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**A STUDY OF RURAL SMALL HOLDINGS  
IN TARANAKI COUNTY**

by

**A.D. Meister**

**D.S. Stewart**

DISCUSSION PAPER IN NATURAL RESOURCE ECONOMICS NO. 3

Department of Agricultural Economics and Farm Management  
Massey University, Palmerston North. *New Zealand*

1980

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PREFACE

This paper reports the results of a study of rural small holdings in Taranaki. The desirability, or otherwise, of small rural subdivisions is currently a very controversial topic and is an important example of the conflicts in land use that can arise. There are no easy or simple solutions to the problem and this paper does not offer any. However, it is possible to describe and analyse specific situations and this is what the authors have done.

Optimal use of our land resources is important but economic considerations should not be the overriding criteria. Social as well as cultural factors should be considered in making decisions about the desirability of rural small holdings. This discussion paper provides factual information which should be helpful in the continuing debate and may assist those who are required to decide these issues.

The paper is based on a Bachelor of Agricultural Science honours dissertation written by Miss Deborah Stewart under the supervision of Dr. A.D. Meister. I wish to thank all those who assisted Miss Stewart in carrying out this investigation.

A.R. Frampton,  
Dean, Faculty of Agricultural and Horticultural Sciences

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## INTRODUCTION

The expansion of urban areas onto fertile agricultural land and the trend towards rural subdivision and rural residential living are creating major problems for town planners today. Much has been written already on the topics of 'urban sprawl' and rural subdivisions and recently a three day conference was completely devoted to the topic of Peri-Urban land use. <sup>1/</sup>

The aim of this discussion paper is not to restate what has been documented already, but rather to provide some factual information on one specific aspect of the topic of Peri-Urban land use, namely small holdings.

Small holdings are a product of the subdivision of larger agricultural holdings, and are a common feature of the periphery of urban areas. Their presence has been described as "a response to the function of the urban place both as a market for agricultural produce and as a repository for people who seek a rural lifestyle, but access to aspects of urban life.(1)

Many contradictory and emotive statements have been made about the functions of small holdings and the effects they have on the physical, social and economic environment. Table 1 summarises a few of the claimed advantages and disadvantages of such properties.

Table 1.1

### A. Some Arguments Against Small Holdings

1. Loss of good productive farm land to small unproductive units.
2. Pressure on local counties to upgrade or provide an extension of services (e.g. roads, water supply, sewage disposal).
3. Conflicts with farming practises, such as stock disease and noxious weed, can arise.
4. Inflated prices for such holdings pushes up prices for larger rural properties and leads to increased rateable values.
5. Under-utilisation of the land, production losses and consequent loss of potential overseas earnings.
6. Speculative gain, or a hedge against inflation.

---

(1) Land Use Advisory Council's Seminar on Peri-Urban Land Use: Hamilton, 1-3 December 1979.

B. Some Arguments in Favour of Small Holdings

1. More basic and satisfying lifestyle.
2. Favourable surrounds for bringing up children.
3. Permit variety in rural production (e.g. eggs, vegetables, fruit, nursery crops).
4. Increase in rural/urban contact.
5. Prospective farmers are able to accumulate capital and gain practical experience (i.e. stepping stone to farming).
6. Rural services, threatened by lack of patronage, can be retained.
7. Higher output per hectare.

Undoubtedly some of these statements contain elements of fact, but others are based largely on uninformed opinion since few studies on small holdings have been conducted.

One of the earliest studies on small holdings was undertaken by the MOWD (2). This study estimated that there are some 27,000 (1975) small rural properties of between 0-10 ha in New Zealand, occupying 100,000 ha of land, located mostly in the more densely populated parts of the country. More information at the national and regional analysis was provided in a study of the data by the Economics Division of MAF. (3).

Several studies have been undertaken in various parts of New Zealand to attempt to measure the effects of subdivision of rural land on agricultural production (1,4,5,6,7,8) and on some of the sociological aspects. (9)

Barker and Brown (10) after considering those studies dealing with agricultural productivity made the following conclusion -

"Clearly no definitive statements can be made about the relationship between subdivision of land into small holdings and agricultural productivity. On some holdings production increases considerably, but on most the levels of production fall, at least initially. An important consideration is whether their potential for future agricultural production is adversely affected following subdivision. The small farm can be a more efficient use of land owing to more intensive inputs of capital, labour and farming skills, but this depends on the farmer, the location of the property and a number of other variables which act and react in each individual circumstance."  
(10, pg.14).

This conclusion and the studies referred to, clearly show that the effects of small holdings on the regional environment and the productivity of such small holdings will vary from area to area. Therefore there is great need to gather further information on the costs and benefits of rural subdivision. Such information should be of great help to those who are charged with planning "The wise use and management of New Zealand's resources" (11, section 3).

In this discussion paper a study investigating small holdings in the Taranaki County is reported on. It follows on the earlier work of Chui (4).

## I. SMALL HOLDINGS IN TARANAKI COUNTY

### 1.1 Introduction

Taranaki County, situated on the North Taranaki coast, comprises some 588 square kilometres, bounded to the east by the Waitara River and to the west by Puniho Road. The dominant topography of the area is flat to rolling country, surrounding Mount Egmont and dissected by many streams arising from the extinct volcano. Below 500 feet this ring plain grades gently into narrow coastal terraces.

With the exception of those parts of the County included in the Egmont National Park, the land is well drained, high quality farmland and is used primarily for dairy and intensive beef production. However, the generally favourable soils and climatic conditions allow for a variety of productive enterprises. Other agricultural/horticultural activities in the area include sheep farming, broiler chicken production, exotic forest plantations, cash cropping and commercial horticulture producing various vegetables, fruit and nursery crops.

The County also includes some relatively small, but developing urban areas adjacent to the City of New Plymouth, which are based around manufacturing processing and service industries. Bell Block and Fitzroy are two such areas.

### 1.2 Small Holdings

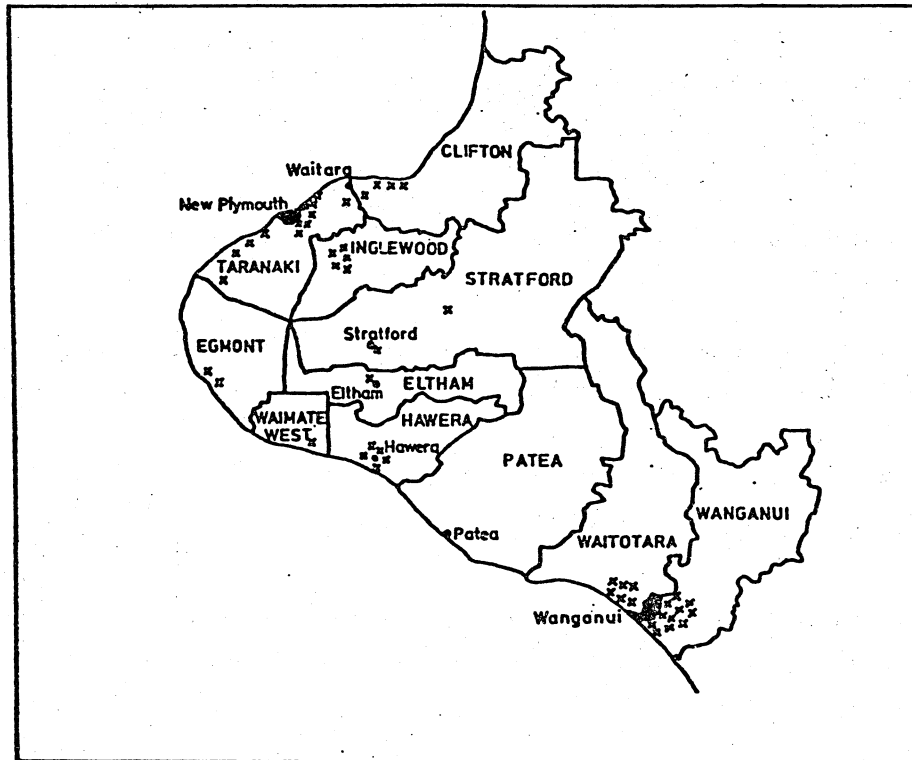
As is common in many New Zealand districts, peri-urban and rural subdivision have given rise to a number of small holdings in the County. Data on the number of such holdings are contained in a general survey of small rural properties, carried out by the Town and Country Planning Division of the MOWD in 1974-75 (2).

In this report, a rural residential holding was defined "as a rural holding between .8 and 10 hectares which is used as the full time home of a household, the head of which is either retired or engaged in full time work away from the property" (2, page 44).

From this survey it was estimated that there were 210 such holdings in the Taranaki County, the bulk of these being located in the Bell and Hua districts, adjacent to the New Plymouth Metropolitan area. Other smaller groups of such holdings occur south-west of New Plymouth (Figure I).

If all rural small holdings (not just those used for residential purposes and with the head of the household engaged in full time occupation away from the property) are included, and account is taken of more recent subdivisions, then the number of small holdings currently in the County will be well in excess of this original estimation.

FIGURE I: Distribution of Rural Residential Holdings in Taranaki - Wanganui



X - clusters of small holdings

Geographic County	Estimated Number
Clifton	40
Taranaki	210
Inglewood	40
Stratford	90
Egmont	20
Eltham	30
Waimate West	10
Hawera	80
Patea	20
Waitotara	140
Wanganui	116

(Source: MOWD Town and Country Planning Division, 1975)

### 1.3 The Aims of the Study and the Area Involved

This study was carried out to provide some information on small holdings (and their owner/operators) in Taranaki County. This information was obtained by investigating a number of properties in the Glenavon-Katere and Bell districts (Figure II).

The specific objectives of this study were -

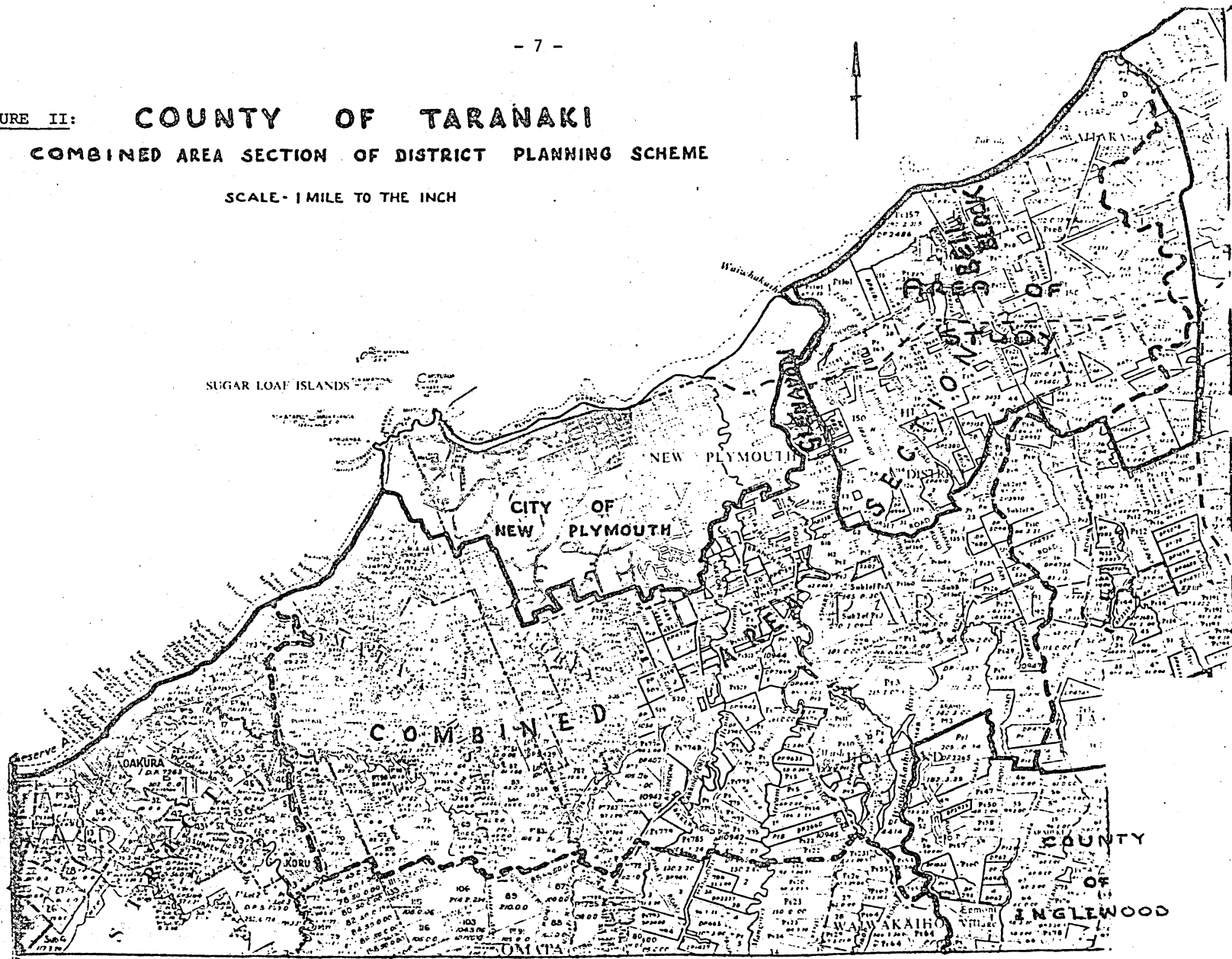
- (a) To identify the general characteristics of small holdings and small holders, in the specified area.
- (b) To establish the current pattern of land utilisation on small holdings in the area, and to obtain information on any proposed changes in land use, affecting this pattern.
- (c) To get an indication of the productive characteristics of a specific sample of small holdings.

At the time of the study the Inventory Worksheets for Taranaki County, being prepared by the National Soil and Water Conservation Organisation, had not been completed. However, an Inventory Map was made available so that some information on soils, land capability and limitations to agriculture in the study area could be obtained.

The Inventory Map showed that the land occupied by the small holdings investigated fell all within capability classes I - V. In general terms, Classes I - III describe land suitable for cultivation for cropping with Class V being non-arable (12). Thus, the land occupied by the small-holdings is on the more productive agricultural land.

FIGURE II: COUNTY OF TARANAKI  
COMBINED AREA SECTION OF DISTRICT PLANNING SCHEME

SCALE - 1 MILE TO THE INCH





## II. METHODOLOGY

### 2.1 Survey Method

Because of the limited resources available and time restriction, it was decided to use a postal questionnaire.

To achieve a maximum response rate, emphasis was placed on comprehensibility and simplicity of the questionnaire. A follow up letter was sent to respondents a short time after the questionnaire was first posted. In the interim period, brief articles were published in the local newspaper and in "The Small Farmer" journal, and a report was made on the local radio station, all to bring this study to the attention of Taranaki small holders.

### 2.2 The Sample

The area from which the sample was drawn was selected for three main reasons -

1. The development of small holdings in the area.
2. Expressed interest in the area by the Taranaki Agricultural Advisory Council.
3. The ease with which the total small holding population could be identified.

For the purposes of the study, small holdings were defined as those holdings between one and ten hectares that are classified as 'agricultural' by the Valuation Department, as distinct from industrial, commercial and residential. Access to Valuation Department cadastral maps and Roll Files, enabled all the relevant properties to be located.

Small holdings that were identified as being owned or operated in conjunction with a larger property, were omitted from the total population in an attempt to eliminate the inclusion of properties used as dairy farm run-offs.

A total population of eighty-nine rural small holdings was identified in the study area, from which a random sample of sixty was drawn. Thus, the sample represented 67.4 per cent of the total population. However, at a later stage it was realised that the total population had been inaccurately assessed and in fact included a number of properties that were in excess of ten hectares. It appears that this error was due to two points. The first was the situation where a property recognised as a small holding in Taranaki County is utilised as part of a larger property in an adjacent County. The other difficulty was in the case where a large block of land was comprised of a number of small surveyed sections that were each detailed separately in the Valuation Roll Files. Under this circumstance the property concerned was omitted from the population, but it appears that this was over looked in at least two instances. The adjusted total population of small holdings in the study area was eighty two.

### 2.3 Returns

Replies were received from fifty of the sixty persons to whom a questionnaire was sent. Forty questionnaires were returned at least partially completed. One personal interview was carried out, and telephone contact with a number of respondents to clarify some information given, brought the total number of useable replies to forty-one. Figure III shows the aggregate distribution of the forty-one holdings, where the figures on the map represent the number of holdings in each of the shaded areas.

Five respondents specified that the area of the property concerned exceeded ten hectares. Other reasons given for non-response were, absentee owners, current legal disputes concerning the property, property used as a run-off, felt that the property was not relevant to the study, no knowledge of property ownership, or no reason was given.

Brief investigation of the thirteen holdings from which no completed returns were received (i.e. excluding properties greater than ten hectares and/or used as run-offs), indicated that there was no bias in the physical distribution of these properties but a definite bias in holding size was apparent. The mean size of the properties is considerably less than that of the properties used in the subsequent analyses, with most of the thirteen holdings falling in the 1.0 to 3.9 hectare size class, as shown in Table 2.1.

Table 2.1

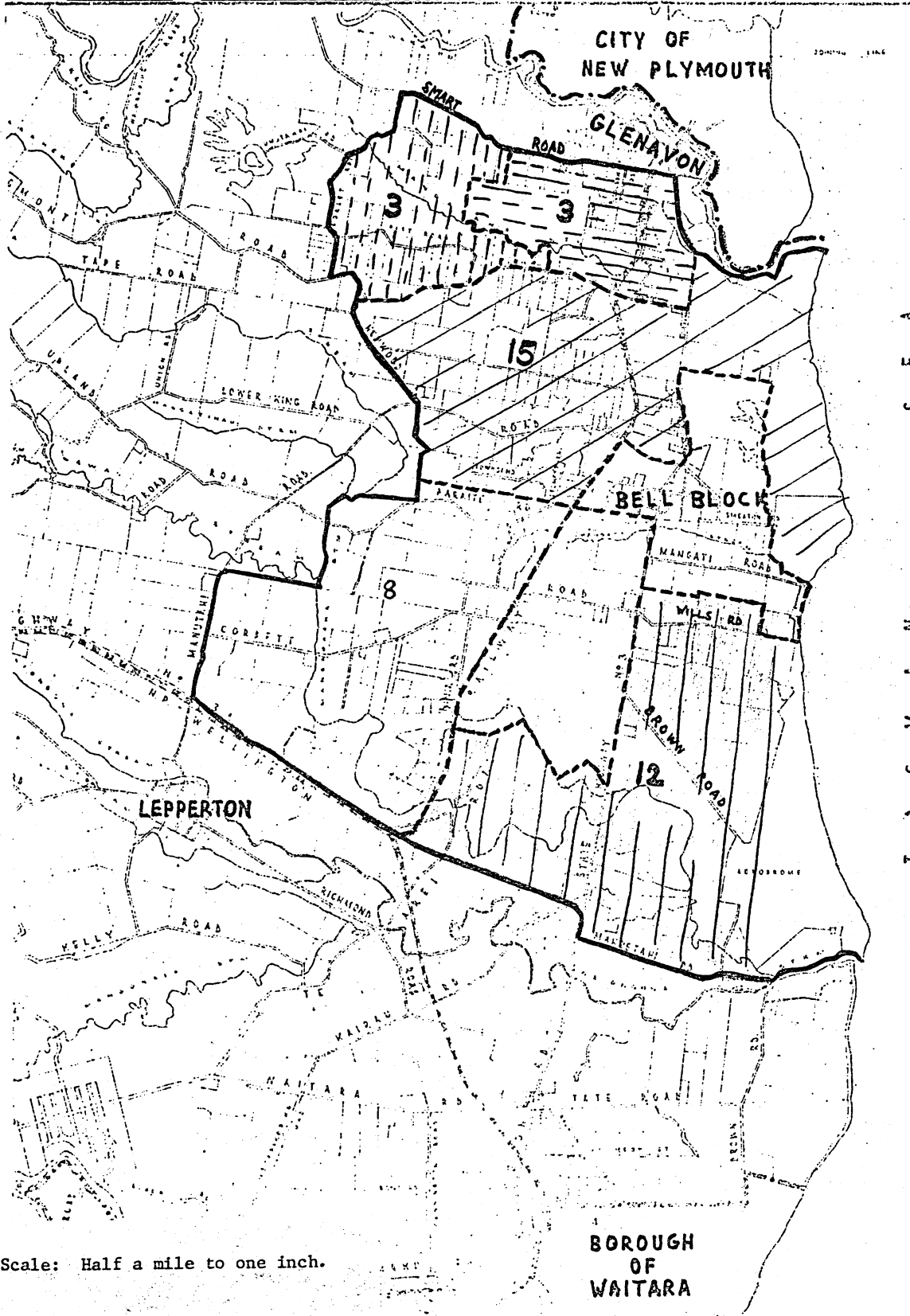
Distribution of Non-Responses by Size Class

Size Class (hectares)	Number of Properties
1.0 - 3.9	8
4.0 - 6.9	3
7.0 -10.0	2

Due to the bias, and also because the total population was originally inaccurately identified, this study should be considered as a specific study pertaining to the forty-one properties for which detailed information was made available, rather than as a sample study.

The study population of forty-one properties occupied an area of approximately 222 ha's. Adding to this the area of the 13 non-respondents, and assuming a similar size distribution for the not-interviewed properties, these 222 ha's represent approximately 53% of the land in small holding (in the study area).

FIGURE III Distribution of Properties Studied



Scale: Half a mile to one inch.

Source: New Plymouth Valuation Department Roll Files, 1979.

T A C M A N  
S E A

## 2.4 The Questionnaire

The questionnaire used in this study, is contained in the Appendix.

The questionnaire was designed with both the specific objectives of the study, and the recognition of the need for an acceptable format and for comprehensive questioning in mind.

The first question was vital to establish whether or not the property was relevant to this project. Questions two, three and four were directed at getting basic information on tenure and productive/non-productive land use. The 1978/79 season was specified as the base year to avoid confusion, and to ensure that all respondents provided comparable answers.

The next series of questions (see questions five to thirteen) attempted to gather information on the productive characteristics of the small holding, in terms of livestock numbers and type, details of any cropping and/or horticulture, and of other activities carried out on the property.

The questions on home consumption were included to gauge the extent to which various goods were produced for home use, as against produce sold.

Question fourteen was included to investigate the changes in production variety and intensity, likely to occur in the near future on the holdings concerned, and enabled limited identification of district trends in this respect.

The question asking for details of gross income derived from various sales, (see question fifteen) was the only question that obtained financial information relating to the use of the small holdings. The limitations of gross income values is recognised but the information did provide some base for comparison. No attempt was made to assess levels of production efficiency on the properties. Details of gross income were requested, rather than net income figures or detailed specification of costs and returns, since it was expected that this information would be more easily recalled and more likely to be specified by the respondents. (1)

The section on labour (see question seventeen) provided details on the labour input into the small holdings. Information on both family and non-family labour was requested, to establish total labour input, and to ascertain the degree to which small holdings provide a source of employment in the district.

---

(1) It is very difficult to obtain data on cost and returns using a simple postal questionnaire, and either a longer questionnaire or a personal interview would be needed to obtain this data. The extra work involved made such an approach not possible for this study.

A series of questions to gather some information on residential and social aspects of the owners or operators of the small holdings, was included (see questions eighteen to twenty-one). Details of occupational status, residential status, and household earnings from off-farm sources, were requested. Respondents were asked to rank several alternatives given, as reasons for acquisition or leasing of the property (see question twenty-one) and were also given the opportunity to add to the list of reasons given.

The final two questions were included to get some idea of the problems faced by small holders in the area, and to give respondents the opportunity to provide any additional information they thought relevant to the study.

### III. RESULTS OF THE STUDY

In this chapter the results of the survey will be discussed. To retain anonymity of the respondents, the results have been aggregated by holding size. The first part of this chapter will deal with the general characteristics of the small holding and their owners/operators.

#### 3.1 General Characteristics of the Population Sampled

##### 3.1.1 Size of Holdings.

The mean size of holding, as derived from the forty-one useable returns, is 5.4 hectares. The range in size of the properties studied is from 1.5 to 9.8 hectares.

For the purpose of this study, the forty-one properties have been divided into three size classes - 1.0 to 3.9 hectares, 4.0 to 6.9 hectares and 7.0 to 10.0 hectares. Table 3.1 shows the number of the properties studied within each size class, and the mean size of holding in each class.

Table 3.1            Number of Holdings and Mean Area by Size Class

Size Class (hectares)	Number of Holdings	Mean Size (hectares)
1.0 - 3.9	13	2.6
4.0 - 6.9	14	5.1
7.0 - 10.0	14	8.4

Information obtained, enabled assessment of the proportion of each property which is available for agricultural/horticultural production purposes. Generally, the area specified as 'not available for production purposes' represents the area used for residential purposes, but in some instances may include areas rendered 'non-productive' by physical features such as swamp, creeks, bush or by other buildings. No attempt was made to distinguish between 'residential' and 'other' non-productive land. Table 3.2 summarises these findings, with relevant area expressed as a mean for the particular size class. In each of the three size classes there was one return that did not specify that a part of the holding was not available for production purposes - these have been omitted from the table.

Table 3.2      Mean Productive and Non-Productive Areas by Size Class

Size Class (Hectares)	Area not available for production (ha)	Area available for production (ha)
1.0 - 3.9	0.4	2.2
4.0 - 6.9	0.4	4.7
7.0 - 10.0	0.5	8.0

In each size class the range in the area of land not available for production purposes is from 0.05 hectares to approximately 1.5 hectares. The slightly greater mean area in the 7.0 to 10.0 hectare size class, of land not available for production, is due to a greater frequency of properties with an area (not available for production) towards the upper limit of the range specified, rather than a shift in the range, as compared with the other size classes.

The area available for production purposes for individual holdings is used subsequently to derive information on stocking rates for the properties concerned.

### 3.1.2 Tenure

Respondents were asked to specify the tenure under which the property was held.

Table 3.3      Small Holding Tenure by Size Class

Size Class (hectares)	Number of Properties		
	Freehold	Leasehold	Mixed Tenure
1.0 - 3.9	12	-	1
4.0 - 6.9	13	-	1
7.0 - 10.0	10	2	2
Total	35	2	4

Clearly, the majority of properties investigated in this study are freehold. Both leasehold properties are used predominantly for grazing livestock and the lessee has full-time employment away from the property in each case.

Of the four properties with mixed tenure (i.e. freehold and leasehold), one is used for nursery crop production, while grazing stock and pasture conservation are the only purposes for which the other three are used.

In one instance the holding is a small dairy farm and the leasehold land is used in conjunction with the freehold block for grazing young stock and making hay. With another of the mixed tenure properties, the whole area was originally freehold but a portion of



the land was zoned industrial and is now leased back to the owner from the industry.

Unfortunately the other owners/operators concerned could not be contacted at a later date, to establish whether or not they have intentions of further purchase, or otherwise.

3.1.3. Occupation

Table 3.4 indicates that nearly two-thirds of the owners/operators of the small holdings investigated have some form of employment away from the property.

Table 3.4 Occupational Characteristics of the Small Holders

Occupation	Number of Small Holders	Percent of Respondents
Urban Base	13	31.7
Rural Base	13	31.7
Retired	2	4.9
No other occupation	10	24.4
No specified	3	7.3
Total	41	

A similar study undertaken in Taupo County proposes that one of the features that may characterise a rural farmlet community is "settlement of the area by people with urban occupations". (5) The results of this survey suggest however, that even though New Plymouth City is near, the area investigated does not fit into the above characterisation. The prevalence of an unexpectedly high proportion of owners/operators with some rural base occupation away from the property, is likely to be a function of the predominantly rural nature of Taranaki County, and of the many rural base industries located in, and adjacent to the relevant district. Examples of such 'industries' include - freezing works, dairy process companies, a Poultry Co-op feed mill, a General Foods breeding farm, agricultural merchandise suppliers and agricultural contracting companies.

An alternative classification of employment is one based on that used by Moran et.al. in a pilot study of rural small holdings in the vicinity of Auckland (1). Using this classification, the twenty-six small holders who specified an occupation away from the property can be grouped into various occupation categories, (see Table 3.5). One category, namely 'agricultural contracting' has been added to those used by Moran, since it was felt that this employment is distinct from the other occupational categories described.

Of the twenty-six small holders considered here, twenty have a full-time occupation away from the property, while the other six have only a part-time employment away from the property.

Table 3.5 Occupational Classification of Small Holders

Occupation Classification	Number of Small Holders	Percent of Small Holders
Professional/Managerial	7	26.9
Office/Sales	4	15.4
Skilled manual	3	11.5
Semi-skilled/Unskilled	6	23.1
Agricultural Worker	3	11.5
Agricultural Contracting	3	11.5
Total	26	

The study undertaken in the Auckland vicinity and a similar survey in Paparua County (on the Christchurch urban periphery) both showed that the dominant occupational category of the small holders was professional/managerial. With current high land prices for these 'rural' small holdings, this could be expected since purchase is becoming restricted to persons in a higher income grouping. This feature is not as clearly illustrated in this instance however, as in the other two studies mentioned. It is of significance however, that recent purchases of small holdings in the area of study, have more often been made by persons in professional/managerial occupations than by those in other occupational categories (Valuation Department 1979). This reflects one of the effects of increasing land values of rural small holdings in recent years.

To serve as a summary for this section on occupation of the small holders, Table 3.6 presents a summary of the small holders labour input into the property, (i.e. part-time or full-time), in each of the size classes.

Table 3.6 Employment of Small Holders on Their Properties

Size Class (hectares)	Full-time on the Property	Part-time on the Property	Retired	Not Specified
1.0 - 3.9	5	5	2	1
4.0 - 6.9	5	8	-	1
7.0 - 10.0	3	10	-	1
Totals	13	23	2	3

This table includes all forty-one small holders considered in this study.

Eight of those who specified full-time employment on the property operated either commercial poultry or nursery units. The other properties on which full-time employment of the holder was specified, included one pig-breeding unit, a sub-tropical orchard unit, a dairy unit, and one property which provided full-time employment for the semi-retired owner.

3.1.4 Household Characteristics

There were thirty-two respondents who are at present residing on their property, including one family, resident on a leasehold property. Three respondents did not specify their residence status.

Table 3.7 Residence Time of Respondents on Property

Time of Residence	Number of Respondents
Less than 2 years	4
2 - 5 years	10
5 - 10 years	9
More than 10 years	9
Total	32

Although the information was <sup>not</sup> specifically requested two respondents stated their intention of living on the property in the near future.

Fifteen of the thirty-two residential holdings were occupied by a family unit, while the others were households of either one or two adults only.

Of the six non-residents, only one works full-time on the property, one retired, and the other four each having full-time occupations away from the property.

Also of interest in this section is information on total household income from off-farm sources, for the small holders/holdings investigated. (See Table 3.8). Since total household income was requested, this will include the income of all 'earners' in the household, and will include income obtained from investments other than the property. Ten respondents did not provide an answer to this question.

Table 3.8 Household Income

Income Bracket	Nil	Less than \$5,000	\$5,000 - \$9,999	\$10,000 - \$14,999	\$15,000 - \$19,999	\$20,000 +
Number of Households	9	-	5	7	4	6

Of those who specified nil income from off-farm sources, 2 persons were retired, so presumably would be receiving some income from social security benefits.

3.1.5 Reasons for Acquisition or Lease of the Property

Some of the arguments concerning the use of small holdings can be at least partly answered by analysis of reasons given for investment (either purchase or leasing) in the properties. Such arguments are, that small holdings :

1. May merely serve as a hedge against inflation.
2. Are purchased with the intention of a tax free speculative gain at a later time.
3. Provide for a more basic and satisfying life style.
4. Provide favourable surrounds for bringing up children.

Respondents were asked to rank their reasons for acquisition of the property in order of importance, from a list given (See Question twenty-one), and were also given the opportunity to specify any other reasons they may have had.

There was much variety in the way this question was answered. In four instances respondents ranked two or more alternative reasons equally, and twelve respondents ranked less than three of the alternatives given. For these reasons, the most meaningful analysis of the replies given, is by looking at the frequency with which various reasons for acquisition were given, as either a first or second choice.

Table 3.9      Reason for Acquisition or Leasing of a Small Holding

Reason Given	First Choice	Second Choice
Investment	7	2
Interest in agriculture/ horticulture	19	7
Rural environment	8	8
Tax Saving	2	0
Cheaper Living	2	1
Health	3	0
Surrounds for Children	3	2
<u>Other Reasons given:</u>		
Life-style	1	0
Retirement plan	2	1
Dislike of white collar job	0	1

Clearly, interest in agriculture/horticulture, rural environment and investment were the primary reasons given for the acquisition or lease of the property, by the majority of respondents.

The location of the area of study adjacent to the City of New Plymouth and peripheral urban areas allows for fast and easy access to these areas for employment, shopping and other urban services. The district however, provides a rural environment for those people who prefer not to reside in urban centres.

Of those respondents who ranked all the alternative reasons given in the questionnaire, the alternative ranked most frequently as the last choice was 'tax saving'. This was ranked last by more than half of the respondents.

Other reasons given for acquisition were life-style, retirement plan, dislike of white collar job (as included in Table 3.9.) as well as "from a farming background" and subdivision of a larger property previously owned by respondent.

### 3.2 Land Use

The total land area of the respondent's properties is 222.8 hectares, of which 206.4 hectares can be classed as land used for production purposes.

Respondents were asked to specify the area of land or the proportion of the holding used for various agricultural enterprises in the 1978-79 season. This information was available for all but one of the respondents properties, and is presented in Table 3.10.

Table 3.10 Land Use Activity by Area

Activity	Total Area	Percentage of total area available for production
Grazing only	122.4	59.3
Grazing & Pasture conservation	24.3	11.8
Grazing & Forestry	6.0	2.9
Pasture conservation only	2.2	1.1
Forestry only	0.4	0.02
Pigs	1.7	0.08
Poultry	4.4	2.1
Vegetable crops .	6.2	3.0
Fruit Crops	17.2	8.3
Nursery Crops	7.9	3.8
Fallow	3.0	1.5
Earthworks	1.2	0.06
Not accounted for	2.1	0.1
Not specified	7.4	3.6

From the table it can be seen that grazing is the activity for which the majority of the land area of these small holdings is used. This is a function, not only of the relatively extensive nature of this activity (as compared to horticultural activities, pigs and poultry), but also of the number of holdings on which grazing of some type of stock occurs, as will be discussed later.

The reasonably high proportion of the area used for the production of horticultural crops (fruit, vegetables and nursery crops) is of considerable interest, in that it is a purpose for which Taranaki land is not well known. The area used for fruit crops is indicative of the recent development of various fruit production activities, in the area.

It is likely that the small area of land that could not be accounted for in this analysis, may, at least partly, be an area of shelter belts. Another reason for the area not completely adding up to the total stated, may be due to rounding errors.

Investigation of the number of small holdings on which various productive activities occur, serves to highlight the diversity of activities that is characteristic of the use of such properties in this area of study. (See Table 3.11).

Table 3.11      Frequency of Land Use Activity by Size Class

Size Class (ha) Activity	Number of Properties			Total	% Respondents
	1.0 - 3.9	4.0 - 6.9	7.0 - 10.0		
Grazing	11	12	13	36	90.0
Pigs	1	4	2	7	17.5
Poultry	7	4	5	16	40.0
Hay/Silage	3	6	7	16	40.0
Vegetables	3	4	3	10	25.0
Fruit	3	3	5	11	27.5
Nursery	1	3	1	5	12.5
Forestry	1	-	2	3	7.5
Kennels	-	-	1	1	2.5

Only fourteen of the respondents specified that the use of their small holding was confined to a single activity. (Note: Grazing and pasture conservation occurring on the same property are considered together, as one activity). In most cases this single activity is grazing, but nursery production and fruit production were specified as the only activity on two of the holdings in the 1.0 - 3.9 hectare size class. On ten properties, two different activities were carried out, while three or more activities occurred on sixteen of the holdings studied.

Clearly, the majority of small holders in the study operate some kind of pastoral activity on their property. The table above includes in it properties on which activities are carried out to provide produce solely for home consumption. This explains the relatively high frequency of holdings which operate vegetable and poultry activities.

Consideration of the number of holdings on which particular activities use the greatest proportion of the land available for production, serves to further describe the pattern of land utilisation on these small holdings (See Table 3.12).

Table 3.12 Main Land Use by Size Class

Size Class (hectares)	Activity				
	Grazing	Horticulture	Nursery	Pigs	Poultry
1.0 - 3.9	8	1	1	1	1
4.0 - 6.9	12	2	1	-	-
7.0 - 10.0	12	2	-	-	-
Total No. of Properties	32	5	2	1	1

- (Note: 1. Horticulture includes vegetable and fruit production.  
 2. The property with kennels has been excluded from this analysis.  
 3. Equal areas were used for horticultural and pastoral activities on two properties).

Again, this table shows a dominance of land use for pastoral activities, in each size class. That the main land use in the 1.0 to 3.9 hectare size class is more diverse than that of the two larger size classes is merely a function of property size.

The apparent dominance of pastoral activity is reduced somewhat if the frequency of the various enterprises, in terms of the greatest contribution to gross income on the small holdings, is considered.

Table 3.13 Main Economic Activity by Size Class

Size Class Activity (ha)	Number of Properties			
	1.0 - 3.9	4.0 - 6.9	7.0 - 10.0	Total
Sheep	-	-	1	1
Beef	2	2	3	7
Dairy	-	2	2	4
Hay	2	1	1	4
Pigs	1	1	-	2
Poultry	5	-	-	5
Horticulture	1	2	2	5
Nursery	1	2	1	4
Other	1	4	3	8

The table shows that sixteen of the applicable properties received the greatest proportion of gross income for the 1978-79 season from pastoral related activities (including - hay, wool, milk, meat and stock sales). Horticulture and commercial poultry production were each the main source of income on five properties, while gross income from nursery activities was dominant on four properties.



Included in the row 'other' are three properties on which the greatest proportion of gross income was received through leasing the property (or some part of it) for grazing, the property used for housing kennels, and those properties for which the information given was in some way inadequate for this analysis.

The gross income figures used in compiling this table represent income from the 1978-79 season only, thus income biases, due to factors such as market fluctuations and change of emphasis on particular production enterprises, will be inherent in these values. However, it is likely that these same factors or ones similar in effect, would be operating to the same extent in any one year, so the information presented in this table can be assumed to be a fair assessment of the true situation.

### 3.2.1 Pastoral Activities

Various pastoral activities were specified by the respondents, these included the grazing of breeding ewes, hoggets and lambs, beef cattle dairy replacements, dairy cows for milk production, horses and goats. Three other pastoral-related activities were specified namely calf rearing, bull rearing and pasture conservation.

Table 3.14 indicates the number of small holdings in each size class on which the various pastoral activities occur.

Table 3.14 Pastoral Activities by Size Class

Size Class (hectares)	Number of Holdings			
	Beef	Sheep	Dairy Stock	Horses
1.0 - 3.9	8	6	-	3
4.0 - 6.9	8	6	7	4
7.0 - 10.0	9	5	2	2
Total	25	17	9	9

Grazing of beef animals is the dominant pastoral activity on these small holdings, but in many cases mixed sheep and cattle grazing occurs. It is probable that this dominance of a particular livestock enterprise is inextricably linked to current market situations, although the comparative ease of management of cattle as against sheep, may also be an influencing factor.

The grazing of dairy stock is obviously associated with the predominance of dairy farming on adjacent properties. Only one respondent operates a small self contained dairy unit, while other dairy stock is generally replacement stock that is purchased by the small holder, to be sold to dairy farmers at a later time.

In response to the demand for grazing in the district, some small holders lease some portion of their property to local farmers, more commonly for grazing dairy stock, than for sheep or beef. These leases are generally a short-term arrangement and some typical lease-holds, as specified by the respondents, are \$1.00 per head per week for dairy stock, \$0.80 - \$2.00 per week for beef cattle, depending on size and length of time on the property, or, an annual flat rate of \$100 to \$125 per hectare. In several cases the arrangements, such as provision of labour, services or meat, was made.

A total of nineteen horses were grazed on the nine properties that carried horses. Two properties held a number of horses for racing and/or breeding or hunting, while the remainder carried one or two horses purely for a recreational purpose.

### 3.2.2 Pigs/Pigmeat

Despite good returns for pork, increasing production costs in recent years has tended to reduce the economic viability of pig production.

Of the seven small holders who ran pigs on their property, all killed a few pigs for home consumption. Only one owner specifically breeds for selling porkers, but three others received some income from pigs or pigmeat sales in the 1978-79 season.

The area of land used for pig production purposes is small and was not always specified by the respondent. In only one instance was the area used in excess of 0.5 hectares. Table 3.15 shows the distribution of pig numbers on the relevant small holdings.

Table 3.15      Distribution of Pig Numbers

Number of Pigs	Less than 5	5 - 9	10 - 14	15 - 19	20 - 24	25 +
Number of Small Holdings	2	3	-	-	1	1

### 3.2.3 Poultry

In this study five properties in the 1.0 - 3.9 hectare size class, operate a commercial poultry enterprise, where birds are grown on contract to the poultry industry. On each of these units, three or four runs of birds are put through each year, with the range in annual through-put of 135,000 to 400,000 birds per annum, depending on the size of the unit and intensity of production.

The mean area used for poultry production purposes, of these five properties, is 0.8 hectares which represents an average thirty-eight per cent of the total area available for production purposes on each of these holdings. The remainder of the land is used for grazing sheep and/or beef cattle.

Eleven other properties ran poultry (chickens, fowls, turkeys, and ducks), either for egg production or poultry-meat production.

Table 3.16 Poultry Numbers on Holdings

Number of Birds	Less than 5	5 - 9	10 - 14	15 - 19	20 - 24	25 +
Number of Holdings	1	-	4	4	1	1

The poultry enterprise, is primarily for home consumption, although in a few cases eggs are sold privately to offset feed costs or to provide finance for replacing birds, or exchanged for other farm produce.

In most instances, no area was specified for home consumption poultry activities, so presumably the birds are either housed on or adjacent to the residential area or range freely over parts of the property.

3.2.4 Horticultural Activities

Horticultural production of various type and magnitude is carried out on twenty-six of the forty properties for which land use details were given.

Vegetable production was specified on ten properties, but only provided significant gross income to the small holder in six instances. All vegetables grown on the other four properties were either used by the household or were given away. Vegetable crops sold in the 1978-79 season included corn, cucumber, peas and other greens, but those produced on a larger scale for sale were tomatoes, potatoes and pumpkins.

Fruit crops are grown on eleven of the properties studied, and as previously mentioned, occupy a total area of 17.2 hectares. The diversity and magnitude of the various fruit production activities can be seen from the table below.

Table 3.17 Area of Fruit Crops

Fruit Crop	Area Planted (July 1979)
Pip Fruits	2.1 (hectares)
SUBTROPICALS:	
Kiwi fruit	11.0
Feijoas	0.6
Avocados	0.8
Tamarillos	0.7
Citrus Fruits	0.7
Berry Fruits	0.5
Not specified	0.8

Implicit in the situation shown, is that the soils and climate of the area of study are suitable for the production of sub-tropical fruits. The area is less frequently used for the production of citrus fruits, since, despite high sunshine hours and moderate temperatures, frequent winds put this location at a disadvantage compared to areas like Keri Keri and Gisborne, as far as citrus fruit yield is concerned.

Some type of nursery activity occurs on five of the properties investigated. On four of these properties, it is the primary economic activity, while on the remaining property it is carried out in conjunction with the production of kiwi fruit.

The range of nursery activities encountered in this study includes raising hedge and shelter plants from seed, house plants, cut flowers (orchid and carnations), and the propagation of kiwi fruit cuttings for sale.

### 3.2.5 Land use Intentions

Respondents were asked to give details of any proposed changes to either the type or intensity of their agricultural/horticultural activities. Their responses can be summarised as follows, for each size class.

Table 3.18 Intended Change by Size Class

Size Class (hectares)	No Change	Diversification	Intensification	Not Specified
1.0 - 3.9	7	1	3	2
4.0 - 6.9	5	4	4	1
7.0 - 10.0	8	3	3	-
Total	20	8	10	3

Eighteen respondents specified that they intend to make changes in their farming activities within the next three years.

Information given suggests that eight plan to diversify their farming activities, while ten propose to intensify the production activity(ies) which already occur on the property.

Only four of the respondents who worked on the property full time stated that some change was intended, while some 56 per cent of the part time operators specified a change.

Some examples of intended changes are -

- Increases in the area used for sub-tropical fruits, particularly Kiwi fruit and avocados.
- Phasing out of tamarillos, but planting of other sub-tropicals.

- Shift from pastoral to horticultural activities (mainly citrus fruit trees and sub tropicals) once adequate shelter is developed.
- Planting of small areas of berry fruits, especially blue berries.
- More intensive production of protected nursery crops.
- Diversification to sub tropicals such as tobacco and casava.
- Intensification of stocking.
- Inclusion of a small angora goat herd on the property.
- Replacement of beef cattle with deer.
- Consideration of farming rabbits on the property if the present legislative restrictions are overcome.

### 3.3 Labour

Respondents were asked to provide details of the labour used on the property in the 1978-79 season (see question seventeen). Information on both family and non-family labour was requested to enable a more complete picture, of the labour input into the small holdings in this study, to be obtained.

Table 3.19      Labour Input by Size Class

Size Class (hectares)		Family			Non-Family	
		Respondent	Spouse	Children	Permanent	Casual
1.0 - 3.9	Full time	5	2	-	1	4
	Part time	5	3	5	-	
4.0 - 6.9	Full time	5	1	-	-	4
	Part time	8	1	3	-	
7.0 - 10.0	Full time	3	-	-	-	5
	Part time	10	6	2	-	

The table shows the number of holdings on which various persons were employed either on a full time or part time basis. Two replies indicated that the respondent was retired and gave no further information about labour employed, and a further three respondents did not answer the question.

The matter of the respondents employment on the property has been discussed in a previous section of this report (see Table 3.6). Family labour is frequently employed on these properties, although the hours worked by family members is extremely variable. In most instances where the respondents spouse is employed on the property, the holding is used either for commercial poultry, nursery or intensive horticultural production.

Only one property, a nursery, provided permanent full time employment for a number of non-family persons. However, thirteen properties utilised casual employees for various

purposes. Casual labour was most common on the properties that operated more intensive activities such as poultry, fruit production and flower growing, and tasks carried out included picking and packing of fruit or flowers, placing chickens, and weeding crops and shelter. Other tasks for which casual labour was employed include, fencing, haymaking, stacking bales, planting pine trees, spreading fertiliser, spraying weeds and general maintenance.

#### IV. PRODUCTION CHARACTERISTICS

One of the claims commonly made against small holdings, as mentioned previously, is that such properties result in the under-utilisation of the land and production losses as compared to the situation in which land is retained in large scale farm operations. The previous chapter considered amongst other things, various aspects of land utilisation for the small holdings studied. In this chapter, matters relating to the productivity of these small holdings are investigated.

The analysis of productivity on these small holdings is made difficult by the diversity in type and intensity of the activities that occur, and also by the various activities that are carried out to provide for home consumption.

For the purpose of this analysis, pastoral activities and horticultural activities will be considered separately, rather than attempting to analyse the overall productivity of individual holdings.

##### 4.1 Productivity of Pastoral Activities

Information given by the respondents enables some comparison between small holdings and large scale pastoral farms in terms of stocking rate. Respondents were asked to give details of stock type and stock numbers carried on the property in June 1978 and June 1979. The variation between the two years appeared minimal so details given for June 1979 are used in this analysis.

Livestock numbers were converted to stock units using the following conversions.

Livestock	Stock Units
Sheep - Ewe	1.0
Ewe Hogget	0.6
Other	0.8
Cattle - Beef cow	6.0
Dairy cow (Jersey)	6.5
Calves	2.5
Bulls	5.0
Other	4.0
Horses and Ponies	8.0
Goats	1.0

(Source: MAF stock unit conversion ratios for survey work and National Assessment.)  
(14, pgs. 140/141)



Stocking rates were calculated, and the figures obtained relate to the area of the small holdings that was specified as being used exclusively for grazing purposes.

This analysis followed two stages, the same as those used by Moran et.al. in the Auckland small holding study -

"Dairy, beef and sheep animals only were included in the first analysis (I), in order to make more valid comparisons with pastoral farming in general. Horses and goats were included in the second set of data (II)". (1, pg.49).

Table 4.1     Stocking Rate by Size Class

Size Class (hectares)	Mean Stocking Rate per Effective Hectare	
	I	II
1.0 - 3.9	18.6	20.1
4.0 - 6.9	13.9	16.8
7.0 - 10.0	12.1	14.8
Average	14.9	17.2

As Moran's study revealed, the variability in stocking rate is extreme. In this study the mean stocking rate for all holding is 14.9 stock units per effective hectare with a standard deviation of 6.8. If horses and goats are included, this mean rises to 17.2 stock units per hectare, however, the effective increase may not be to this extent since feed may be bought in for some horses.

These stocking rates compare favourably with the averages of 10.5 stock units per effective hectare on North Island hill country farms, and 12.9 stock units per effective hectare on North Island intensive fattening farms. (Meat and Wool Board Sheep and Beef Farm Survey 1977).

A more relevant comparison however is with stocking rates in the particular district. Information from the Tarurutangi Dairy Farm Discussion Group suggests that an average stocking rate in the area is 2.7 dairy cow equivalents per hectare. When converted to stock units (where 1 D.C.E. = 6.5 stock units, (14)), this represents an average of 17.6 stock units per hectare. Information from the same source suggests that a low stocking rate for the district is 11.1 stock units per hectare, and that a high stocking rate is 20.8 stock units per hectare.

Results from the first stage of the analysis (i.e. where dairy, sheep and beef animals only are considered) indicate that the mean stocking rate on properties in the 1.0 to 3.9 hectare size class are above average for the district, while that of the other two size classes is average to low. The extreme variability in stocking rates however, makes these results difficult to interpret but there is some evidence that the intensity of pastoral

activities declines as the size of the holding increases.

If average stocking rates for all the pastoral small holdings are used as a basis for comparison with the Discussion Group figures, the variation between stocking rates on the small holdings and that of larger scale pastoral farms, is reduced. Since it is likely that various errors have arisen in deriving these estimates (for example: misinterpretation of information given by respondents, errors in conversion to stock units, and errors implicit in using mean values), it can only be concluded from the evidence presented that there appears to be little or no difference in the average levels of stocking rate, between the small holdings studied and other pastoral properties in the district.

#### 4.2 Productivity from Horticultural Activities

The information given on horticultural production for these small holdings is more difficult to interpret than that given for pastoral activities, due to the diversity of the horticultural enterprises that occur. Although respondents gave details of crop yields where possible, the number of times yield was specified for individual crops, was too few to give meaningful data on crop yields, for comparative purposes. Further limitations to such analyses are: (i) that in many cases horticultural crops, particularly fruits, have been only recently planted on the properties concerned and at the time of the survey there had been no production, and (ii) that home consumption, especially of vegetables, is a common use of the crops produced, so neither yield, nor gross income could be specified in these instances.

Similarly, nursery crop production features can not be analysed to any great extent, again due to the variety of the product. Two properties produced glasshouse crops while the other three produced various outdoor crops, as previously discussed.

Despite the growing interest in horticulture in the district, only limited study and research has been undertaken concerning individual production enterprises. Unfortunately, this study has done little to improve the situation as regards specific information about horticultural production in the area of study.

In the study on small holdings in the vicinity of Auckland, Moran uses MAF statistics on the return to the grower per hectare for horticultural crops, to compare the productivity of horticultural small holdings with that of pastoral farming systems. Although similar information is not available for the Taranaki region specifically, it is expected that the general pattern of gross returns to the grower would be comparable with that of the Auckland vicinity. Thus, Moran's conclusion that, "with the mix of horticultural activities represented on the small holdings ... their productivity as measured by income per hectare is considerably higher than any form of pastoral farming", could be equally applied to this area of study. Limited information available from this investigation does not detract from this general claim.

#### 4.3 Gross Income to Small Holders

The only comparison possible, related to productivity, between all the small holdings in this study is by considering the gross returns to the small holder. In Table 4.2 the gross income figures represent 1978-79 income.

Table 4.2 Gross Revenue, Holding Size and Employment of the Farmer

Size Class (hectares)	Employment	Gross Revenue (\$'000)								
		0-1	1-2	2-4	4-6	6-8	8-10	10-20	20-30	30+
1.0 - 3.9	Full time	-	-	-	1	-	-	-	-	4
	Part time	2	1	1	-	-	-	-	-	1
4.0 - 6.9	Full time	-	-	-	-	-	-	-	1	2
	Part time	3	4	2	-	-	-	-	-	-
7.0 - 10.0	Full time	-	-	1	1	-	-	1	-	-
	Part time	4	1	1	3	-	-	-	-	-

This table is based on one drawn up by Williams in his Heretaunga Plains survey (6). This particular analysis is limited to only thirty four of the respondents since the remainder did not give information on one or more of the variables used in the table.

Most of the full time small holders considered, received a gross income in excess of \$6,000 per annum, while most part time small holders received less than this amount. It is important to realise however, that this does not reflect relative production, in terms of output per hectare, from the properties.

Assuming that gross revenue is related to production intensity, in that gross revenue increases as intensity of the production activity increases, then this table also provides evidence that for the small holdings studied, land use intensity decreases as holdings get larger.

#### 4.4 Problems Encountered on Small Holdings

Respondents were asked to list the major problems they have encountered, associated with production from the holdings they operated (see question twenty two). Replies varied considerably depending on the type of activity carried out on the property. Several respondents specified that they have had no problems associated with production.

A number of the small holders expressed concern about the lack of availability of finance from lending institutions for purposes of development of the property, stock purchases, purchase of equipment and other capital items, implying that this lack of finance was limiting production in some way.

Three respondents specified that inflation was having an adverse effect on the economic viability of their small holdings, with rate increases, and high electricity costs being cited as examples.

A common problem experienced by small holders who operated horticultural units, was the lack of locally available, professional horticultural advice. These respondents specified that this problem was overcome either by contacting the Palmerston North Horticultural Advisory Officer, or by attending field days, seminars and discussion groups, and/or by visiting horticultural units in other districts.

Other problems that were encountered were mentioned less frequently, in some cases by only one respondent. These are listed below :

- Wind and lack of shelter
- Difficulty in buying and selling stock through agents
- Not enough time to work on the property
- Lack of knowledge about various production activities
- Under-developed property, including, poor pastures, lack of subdivision, poor drainage, and no water supply to paddocks.
- Inadequate fences for grazing cattle on the property
- High cost of vegetable crop production
- Various problems associated with neighbouring farms (e.g. shelter belts on property boundary, cattle damaging fences)
- Distance between property and place of residence and/or place of work
- Property size inadequate for commercial stock unit
- Eczema
- Leaf rust in poplar shelter belts.

## V. SUMMARY AND CONCLUSIONS

### 5.1 Summary

The first section of this chapter summarises the findings of the study. These findings are presented in terms of the objectives of this study, which are restated below -

- (a) To identify the general characteristics of small holdings and small holders in the Glenavon - Katere and Bell districts of the Taranaki County.
- (b) To establish the current pattern of land utilisation on small holdings in the area, and to obtain information on any proposed changes in land use, affecting this pattern.
- (c) To get an indication of the productive characteristics of a specific sample of small holdings.

#### 5.1.1 General Characteristics of the Population Studied

1. The mean small holding size of the population sampled (where the population is all properties from 1.0 to 10.0 hectares) is 5.1 hectares, with a predominance of holdings in the smaller (1.0 to 3.9 hectare) size class.
2. The area of the properties that is not available for production purposes, either through residential use or rendered non-productive by physical limitations, ranges from 0.05 hectares to 1.5 hectares, with a mean non-productive area of 0.42 hectares for all the properties studied. The frequency of a larger area being not available for production purposes is greatest on the small holdings in the 7.0 to 10.0 hectare size class.
3. The majority of properties investigated in this study are farmed by the owner of the property rather than operated by persons who have leasehold arrangements.
4. The majority of small holders operate their properties on a part-time basis and have some other employment away from the property. Those who find full time employment on their property generally operate either commercial poultry or intensive horticultural units.
5. The small holders who engage in employment away from the property, cover a diverse range of occupations. Unlike some similar studies (such as, in the Auckland vicinity and in Paparua County, Christchurch), this study does not indicate a predominance of urban based occupations, nor is there clear evidence that the majority of these part time farmers hold professional or managerial positions.

6. Most small holdings are used, in part, for residential purposes, thus, most properties can be said to generate a 'residence product'. Resident households generally comprise family units.
7. Reasons given for acquisition or leasing of the properties suggest that small holdings in the area are generally used to pursue an interest in various agricultural/horticultural activities. The small holdings also provide the opportunity for occupants to meet an expressed desire for rural living, and are frequently used as a means for capital gain.

#### 5.1.2 Land Utilisation

1. The area of land available for production purposes is used for a diverse range of activities, including, commercial poultry, pigs, horticultural and nursery crops, forestry and various pastoral activities.
2. There is no evidence that land available for production is not utilised. Thus, apart from the area used for residential purposes, for grazing horses and for kennels, it can be said that these small holdings are used entirely for agricultural or horticultural production.
3. Pastoral activities dominate land use in terms of the area used. If the land use intensity of various activities is considered however, the land area used for the production of fruit, vegetable and nursery crops, is significant.
4. Diversity in production activities that occur on individual properties is characteristic of the small holdings in each size class considered.
5. Virtually all the small holders specified that land was used for some pastoral activity, but this land use served as the main source of income on less than half of the properties studied.
6. Nearly half of the small holders intend to either intensify present activities or to diversify, particularly to horticultural activities, within the next few years.

#### 5.1.3 Labour

1. Participation of family members in various aspects of the farming activities is a feature of the small holdings on which family labour is available.
2. There is evidence that the small holdings provide a source of casual or seasonal employment in the district, and that intensive horticultural or nursery units may provide full time employment for a limited number of persons.

#### 5.1.4 Productivity Characteristics

1. Overall productivity achieved from the small holdings studied is higher than that achieved where the land in the district is used for large scale pastoral production.
2. For the small holdings running pastoral livestock, the stocking rate, on average, is similar to that on larger scale pastoral farms in the area (approximately 15 - 18 stock units per hectare). The average stocking rate clearly exceeds averages derived for North Island hill country and North Island intensive sheep and beef farms, these being 10.5 stock units per hectare and 12.9 stock units per hectare, respectively.
3. There is extreme variability in stocking rates of the small holdings, some exceptionally high, others particularly low, but average figures suggest that there is a decline in the intensity of pastoral activities on the small holdings as size increases.
4. Information pertaining to levels of horticultural production in the area is very limited but it can generally be said that the productivity of horticultural activities, as measured by income per hectare, is considerably higher than any type of pastoral activity that occurs in the district.
5. Limited analysis of gross revenue figures for all holdings, suggest that land use intensity decreases as holdings get larger.

#### 5.2 Conclusion

This study has investigated a number of small holdings on the periphery of New Plymouth, in the Taranaki County. As previously mentioned (para. 2.3) this study should be considered as a specific study, rather than a sample study, due to the bias resulting from non-replies. In addition, the diversity of soil types, topography and local climatic influences, both within Taranaki County and throughout Taranaki Province, means that the extent to which the findings of this study can be said to apply to other parts of the region, is limited.

In view of the various findings of this study, some aspects of land use planning, with regard to small holdings, should be considered.

National planning objectives relevant to peri-urban areas are embodied in the Town and Country Planning Act 1977, and can be summarised as a requirement to ensure "the wise use of resources". More specifically related to this study are the planning aims stated by the Taranaki County Council for the Taranaki County District Scheme. The general purpose of these planning aims is "the development of the district in such a way as will most effectively tend to promote and safeguard .... the economic and general welfare of it's inhabitants" (13). Under the proposed District Scheme, subdivision of Rural "A: land will

only be allowed according to minimum subdivision standards <sup>1/</sup>based in intended use.

This investigation has shown that overall productivity is almost certain to increase if subdivision of pastoral properties into small holdings (one to ten hectares) is allowed. Evidence from this study suggests that the minimum subdivision standards specified, as to what area may constitute a 'minimum economic unit' for the various activities, would in fact be restricting total productivity from the land.

It is possible to cite specific examples from this study where pastoral farming on areas considerably less than twenty hectares (the minimum subdivisional standard) could be considered 'economic'. Undoubtedly the specified minimum subdivision of six hectares, allowable for land to be used for berry fruit and kiwi fruit, grossly overstates what may constitute a 'minimum economic unit' for these activities.

Further, such standards for subdivision bear no relationship to the land or it's productive ability and are biased against part time farmers. No specific analysis of productivity achieved on various classes of land was made in this study, but Moran's Auckland study revealed that -

1. "For small holdings running livestock, average stocking rates compare favourably with average figures for North Island hill country and intensive sheep and beef farms", and
2. "No statistically significant relationship was found between stocking rate and measures of land capability".

If the latter point could be shown for the area studied, in which Class I - V land is found, then it could be said that such subdivisional control is in fact inhibiting production from land of lower capability classes.

The limited scope of this study does not allow for any definite conclusions on gross or net output. Therefore it cannot be shown that the small holdings studied produce "economic output levels". Even though stocking rates compare well with the district's average, input levels per unit of output may/or may not be higher than in larger scale farming.

1/ Subdivisional Standards:

<u>Type of Use</u>	<u>Min.Area (ha)</u>
Pastoral Farming	20
Main Crop Vegetables	10
Berry fruit and Kiwi fruit	6
Tree fruit	10
Process vegetables	40
Nurseries	2
Commercial Poultry	2



The facts however, that the average stocking rates are similar to district figures, that many other properties are used for very intensive enterprises, and that labour is often provided very cheaply, lead us to the conclusion that on average the land occupied by small holdings (in this study) is used in a desirable way (from a regional as well as national point of view).

Further, given that the 'general welfare of inhabitants' incorporates emotive factors such as happiness, then it cannot be overlooked that small holdings satisfy the life style requirements for a section of society. This study, like similar studies in peri-urban areas (e.g. Moran, Chui, Paparua County), suggests that the desire to live in a rural environment is a common motive for the acquisition of small holdings. Thus, it can be said that provision for small holdings in peri-urban areas will generate some degree of personal happiness and satisfaction and will therefore go some way towards improving the general welfare of the population.

Too often, land use planning authorities seem to be possessed with the need for the preservation of agricultural land, rather than considering the potential gains, both in terms of national productivity and general welfare, that may be derived from the easing of restrictions on subdivision in peri-urban or rural areas.

The final comment of this report seems to be in keeping with those made in similar studies (in particular, work by Chui, Moran, and Crawford), in that it calls for a more positive approach to land use planning in peri-urban and rural areas. If people and production are the important features of the welfare of the country, then it is these that should predominate planning considerations.

Undoubtedly there is need for further investigation of small holdings throughout the country to obtain a more general picture of their place in the New Zealand agricultural land use system. Results of this study suggest that for the specific area considered, small holdings are a more productive use of land than large scale pastoral farming. If all small holders were actively encouraged to utilise their properties, even greater productivity levels could be achieved. Land use planners should therefore concentrate on finding ways and means to encourage small holders to make full use of the productive capacity of their land, rather than trying to protect our agricultural land by implementing controls such as subdivision standards and minimum economic units.

## ACKNOWLEDGEMENTS

This study would not have been possible without the help of several people. We therefore gratefully acknowledge -

- the many helpful comments made by members of the Agricultural Economics and Farm Management Department;
- the financial support of the Taranaki Agricultural Advisory Committee;
- the support provided by Mr B. Hockings, Senior Farm Advisory Officer, New Plymouth;
- the New Plymouth Valuation Department and the Taranaki County Council for their cooperation in providing information.

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APPENDIX

QUESTIONNAIRE

SMALL HOLDINGS STUDY

1. Are you the occupier and/or operator of a block of land between one and ten hectares (2½ to 25 acres)?

Please tick the appropriate box.

YES

NO



If NO, there is no need to answer any further questions, but please return this questionnaire as soon as you can.

2. a) The area of land you occupy and/or operate is \_\_\_\_\_ acres,  
or \_\_\_\_\_ hectares.

- b) What proportion of the property is freehold and/or what proportion is leasehold?

	%
Freehold	<input type="text"/>
Leasehold	<input type="text"/>
Other (please specify)	<input type="text"/>
.....	

3. Of this total area, how much is not available for production purposes? (for example - area taken up by domestic buildings, domestic lawns and gardens, recreation facilities, etc.)

\_\_\_\_\_ sq. metres or \_\_\_\_\_ hectares.

4. Of the area available for production, what area and/or proportion of this area, was used for the following purposes in the 1978/79 season?

	AREA (hectares)	% of total area*
Grazing livestock (sheep, cattle horses etc.)	<input type="text"/>	<input type="text"/>
Rearing pigs/pigmeat	<input type="text"/>	<input type="text"/>
Rearing poultry/poultry meat	<input type="text"/>	<input type="text"/>
Cereal crops (e.g. maize, oats etc.)	<input type="text"/>	<input type="text"/>
Hay/silage/lucerne	<input type="text"/>	<input type="text"/>
Growing vegetables	<input type="text"/>	<input type="text"/>
Growing fruit	<input type="text"/>	<input type="text"/>
Growing nursery crops/flowers	<input type="text"/>	<input type="text"/>
Forestry	<input type="text"/>	<input type="text"/>
Other (please specify) .....	<input type="text"/>	<input type="text"/>
.....	<input type="text"/>	<input type="text"/>

\* This column can add to more than 100%.

GRAZING LIVESTOCK (If not applicable please go to question 9).

5. Was any part of the property let to someone else for grazing livestock, between June 1978 and June 1979?

YES NO

If YES, please give details by filling in the table below.

Type of Stock	Length of time on property (weeks)	Number of stock	Price received per head per week
Sheep			
Beef Cattle			
Dairy stock			
Horses			
Other (please specify)			

6. Please enter, in the following table, the number of stock that were on this property in June 1978, and in June 1979.

	JUNE 1978	JUNE 1979
SHEEP - Ewe hoggets		
Ewes		
Others		
CATTLE - Dairy cows		
Beef cows		
Bulls		
Other cattle (less than 1 year)		
Other cattle (1 - 2 years old)		
HORSES		
OTHER GRAZING STOCK .....		
(Please specify) .....		

7. How many sheep and/or cattle were killed for home consumption, or given away, last season (June 1978/79)?  
(Where possible, please give details of stock category, e.g. lamb, mutton, 2 year steer etc.)

SHEEP \_\_\_\_\_

CATTLE \_\_\_\_\_

8. How many sheep or lamb fleeces were kept for home use, or given away, last season (June 1978/79)? \_\_\_\_\_

9. PIGS (if not applicable please go to question 10).

a) How many pigs did you run on the property last season (June 1978/79) and for what part of the year were these on the property (e.g. March - May)?

	Number	Period on Property
Breeding sows		
Boars		
Other pigs		

b) How many pigs were killed for home consumption, or given away last season?

10. POULTRY (If not applicable please go to question 11).

a) How many birds did you have on the property last season (June 1978/79), for either egg production or meat production purposes?

	Layers	Meat Production
Hens or chickens		
Ducks		
Turkeys		
Geese		

b) Please estimate the number of eggs used, and/or the number of birds killed, for home consumption, or given away last season.

Eggs \_\_\_\_\_ dozen

Birds \_\_\_\_\_

11. HORSES (If not applicable please go to question 12)

What are the main and secondary purposes for running horses on the property?  
Please tick only one category in each column, where applicable.

- Recreation
- Breeding (stud)
- Racing
- Farm work
- Other (please specify)
- .....

MAIN PURPOSE	SECONDARY PURPOSE

12. CROPPING/MARKET GARDENING/ORCHARDING/NURSERY

(If not applicable please go to question 13).

Please give details of your 'cropping/horticultural' enterprises by filling in the table below. (Include all cereal crops, vegetables, fruit crops, hay, silage, lucerne, forestry, nursery enterprise, etc.)

In the column headed 'YIELD' please clearly specify the units you use to describe the yield (e.g. kilograms sold, number of bales, actual number produced etc.)

In the right hand column, please give an estimate of the proportion of the total harvest that you either used for home consumption, gave away or used to feed your livestock.

YEAR	CROP	AREA (hectares)	YIELD	% for home consumption etc.
1977/78				
1978/79				

13. Please give details of any other enterprise that you operate on the property, that has not been included in the previous questions, (e.g. bees, goats, breeding dogs, calf-rearing etc.)

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14. a) Do you intend to make any changes to either the intensity or type of your farming/horticultural activities, within the next three years?

YES      NO  
   

b) If YES, would you please give details of the proposed changes.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

15. Please give an indication of the gross income you derived, from sales or fees, from the following enterprises and/or produce, last season (June 1978/79).

	GROSS INCOME \$
Stock sales - sheep	
- cattle	
Pigs/pigmeat	
Poultry/poultrymeat	
Horses	
Wool	
Eggs	
Cereal crops for sale	
Vegetable crops	
Fruit crops	
Hay/silage/lucerne	
Forestry	
Nursery	
Other (please specify) .....	
e.g. milk, breeding dogs, .....	
honey, etc.	

16. Are your farming operations accepted as a farm business for taxation purposes?

YES      NO

17. a) What labour was used on the property last season (June 1978/79)?  
Please fill in the table below by putting a tick in appropriate boxes.  
(NOTE: Do not include labour employed for domestic purposes,  
e.g. lawn mowing, house keeping etc.)

	Family			Non Family	
	Yourself	Spouse	Children	Permanent	Casual
Full time					
Part time					

- b) Please estimate total hours worked last season

HOURS				

- c) If casual labour was employed, for what period of the year was it employed, and what were the main tasks undertaken?

TIME OF YEAR	MAIN TASKS
_____	_____
_____	_____
_____	_____

- d) Please estimate the total gross wages paid last season (1978/79) for non family labour.

\$ \_\_\_\_\_

- e) Please estimate the total gross wages paid last season for family labour.

\$ \_\_\_\_\_

18. a) Do you reside on the property at present?

YES      NO  
     

- b) If YES, how long have you lived on the property?

\_\_\_\_\_ years \_\_\_\_\_ months

- c) If YES to (a), how many people live in your household?

\_\_\_\_\_ Children (at secondary school or under).  
\_\_\_\_\_ Adults

19. Would you please estimate the total income for your household, by adding each individual's annual 'bring home' pay/salary, together with any 'outside' interest/investment earnings. Please do not include any pay or salary earned on this property.

\$ \_\_\_\_\_

20. a) Do you engage in any occupation or employment away from the property?

YES	NO
<input type="checkbox"/>	<input type="checkbox"/>

b) If YES, please describe this occupation or employment.  
(Please be specific).

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c) If YES to (a), is this occupation full time, or part time (less than 20 hours per week, or less than 26 weeks per year)?

Full time	<input type="checkbox"/>
Part time	<input type="checkbox"/>

21. What were your reasons for the acquisition, leasing or renting of this property?  
Please rank the following alternatives 1 to 9,  
where 1 = main reason  
9 = least important reason

- Investment
- Interest in farming/horticulture
- Rural environment
- Tax saving
- Cheaper living
- Health
- Favourable surrounds for children
- Other (please specify)
- .....
- .....

RANKING


22. What, if any, have been the major problems you have encountered, associated with production from your small holding? Please list these, and where possible, describe briefly how you have, or how you intend to overcome these problems.

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23. If you have any additional information and/or comments to make that you consider important, or relevant to this study, I would be grateful if you would write them below.

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Finally, two last questions:

24. If for some reason I want to clarify any of the information you have given, may I contact you again?

YES

NO

25. Would you be interested in receiving a copy of the summary of results of my survey?

YES

NO

THANK YOU VERY MUCH INDEED FOR YOUR HELP

MASSEY UNIVERSITY

Agricultural Economics and Farm Management Department

23 August 1979

Dear

About four weeks ago you should have received a questionnaire from me, along with a letter explaining the objectives of my survey on small holdings in the Glenavon, Katere and Bell Block areas

To date I have not received a completed questionnaire from you. The time I have in which to complete my project is limited, and your reply is most important to the accuracy of my results.

You may feel that your property is unsuitable in some way, or that some of the questions do not apply in your particular case. I would appreciate it if you could return a partially completed questionnaire rather than provide a nil return, for either of the above reasons.

I stress again that all information you give will be treated in the strictest confidence. In case you have misplaced the questionnaire or perhaps did not receive the one sent to you earlier, I have enclosed a further copy of the questionnaire.

Thank you for your cooperation.

Yours faithfully,

Debbie Stewart

