gain such approval was long and costly. This group aimed to subdivide land in order to gain revenue for retirement and saw hobby farming as beneficial regardless of the land use changes it would bring.

The other group of full-time farmers recognised that planning restrictions were needed in order to prevent hobby farming from raising land rate levies and causing land use changes to occur on their own units. This group also saw that hobby farming was detrimental to their own land use systems as they became affected by exotic diseases in livestock and increased traffic flows.

From the planning perspective hobby farming is recognised as being detrimental to the urban periphery. It is perceived by this group as causing the loss of prime productive land. However it was identified that the council planning schemes to date had not dealt with rural subdivision and hobby farming development in a consistent fashion and that in the future specific guidelines needed to be clearly outlined. Forums and questionnaires have been undertaken by the planning bodies concerned and they aim to rectify the confusion that has arisen since 1970.

This chapter has discussed the various view points which have been discovered during the field study. From this discussion it seems that the next five years will be a crucial time for land subdivision, hobby farm development and land use change within the urban periphery of Christchurch. The introduction of new district and regional planning schemes will cause patterns to change and may result in the stabilisation of land use systems or continuing change. After discussing these issues and the results of the field study their relationship to the theoretical concepts can be illustrated.

CHAPTER NINE: THEORY REVISITED.

9.1. INTRODUCTION.

The field study raised interesting points in relation to the theoretical context outlined in Chapter Two. The field study showed that hobby farming had played a significant role in the change of land use types in the urban periphery of Christchurch. Hobby farming's role has been to replace traditional land use types with multi-functional land use systems operated by farmers who subsidised the land unit with off-farm income. After discussing the relevant theoretical concepts of this study the field study can be analysed in relation to them as it provides for a wider understanding of the research. From this a construction of future guidelines can be devised to enable positive planning policies to be designed and put in place.

9.2. HOBBY FARMING AND CONCENTRIC PATTERNS.

Chapter Two suggested that hobby farming may produce different patterns in land use zones than that constructed by Von Thünen and Sinclair. The Christchurch model presented in *Figure 2.4* is the most accurate for this study but it needs to be modified further to compensate for the discovered influence of hobby farming in the urban periphery.

The field study discovered that the concentric zone model of land use patterns found near urban areas does not cater for the relatively new development of hobby farming and the land use changes associated with it. The model in *Figure 9.1* better illustrates the formation of land use zones in the Christchurch City Green Belt region. *Figure 9.1* shows that hobby farming has created a zone of multi-functional land use directly surrounding the central city where hobby farm development is usually undertaken. Multi-functional full-time farms are also located in this area. This zone has displaced the dairy farming and market gardening zone which has subsequently moved to the next zone and now incorporates horticultural activity. Zones three, four and five have also been displaced further from the

city to make room for the multi-functional zone. Another significant modification has been the development of hobby farm pockets in zone four and five. These are a result of district planning zones which have set aside land on the outer edge of the Green Belt specifically for hobby farming enterprises. They are located on land that is considered to be less valuable for food production, therefore not occupying prime land nearer to the city market. In the future it is possible that more multi-functional hobby farming pockets will develop in other zones and different distances from the city

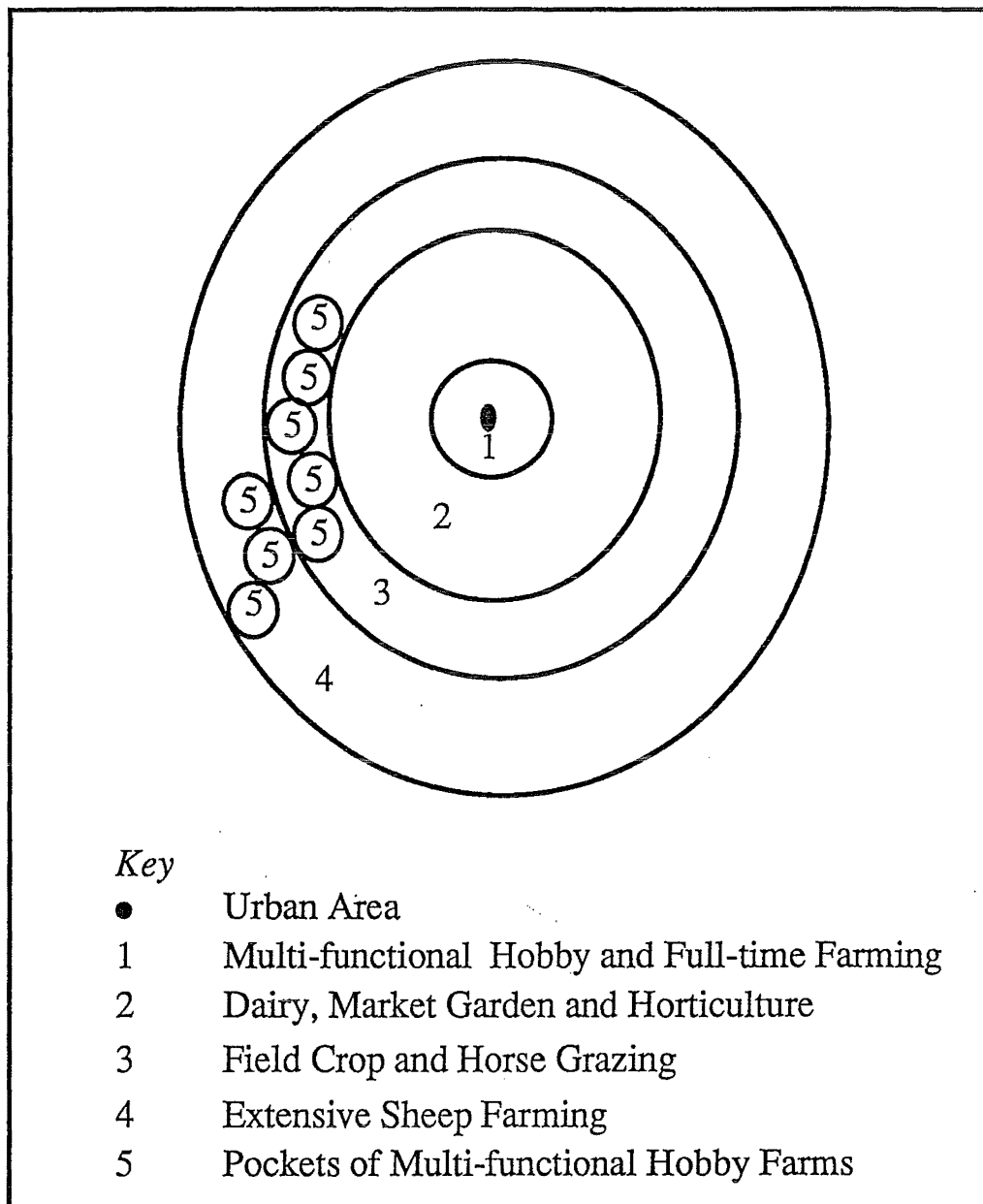


Figure 9.1: Modified Christchurch Urban Periphery Land Use Zones As A Result Of Hobby Farm Development.

Source: Author (1992).

market.

In regard to this concept of land use displacement as a result of hobby farm development, the value of agriculture in relation to distance from the urban market has also been modified. *Figure 2.3* illustrated how land rent is more expensive the nearer a unit is located to the city. This is true in this study as land units found near the city have continued to rise in value over the study period thus causing land rates to also rise. This was explained further in chapter seven when it was found that smaller sized hobby farming units were more expensive per hectare than larger units. Accompanying this was the discovery that while these areas were continually increasing in value the New Zealand land value index had undergone a period of decline especially since 1982 (Johnston and Sandrey 1990). In regard to this Von Thünen's model is still relevant as land is most expensive to rent and service the closer it is to the city. However modifications must be made in relation to Sinclair's model and the author's previous modification must be re-evaluated. The modification consists of a revaluation of agriculture in the Green Belt area of Christchurch. *Figure 9.2* shows the subsequent modification made to Sinclair's and the author's model.

This modification is small in comparison to the author's original model but significantly large in relation to the one created by Sinclair (1967). Chapter Two identified that the value of agriculture was higher at the outset of the urban periphery zone than Sinclair had illustrated. Therefore the value of agriculture can remain in the same position as was shown in the author's original modification. This is because the high rate of land unit prices within the urban periphery were recorded on land units situated closer to the city, in Marshland, Prebbleton and Ladbroke. However this higher starting point of the value of agricultural land may now be replaced with the value of land use. As agriculture in the urban periphery region of Christchurch begins to be displaced by other uses, the value of agriculture becomes displaced with the concept of land use value which may not necessarily be agriculturally determined.

Given that the first modification needs to address the nature of the value of land use as opposed to agriculture in this study the second modification must relate to the influence of planning policy particularly in the Green Belt zone of Christchurch. By inserting this boundary it stops the continuation of an upwards trend in land use value and denotes that beyond this point values may change with distance. Neither Von Thünen or Sinclair attempted to allow for land use planning policies and their influence on the value of land, its use and its production. This study has illustrated that particular land use policies, as instigated by the Canterbury Regional Council and the two district councils, have a major influence on the price of land and the way in

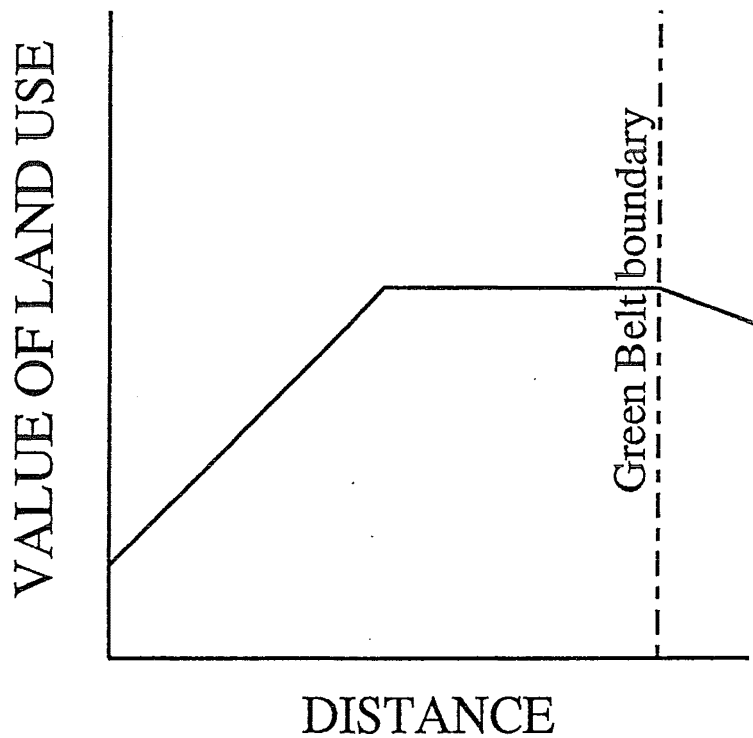


Figure 9.2: Modified Value of Agriculture in the Christchurch Green Belt.
Source: Author (1992).

which it has developed. Therefore the graph pictured in *Figure 9.2* best illustrates the value of land use in the urban periphery of Christchurch and the influence of planning policy, specifically within the Green Belt zone where land development is restricted. The graph shows that beyond this area land use value may take a different path in this case downwards, however further study would result in the exact location of this line beyond this point.

In conclusion Von Thünen's original graph shows merits as he recognised that land rent was higher nearer to the city and that the value of agriculture was significantly high at the outset. In relation to this future land use values may rise nearer the city creating a levelling effect where land use within the urban periphery of Christchurch and the Green Belt boundary is valued at the same rate. In the first instance the demand for lifestyle land use causes the land use value to be high and then it remains at this level as intensive full-time farms demand land to engage in agricultural production. Modifications to this graph in the future are therefore inevitable. This information and modifications undertaken in light of the field study are not only related to distance from the urban centre but also with the migration flows between the urban to rural area and the rural to urban area. Such factors are crucial to the development of hobby farms in zones one and five.

9.3. LAND USE CHANGE AND MIGRATION FLOWS ON THE URBAN PERIPHERY.

Both types of population migration were identified as occurring in the study areas, however, only one study area was effected to a large extent by rural migration and the shift of farmers from outer rural regions into the urban periphery. This section will identify the differences between the land uses undertaken by those areas dominantly occupied by hobby farmers involved in the depopulation and counterurbanisation processes.

Prebbleton, West Melton and Marshland hobby farm units were dominated by operators who previously resided within an urban environment. This is illustrated in *Table 9.1*. All of these areas engaged in the development of multi-functional hobby farms except for Prebbleton where traditional land use systems remain the norm as a result of stringent development policies. The aggregated totals from the study areas showed that 65% of the hobby farmers in the study areas had previously resided in an urban setting. The majority of these hobby farmers stating that their reasons for development were solely to enjoy the country lifestyle and not to participate in economic agricultural production. In these cases small sized land units with multi-functional land uses were the most popular form of land use, enabling the lifestyle to be within the rural landscape and yet 'sponsored' by the opportunities available within the city. A further comparison of the areas showed that in the areas which had the higher levels of counterurbanisation, Marshland and West Melton, there was a higher level of retired farm owners and operators. This is illustrated in *Table 9.1*.

Table 9.1: Migration Characteristics.

<i>Characteristic</i>	<i>Ladbrooks</i>	<i>Prebbleton</i>	<i>West Melton</i>	<i>Marshland</i>
Owner/Operator's Last Place Of Residence by type				
rural	58%	38%	26%	20%
urban	42%	62%	74%	80%
Number of Retired Farm Owners/Operators				
full retirement	--	--	10%	23%
part retirement	7%	--	10%	15%

In comparison rural depopulation influences were lower. Ladbrooks was the only area where depopulation patterns outnumbered the level of counterurbanisation in hobby farm development. This area had a lower proportion of retired and partially retired owners or operators and also had the highest proportion of farmers wanting to engage in full-time agricultural production on their land unit. This dispels the theory that retired farmers are locating in the area in order to maintain the rural lifestyle and gain the services which the city offers. It seems more likely from the data calculated from this area that these developers are younger rurally based individuals that may have lived on a farm but have decided to gain employment within the city and live within the environment from which they originated. However it is possible that these hobby farmers are ex-farm workers who have invested their finance in land in the rural area and undertaken part-time employment within the city sector. Their ability to engage in full-time farm operation is more probable as they have the experience to do so.

Therefore counterurbanisation can be recognised as the most dominant form of population growth in the urban periphery of Christchurch. In turn it has created multi-functional land use change as a result of hobby farmers wanting to engage in a rural lifestyle without having to commit themselves to full-time farm labour to which they have little experience. Depopulation flows are much less important in influencing land use change on the urban periphery of Christchurch, however their influence is more beneficial to agricultural production as these farms either become full-time units or they use land on hobby farms more intensively.

As a result of these two population migration processes and the characteristics which are synonymous with them land use change has developed as a result of hobby farming. However counterurbanisation is now the dominant migration process. Hobby farm development in turn has its origins in pluriactive farming operations which have also been recognised as a cause of land use change.

9.4. PLURIACTIVITY IN THE URBAN PERIPHERY OF CHRISTCHURCH.

Pluriactivity is occurring in the urban periphery of Christchurch. The data tabulated in *Tables 6.3* and *7.1* clearly illustrate this. They show that there is a considerable amount of off-farm employment being undertaken by both hobby farmers and full-time farmers. Hobby farmers are occupied in the full-time off-farm employment sector while full-time farmers have been encouraged to participate in the part-time off-farm work sector. This has been

identified as a direct effect of hobby farm development causing land values and rates to rise.

Hobby farming and pluriactivity can not be separated within this study. The most interesting discovery is that a high percentage of full-time farms in the study areas have also undertaken pluriactive qualities, particularly part-time employment undertaken by females in the household. Hobby farm and off-farm employment structures are centred upon full-time employment rather than part-time. Associated with these characteristics is the dominance of hobby farmers in high level socio-economic employment sectors and business ownership thus creating a greater financial base for small farm units which have a low level of on-farm income. Employment undertaken by full-time farmers is not only part-time oriented but located within lower socio-economic sectors and less career orientated and time consuming.

Fuller (1990) perceived that pluriactivity was undertaken to compensate for market changes and that following market stability these activities would still be undertaken. In the case of full-time farms in the urban periphery this has resulted from both economic downturns and the influence of hobby farming in the area. Hobby farming and its influence on land sizes has increased the value of land within the Green Belt and subsequently land rates. This has in turn required extra funding from off-farm to make the unit more profitable. This can also affect farming on full-time operations as they seek ways to compensate for loss of labour input but still achieve the same amount of farm production. This explains the change of full-time farm land uses which have changed from traditional land use systems to those that are multi-functional and intensive without requiring more labour inputs. Being located near a major urban area makes employment opportunities easily accessible.

9.5. THE IMPORTANCE OF THEORY.

Together the three theories provide insights into the types of land use changes that have been identified throughout this research. They join the different aspects of land use systems, land operation, land use size and value, household structure and land use patterns together, resulting in the overall collection of integrated research answers. Von Thünen's model of land use patterns around the metropolitan district has required some modification in order to explain the system operating within Christchurch's Green Belt. This model is also influenced by the population growth in the urban periphery and the way in which the individual farms are operated in relation to off-farm ventures.

Without integrating the three theories the patterns shown in *Figure 9.1* and

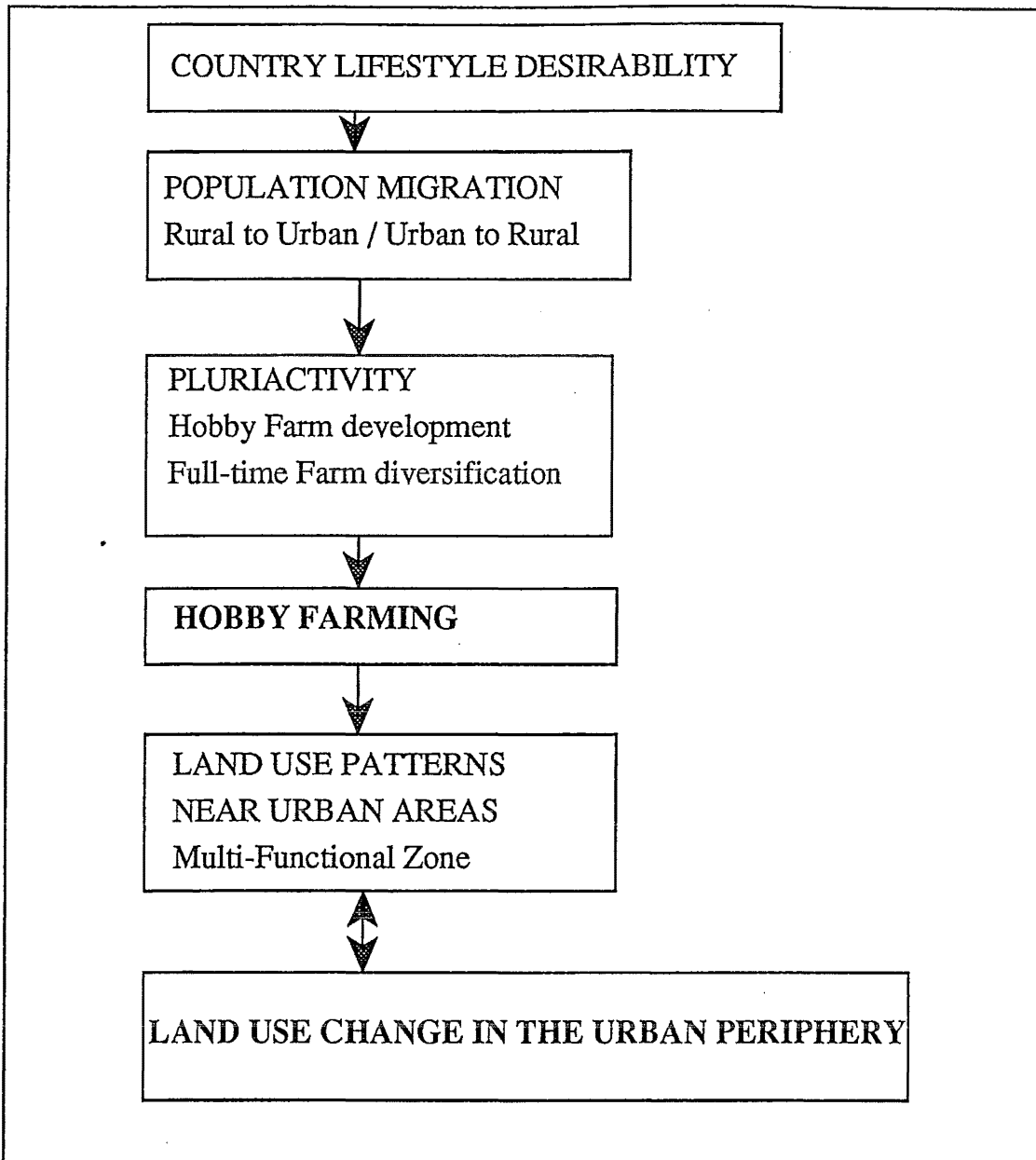


Figure 9.3: Modified Land Use Change in the Urban Periphery and its Interacting Influences.

9.2 would be superficial and would lack reasons for their location. Theory also acts as a secure base from which to formulate field study, resulting in the construction of a data base which adequately provides the desired research knowledge.

The use of accepted theoretical bases has enabled land use patterns to be designated and influences to be recognised and explained. Following this further modification can be made to the model. *Figure 2.4* illustrated the interaction of the theories discussed on land use change in the urban periphery, however, it does not illustrate all the interaction which was occurring in the present study. *Figure 9.3* re-evaluates the linkages between the three theoretical concepts which were identified in in Chapter Two.

This model shows that the desire for a country lifestyle is the first step in the process of land use change in the urban periphery, resulting in population migration flows. As people begin to develop residences they in turn create pluriactive farming ventures. From this development hobby farms are established which then introduce the multi-functional land use zone adjacent to the urban area. Consequently this creates the land use change and interacting land use patterns illustrated in chapters six and seven.

9.6. CONCLUSION.

Therefore in conclusion the desire for a country lifestyle and population flows in the urban periphery zone has caused the development of pluriactive and hobby type farming. This development has resulted in multi-functional land use zones and the displacement of traditional farming practices. This has created the formation of new insights into the existing theories and their interacting formulas.

CHAPTER TEN: CONCLUSIONS.

10.1. OBJECTIVES AND ANSWERS.

Chapter One outlined the four objectives of this research and the research question. The aim of these objectives and the research question was to provide a guideline for the study and enable conclusions to be drawn within an appropriate framework. This final chapter re-establishes these objectives and discusses the conclusions which were found in relation to them.

10.1.1. Land Use Change In The Urban Periphery Of Christchurch.

Land use change in the urban periphery of Christchurch was identified in a two dimensional manner. Firstly it was found that multi-functional land uses had developed since 1970, and secondly that the traditional land uses had been replaced and modified. In the first instance the overall trends described in Chapter Six illustrated that land use in the four aggregated study areas had resulted in the development and domination of multi-functional land uses. The information gathered from each of the individual study areas showed that multi-functional land uses were most dominant in the Ladbroke and West Melton areas. Marshland also underwent an increase of multi-functional land use but not to the extent of the other areas.

In conjunction with the increase in multi-functional farming practice it was found that traditional land uses had declined significantly. All the study areas underwent change from traditional land use types. Ladbroke in 1970 was largely practicing dairy farming and by 1992 had transformed these land units into multi-functional operations. West Melton and Marshland underwent similar changes. Marshland also lost traditional land use types in the form of dairying and market gardening over the study period but instead of leaning towards multi-functional development, Marshland developed into an area of diverse land use types. These types included: beef cattle grazing; horse grazing; deer farming and sheep grazing. The scenario in West Melton was very different. This area in 1970 was largely made up of idle land units. Since 1970 the West Melton area changed from being unproductive to the development of multi-functional land units. The Prebbleton study area

differed from the others. The land use types identified in 1970 have been unchanged over the study period with no multi-functional development.

The selected study areas were significantly different from one another in terms of location, size, soil type and traditional land use type, and therefore provided a representation of the land use changes occurring in the Christchurch urban periphery as a whole. Derived from this is the answer to the first part of the research question, land use change in the urban periphery of Christchurch from 1970 to 1992 has resulted in the development of multi-functional land units at the expense of traditional uses.

10.1.2. The Role Of Hobby Farming In Land Use Change In The Urban Periphery Of Christchurch.

The study found that the role of hobby farming in land use change in the urban periphery of Christchurch was significant. The development of hobby farming units caused the changes outlined in Section 10.1.2. Results from the field study showed that the establishment of multi-functional land uses was directly related to both the development of such land uses on hobby farming units and had in turn caused change on full-time operations.

Hobby farms were found to be developed as a result of the owner or operators desire to enjoy the country lifestyle but not to become a 'farmer'. In other words hobby farmers had no intention of making their household and farm income dependant on profit derived from the land unit. In turn this resulted in the utilisation of multi-functional combination of land use types, particularly in the grazing and raring of sheep and horses, and horticultural production in the form of market gardening.

The establishment of hobby farms in the study areas has also caused changes on full-time farms, many of which were family orientated and had been farming in the areas since the 1920s. These farmers recognised that hobby farm development adjacent to their farms had increased land rate levies which in turn had caused the intensification of full-time farms. Full-time farms had also undergone multi-functional land use development as a result of this. By engaging in diversification full-time farmers were able to counteract financial loss from increasing rate levies.

Overall hobby farming was the instigator of land use change in the study area, however its development was also influenced by planning regulations put in place by the regional and district planning schemes from 1970 onwards

10.1.3 The Influence Of Planning Initiatives On Land Use Change In The Urban Periphery Of Christchurch.

Land use change and the role of hobby farming in the urban periphery of Christchurch has been identified as causing the variations in land use in the area. It was found that planning regulations differed in their impact between the different locations of the study areas. The Marshland study area was significantly different in land use types as a result of its location within a different district council zone. Hobby farm development in the former Waimairi District was less restricted than in the Paparua County where the West Melton, Prebbleton and Ladbrooks areas were located. The subdivision of land in the Marshland area was undertaken long before 1970 and the small size of the land units was ideal for hobby farming development. Housing had already been established on these land units, therefore the need to obtain building permits for dwellings was unnecessary, and land owners or operators did not have to prove their farming experience or economic land utilisation in order to gain dwelling permits. This was not the case in the Paparua County district.

Within the Paparua County Council district land subdivision became increasingly from 1970 difficult as the issue of sustainable land use became more important. The Ladbrooks and West Melton areas were not influenced as much by such policies as Prebbleton. Prebbleton had undergone a period of recent subdivision and the development of hobby farms was less evident. On those hobby farms which had been developed their land uses were characteristic of the previously traditional types. This was a result of the hobby farm units in this area needing to prove their economic viability and sustainable land usage.

In identifying the influence of planning regulations it was found that four different interest groups have strong view points in regard to land subdivision and subsequent hobby farm development. Hobby farmers stated that they disliked the amount of time and money required to establish a land unit within the urban periphery and that planning regulations were too inflexible to cater for their needs. The hobby farming group also argued that land units not operated on a full-time basis could still be productive and cost effective operations. Full-time farmers fall into two groups. The first supported the subdivision of land for the development of hobby farming and they supported the views of the hobby farming group which found the development process long and costly. This group of full-time farmers recognised the profit to be made out of subdivision in their retirement. The second group of full-time

farmers argued that hobby farm development should be restricted so that full-time units could function without the threat of rising rate levies and the need to intensify their land unit or find additional off-farm income. Planners form the fourth group. Interviews with town and country planners identified the problem of satisfying all of the interest groups, including the council bodies who aimed for sustainable land utilisation and the control of increased urban sprawl. By placing legal bonds on recent smallholding developments in the urban periphery the planners have aimed to reduce unproductive development and lower the level of purely lifestyle orientated land units. In doing so the newly restructured district councils and their planning departments have undertaken surveys and organised forums which will help them to construct regulations which are balanced towards the interests of all the interacting groups. This is by no means an easy task.

10.1.4. The Relationship Of The Research Topic To Theoretical Models.

This objective resulted in the remodelling and adjustments made to the theoretical concepts outlined in Chapter Two. The adjustments made enabled the theories to correspond to recent land use changes within an urban periphery environment. Von Thünen's and Sinclair's concentric zone models of land use patterns near urban centres, were modified to incorporate the development of a multi-functional hobby farming zone directly adjacent of the urban centre. This has resulted in the displacement of traditional land use systems and the development of multi-functional hobby farming pockets located on the outskirts of the Green Belt zone.

Population migration concepts from the field study revealed that counterurbanisation had dominated the recent development of hobby farming in all the areas except Ladbrooks, where hobby farmers from other rural areas had established land units. Rural depopulation movements which continue to take place have also influenced the establishment of hobby farms in the urban periphery of Christchurch. However counterurbanisation was the dominant process taking place. Therefore it can be concluded here that land use change in urban periphery zones are influenced by the continuation of rural depopulation movements and the development of counterurbanisation flows.

The recent recognition of multi-functional farming has been identified in this research. Such farming has taken place on both hobby farm and full-time farmers. Hobby farms depend on multi-functional land use types and the

subsidising of this operation through the participation in off-farm work. Meanwhile hobby farming has caused land rate levies to rise and this has resulted in the transformation of traditional land uses and full-time farm operations participating in part-time off-farm employment in order to compensate for increased costs.

By incorporating these theoretical concepts in this research they have given a broader understanding of the processes at work in the urban periphery of Christchurch. Consequently this has enabled the theoretical context to be analysed and related to rural geographic knowledge at the global level. These concepts have helped to examine how land use changes have interacted with hobby farming in the Christchurch urban periphery from 1970 to 1992.

10.3. POLICY OPTIONS.

In the face of further research two policy options can be recognised to help sustain land use types and cost effective farming in the urban periphery of Christchurch. These options are listed below.

(1) Hobby farm development beyond the Green Belt zone.

This option would enable two situations to occur. The first is that hobby farms could be developed beyond the Green Belt zone where land is less fertile and not intensively farmed. By doing this the pressure on land in the urban periphery would be reduced. This in turn would create the second situation.

Given that hobby farm designation zones beyond the Green Belt would locate such operations further from the city, this would reduce the number of households wishing to develop such units and would thin out those who were not truly dedicated to the lifestyle from the others. While this option may seem impractical because of distance characteristics it is still feasible as the distance from Christchurch City is relatively short even beyond the Green Belt zone. This would not thin out hobby farm developers but their operations would be relocated out of the urban periphery. In other countries which have much larger populations the distance travelled from home in a suburb may be just as long as the 30 to 60 minutes travelling time needed to travel from outside the Christchurch urban periphery to the centre of the city. This option involves the changing of peoples perceptions in relation to commuting times.

(2) The extension of legal bonds on land use development in the urban periphery.

This option reinforces the legal bonds created on land units which develop on

newly subdivided land in the urban periphery. At present these bonds exist in relation to the development of a residential unit on a smallholding. The research found that hobby farms could reduce land use productivity levels after caveat expiry. It was also found that after sale of such land units, which had past the expiry of the bond, land use systems may change and become less cost effective. To eradicate this problem the caveat may be re-introduced on ownership change. This would force the new developers to continue in productive land usage.

Another segment of this option would be to lengthen the time limit of the legal bond and force the land developers to be more committed to their land use operation. At present the bond lasts for three years, perhaps five years would be a more realistic term.

10.4. CONCLUDING REMARKS.

This study has identified the land use changes which have occurred from 1970 and 1992 in the urban periphery of Christchurch. It was discovered that the land use change was a result of the development of hobby farming units. The examination of planning regulations and initiatives recognised that the development of hobby farms and land use changes were influenced in turn by planning policies. Much controversy surrounds this topic and it seems unlikely that a balance between all the interacting interest groups can easily be achieved. The implementation of new regional and district planning schemes within the next year will provide more insights and subsequent changes to the land use systems which were identified in this study. The next five years will be a crucial period for land use operations close to Christchurch and a re-evaluation of this topic at the end of that time would be most valuable.

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University of Canterbury

r Land Unit Owner/Operator,

m a Geography Master of Arts student at the University of
terbury. This year part of my degree requirement consists
a written thesis. My chosen topic for this thesis relates to
land use change on the rural area around Christchurch City's
an district since 1970. Within this structure I also want
find out the role of the part-time farmer or hobby farmer
this change.

order to help find information on such a topic I have chosen
select several study areas in which I plan to conduct the
ached survey. I would very much appreciate it if you were
e to fill out the questionnaire as it is crucial to the
pletion of my thesis. All answers will be treated as highly
fidential. Thank you for your co-operation and time.

rs faithfully

ey M Edwards

I N S T R U C T I O N S

Please answer as many questions as you can and feel free to call me at 322-8437 if you have any difficulties.

Most questions require either a ✓ tick in the supplied box or a short written explanation. If you find that you require more space to answer a question - for example question 22 - there is space provided on page 12.

The meaning of 'LAND UNIT' throughout the questionnaire relates to the total amount of land of which you operate whether you own it, lease it, manage it, or if it is in separate blocks. When sizes of land are required please remember to either delete the inappropriate measurement or simply add 'ac' for 'acres' or 'ha' for 'hectares' behind the amount.

Thank you.

NAME: _____

ADDRESS: _____

TELEPHONE NUMBER: _____

PLEASE TICK THE APPROPRIATE BOXES AND FILL IN THE APPROPRIATE SPACES.

What relationship do you have to this land unit?

- Part-owner
- Part-owner and operator
- Owner
- Owner and operator
- Manager

Is this land unit used for agricultural production? -

- Yes
- No

Do you live on this land unit?

- Yes
- No

→ If NO - Where do you live and is it rural in location or within a residential area?

Location: _____

- Rural
- Residential

How many people are employed in fulltime (30 hours labour per week and over) work on this land unit? (this includes family members who are paid or receive some type of remuneration)

- None
- One
- Two
- Three or more

5. How many people are employed in part-time (less than 30 hours labour per week) work on this land unit? (this also includes family members who are paid or receive some type of remuneration)

None

One

Two

Three

Four or more

→ Please state the grouped hours each individual works per average week.

Individual 1: _____ hrs

Individual 2: _____ hrs

Individual 3: _____ hrs

Individual 4: _____ hrs

If more than four individuals are employed on a part-time basis then please use the space provided to summarise the employment structure of your operation.

6. What is the total size of this land unit you own or operate?
 _____ acres/hectares (delete the inappropriate unit of measurement)

7. Is this land unit in one complete block?

Yes

No

→ If NO - please state how many blocks their size, their location and the type of ownership of each block if you do own it in part or total, or is it leased from someone else.

BLOCK NUMBER	SIZE acres/hectares (delete)	LOCATION	OWNERSHIP TYPE part, total, lease

When did you or your family first begin operating this land unit?

Year: _____

What types of land use system do you currently operate?

TYPE	STOCK NUMBER or LAND SIZE for CROP
Beef Cattle	
Beef Cattle(continued)	
Beef Cattle(continued)	
Dairy Cattle	
Horses	
Horses(continued)	
Deer	
Goats	
Sheep	
Sheep(continued)	
Crop	
Crop(continued)	
Crop(continued)	
Pigs	
Horticulture	
Horticulture(continued)	
Horticulture(continued)	
Horticulture(continued)	
Other(specify) _____	
Other _____	
Other _____	
Other _____	

14. Since 1970 or your purchase or occupation of this land, have you sold any of your total land unit?

Yes → If YES - how much? _____ ac/ha
 No what is it now used for? _____

why did you sell it? _____

15. What proportion of your (the owner or operator) total income per year derives from your land unit?

0 - 5%	<input type="checkbox"/>	36 - 40%	<input type="checkbox"/>	71 - 75%	<input type="checkbox"/>
6 - 10%	<input type="checkbox"/>	41 - 45%	<input type="checkbox"/>	76 - 80%	<input type="checkbox"/>
11 - 15%	<input type="checkbox"/>	46 - 50%	<input type="checkbox"/>	81 - 85%	<input type="checkbox"/>
16 - 20%	<input type="checkbox"/>	51 - 55%	<input type="checkbox"/>	86 - 90%	<input type="checkbox"/>
21 - 25%	<input type="checkbox"/>	56 - 60%	<input type="checkbox"/>	91 - 95%	<input type="checkbox"/>
26 - 30%	<input type="checkbox"/>	61 - 65%	<input type="checkbox"/>	96 - 100%	<input type="checkbox"/>
31 - 35%	<input type="checkbox"/>	66 - 70%	<input type="checkbox"/>		

If the proportion is not 100% then please explain what proportion of your total income comes from other ventures or operations.

Proportion: _____ Venture Type: _____

Proportion: _____ Venture Type: _____

Proportion: _____ Venture Type: _____

16. Have any houses been built on your land unit that you currently own or manage since 1970 or purchase?

Yes → If YES - how many? (this excludes new houses that have replaced those that have already existed)

No Number: _____

17. Have any houses been demolished and not replaced?

Yes

No

Are you partially retired?

Yes
No

How many permanent residents on this land unit have fulltime (more than 30 hours labour per week) off-farm employment?

Number: _____

How many permanent residents on this land unit have part-time (less than 30 hours labour per week) off-farm employment?

Number: _____

Of those who have off-farm employment - please state their age, type of employment, whether or not it is full time or part-time, and their relationship to the owner or operator of this land unit.

AGE	TYPE of EMPLOYMENT	FULL or PART-TIME F/P	RELATIONSHIP TO OWNER or OPERATOR i.e. son, w

Is there any land in this unit that is not used on a regular basis for production or stock growth?

→ If YES - for what reason? _____

If you answered 'None' to question 4 please state the reason for establishing this land unit.

Want for country lifestyle

Aim to increase profit

Family or friendship reasons

To enhance leisure capabilities

