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The Economic Implications Associated with Part-time  
Farming on Rural Subdivisions: A Case Study  
in the Manawatu

by

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## ABSTRACT

This thesis set out to examine the land use changes associated with part-time farming on rural subdivisions. These farmlets and their location are first described. Cattle and sheep farming were the main agricultural activities although a wide range both on commercial as well as 'hobbyist' basis was evident. The study revealed that motives for ownership of these rural holdings were mainly non-economic in nature.

In the second section, farm production comparisons are made with synthetic farms evolved for this purpose. Two, a dairy unit and a sheep/cattle farm were constructed. The farm production and intensity of agricultural land use (dollars per acre) on these synthetic farms are assumed to be that before the subdivision of the farm land. It was found that the intensity of agricultural land use was at a higher level after the subdivision of farm land suitable for dairying and sheep/cattle farming.

## INTRODUCTION

Land can be considered as a factor of production or a consumption good as in the provision of housing sections and parks. Land use associated with part-time farming on rural subdivisions can both be used productively in an economic sense as well as serving recreational and residential purposes.

New Zealand is a highly urbanised country. Greater mobility afforded by the automobile has enabled location of residence further away from the place of work. Part-time farming is one development of this increased mobility and affluence in New Zealand.

This research is timely in that there is a dearth of information on the agricultural land use on rural subdivisions farmed on a part-time basis. In addition, an understanding of the reasons behind the preference for these rural lots may help in the planning of housing development in the future.

Literature related to land use, speculation and part-time farming is reviewed in Chapter 1. Chapter 2 details the methodology of the study. The sample characteristics of part-time farmers and their properties are reported in Chapter 3 while Chapter 4 documents the farming activities. A comparison of the intensity of agricultural land use between part-time farmed properties and commercial farms is undertaken in Chapter 5. The final chapter summarises the finding and discusses their implications.



## CHAPTER I

### REVIEW OF LITERATURE

Agriculture in New Zealand remains the major foreign exchange earner. It is not surprising then that the conversion of agricultural land to urban uses is viewed with alarm and especially so when alternative sites were available.

Land can be thought as a factor of production, frequently referred to in conjunction with labour and capital. Housing and recreational needs on the other hand defines land as a consumption good. Other concepts of land discussed by Barlowe (1966) included land as capital, property, space, situation and nature.

Fox (1956) defined land use as "the actual and specific use to which the land surface is put, both cultivated and non-cultivated land." Thus the land can be barren waste, built over or cropped. The conflict in land use between agriculture and urban needs is not new. The impact of urbanisation is not only physical, its related activities often encroach on the agricultural operations on neighbouring farms. Trespass, damage to fences and crops, stock disturbance and rubbish dumping are some of the problems faced by farmers operating near housing areas.

Urban influence on farm land has taken a new development. This is the trend of rural subdivisions near the cities of Auckland, Hamilton, Palmerston North and Wellington.

In two of the counties of Manawatu namely Kairanga and Oroua, this development gained momentum in the last two years. The county of Kairanga covering an area of 185 square miles (in 1968) surrounds the Palmerston North city. It is not surprising then that urban expansion takes place onto this county. Size of farms in the Kairanga has been steadily increasing; the average area in 1968 was 180 acres.<sup>1</sup> Like the Kairanga, the Oroua county has experienced a decrease in the number of farms but an increase in the average area of the farms. Pastures occupy the largest area of cultivated land but cropping in both counties is increasing in importance. The Kairanga county has a substantial area under market gardening, orchards and nurseries. On the whole, the Kairanga county is capable of high agricultural production while the Oroua county on the other hand is more suited for pastoral farming.

The provisions of the Counties Amendment Act 1962 only apply for rural subdivisions of less than ten acres. In 1972, the Kairanga County Council in an effort to contain rural subdivisions, increased the legal minimum requirement to fifty acres. This was followed by the neighbouring Oroua county which had then experienced a spate of rural subdivisions (Bartosh 1973).

The attractiveness of these subdivisions to buyers are in the main threefold. Firstly, they provide building

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1 Land Use in the Manawatu. Report No. 30. Palmerston North City Council, Feb. 1971.

sites in a rural environment within commuting distance, secondly the owner can pursue his farming interest and thirdly land is a good hedge against inflation. Speculative purchase in addition cannot be ruled out.

The major criticism against rural subdivisions with its associated part-time farming activities is the consequent loss of agricultural production. This it is argued is brought about by less efficient use of land resulting in the "virtual elimination of the productivity of that land" (Dairy Exporter. October 1973). Vested interests arguments abound too in this issue, and it is not surprising that market gardeners have protested (not without cause) the disruption caused by the sale of garden produce through gate sales, pick-your owns and at the auction markets. The Land Use Advisory Council (Paper:1973/9) describes the development of rural subdivisions thus:

"The pressure applied for the subdivision of farm land on the urban fringe directly contribute to a wasteful use of productive resource - economic farm units are carved up into lots of about 4 hectares (10 acres) and either used as gentlemen's farmlets or "sat on" for several years in hopeful anticipation of residential development. Either way, the land usually carries a minimum of stock and the nation is deprived of export income due to the production loss ...."

Whether a loss in farm production occurs with subdivision

remains a matter of opinion and prejudice until research has been conducted. Here the national viewpoint needs to be emphasized. The concept that land agriculturally productive has the sole right does not account for the residence product arising from the housing of the owners and their families. Moreover, farm production catering for home consumption with savings in distribution costs enables farm products which would otherwise be bought and consumed by part-time farmers to be exported. Furthermore the cultivation of vegetable garden plots represent an intensive form of farm production, the value of the total production from this and other traditional farming activities can be greater than that from the farm before its subdivision. Ward (1956) compared the value of garden produce from housing sections to better than average farm land production. He found that both were about the same. If comparison was made to include the area used for amenities associated with housing, it was only half that of the farm land. However he argued that if costs of production and price subsidies granted to farmers were taken into account, the value of garden produce from per house-plot acre compared favourably with farm land production.

One argument put forward in defence of rural subdivision is that the farmer subdivider from the proceeds (far in excess the price he would have received had he sold the farm as an unit) of the sale is able to reinvest in a larger farm with development potential. Another related case is the sale of part of the farm with weed control

problems e.g. gorse and using the proceeds from this sale as working capital, or amalgamate or lease neighbouring productive land.<sup>1</sup>

Businessmen buyers<sup>2</sup> of farm land have been criticized for the part they play in increasing the demand for agricultural land, and farmers having to compete with them. However a role the businessman buyer performs is the triggering off a chain event, especially noted when the farm land market is sluggish or the farm is highly priced discouraging bona fide farmers. Thus as an illustration, the businessman buyer purchases a farm from Farmer A, enabling the latter to buy a larger property with its economies of size from farmer B, who in turn buys a farm with potential for development from farmer C who has been waiting to retire from farming due to old age.

Denman (1965) discussing the purchase of farms by non-farmers indicated two factors contributing to the higher purchase prices in England. Firstly, farm incomes have increased, and secondly the funds made available for farm purchase by the sale of land for urban use. In addition Denman showed that the price of farms has lesser

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1 Both illustrations were encountered by the writer in course of the survey, but any conclusions require further research by an enquiry into the activities of the subdivider.

2 Businessmen buyers accounted for 8.7% and 13.6% of the total number of freehold open market farm land sales in 1973 and 1974 respectively. Source: Rural Real Estate Market in New Zealand. 1972-1974. Research Paper 75-2. Valuation Dept. New Zealand. July 1975.

bearing on the land per se than the fixed equipment on it; in fact the average replacement value of the fixed equipment was 85% of the market value in the seventy farms studied in 1962. This he stated strengthens the argument for not limiting farm purchase to bona fide farmers only, but to enable those with sufficient funds e.g. industrialists who would let them out to tenants and thus "relieving the capital burden for the farmer."

In view of the high ingoing costs of farming in New Zealand, the businessman buyer or the part-time farmer can perform a useful function. In the latter case which is the subject of this study, leasing or letting out for grazing part of the whole farmlot to the neighbouring dairy farmer is commonly arranged. Sell and lease back arrangements, common in the commercial sector may be the rational<sup>al</sup> choice in the future.

Visual pollution caused by unkept farmlots and weed infestation onto neighbouring productive farms have been cited against rural subdivisions owned by non-farmers. Thus "farm land subdivided, have turned to gorse rather than cabbages" (New Zealand Listener 1973). However it is not known if subdivided land were not already under gorse, a state which may have prompted the farmer to subdivide and sell. Again research has not been done on this subject.

Farms close to urban settlements experience problems caused by domestic pets and the residents as previously

mentioned. This is most evident in newly developed urban areas which usually lack recreational facilities, and unlike the more settled ones, the adjustment to the rural setting has not yet been achieved by the residents. This argument extended to the rural subdivisions can in fact be a case for it, with a buffer zone occupied by part-time farmers who with their understanding and appreciation of the rural environment and its related activities will uphold responsibilities that will benefit the farming community as well.

#### Urban Sprawl and Speculation

The rural subdivisions in this study can be described as a form of low density sprawl or leap-frog development by the nature of bypassing more accessible land to live on the rural edge. Harvey and Clark (1965) described sprawl as consisting of "areas of essentially urban character located at the urban fringe but which are scattered or strung out, or surrounded by, or adjacent to undeveloped sites or agricultural sites ..." Sprawl is a form of growth and given the institutional structure and mixed economy of New Zealand, it is inevitable, although the undesirable effects can be mitigated.

Sprawl is decried because of the costs to society arising from the demands made on the extension of public services e.g. roads, sewerage disposal and schools. Inefficiency of use of land is incurred by not developing more accessible land in the case of discontinuous development or leapfrogging. Ohls and Pines (1975) on



the other hand, while recognising the costs generated by discontinuous development, contend that this form of development can be an efficient allocation of resources. They discussed this with reference to two specific cases. Firstly, the leapfrogged area of land is developed for higher-density housing after the lower-density residential buildings located most remote from the work centre were completed. This is discussed with special reference to a rapidly growing city. The second case lies on the principle of efficient scale of operation. It specified the development of leapfrogged land for commercial purposes when a degree of population density has been achieved enabling commercial activities to be operated on an efficient scale. In both cases, Ohls and Pines demonstrated that discontinuous development may be beneficial to the society in that resources are allocated efficiently.

While some indicate a desire to see the "periphery of a city.....made up of 2,5, or 10 acre blocks" others contend that this development impose upon society, costs associated with this low density/leapfrogged sprawl. As discussed previously, this form of development need not necessarily be associated with an inefficient allocation of resources. At present underutilisation of rural roads is more so the case than congestion. In addition, facilities such as water supply, electrification are self-provided and paid for by the user. Water pollution caused by the seepage from septic tanks is an external



cost, but the probability of this happening is reduced by the soil suitability testing by local authorities.

Different people have different subjective expectations of the future. It is this uncertainty in the market economy that gives rise to speculation. Speculators hope to buy at a low price and sell at a higher one at a later point in time. Speculation can be described as arbitrage through time.

Land speculation is often attributed as the cause of sprawl, and the speculative purchase of ten-acre blocks is decried as a "prelude to unplanned growth." Harvey and Clark (1965) discussed this issue concisely and pointed out that sprawl is due to the "lack of coordination of the decision to speculate ... and not speculation itself."

Speculation has been criticized because it is not a productive process since it concerns the buying and selling of the commodity. Speculation can be beneficial to the community in a way that is eventuated by price stability.<sup>1</sup> Contrary to the conventional wisdom, the optimal rate of land development can be ensured by land speculation. An efficient allocation of resources can be achieved by market competition, the speculative price reflecting the future profitability. This withholding of land potentially productive in the future by the speculative price in fact discourages

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<sup>1</sup> M. Friedman (1953) contends that currency speculation tends to be destabilizing while Baumol (1957) argue otherwise.

premature development.

### Part-time Farming

Various studies on part-time farming describe it in different terms. Vuuren (1973) described the part-time farmer in the context where an off-farm job was taken to supplement the farm income. Harrison (1965) used the criterion of labour hours worked per week to define the part-time farmer. Fuguitt(1958) defined it as "a farm operator who reported working off his farm 100 days or more ..." Gasson's work (1966) on this subject has more direct relevance to this study.<sup>1</sup> She defined the part-time farmer as "the occupier who derives a substantial off-farm income besides farming."

The influx of part-time farmers consequently changing the local class structure has interesting sociological implications. Thorns (1968) discussed the growth of the professional and managerial groups delineating a sharper distinction between the village class structure. Using the concept of relative deprivation he explained the conflict and resentment generated by the urban families in the villages.

Gasson's study of part-time farming in south-east England found little difference in land use intensity between part-time farmers and full-time farmers.

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<sup>1</sup> The definition used in this study is discussed in Chapter 2.

Although the efficiency of labour utilisation did not differ significantly, she pointed out that technical efficiency appear to concern the part-time farmer more than economic efficiency. In addition, part-time farmers favoured less management intensive farming enterprises.

## CHAPTER II

### METHODOLOGY

The methods used in the study are described in this chapter.

#### The Questionnaire

The questionnaire<sup>1</sup> is broadly divided into four parts. Section 1 considered the housing amenities and farm improvements if any, made on the farm since the purchase. Section 2 was the main part of the questionnaire and involved the documentation of agricultural land use. Where livestock farming was the enterprise, the livestock wintered and livestock policy was asked while the measurement of crop production was in terms of area and yield obtained. The documentation of the characteristics of part-time farmers was the aim of the third section. The final section dealt with mortgage requirements, the income and expenditure of the part-time farming enterprise together with additional comments the respondent wished to make.

#### Analysis

The analysis of intensity of agricultural land use is done on two bases. The first which is applied to farms concerned with animal production was based on the carrying capacity wintered; this is expressed as ewe

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<sup>1</sup> Copies of the introductory letter and the questionnaire are included in Appendix I.

equivalents per acre. The conversion ratios used in this study are indicated in Table 2.1.

Table 2.1

Livestock Conversion Ratios for Livestock  
Owned and Carried on the Property

Type & class of livestock	Conversion ratio
Sheep	0.8
Young fattening cattle	3.0
Old           "           "	5.0
Young breeding cattle	3.0
Old           "           "	6.0
Mares	6.0
Stallions	6.0
Geldings	6.0
Other horses	6.0

These conversion ratios differ from those recommended by the Ministry of Agriculture and Fisheries<sup>1</sup> for survey work and national assessments. It was felt that the lower conversion ratios used in this survey were justified because of the broad classification of the livestock. Hoggets, rams as well as breeding ewes were all in one grouping; old fattening/breeding cattle included yearlings, rising two-year old beasts, bulls

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<sup>1</sup> Farming as a Business, p 157, Price List of Farm Commodities March 1972, Agricultural Economics Division, Palmerston North, New Zealand Dept. of Agriculture.

as well as breeding cows.

In this study a significant number of farmlets were let for grazing with corresponding problems in the computation of the carrying capacity based on livestock wintered. This is because the number of grazers vary throughout the season, the grazing fee being paid mainly on a per head per week basis. For the purpose of this study the following formula was used in the calculation of the ewe equivalents(E.E.) wintered for grazing stock:-

$$\text{E.E. wintered} = \frac{\text{No. of stock} \times \text{No. of weeks}}{52} \times \text{Conversion ratio}$$

The division by fifty-two weeks assumed that the livestock was carried on the property for the whole farming season. For this reason the ewe equivalents wintered represent the average annual carrying capacity irrespective of the number of weeks actually grazed and does not overestimate the carrying capacity. The conversion ratios used in these calculations are shown in the table below.

Table 2.2

Conversion Ratios Taken for Grazing Stock

Type of livestock	Conversion ratio
Sheep	0.8
Dairy cattle	4.0
Beef cattle	4.0
Horses	5.0

As can be noted, the conversion ratios for grazing horses, dairy and beef cattle are lower than that used previously for similar livestock but owned and carried on the property. The conversion ratio used for dairy and beef cattle grazers was four. This conservative lower figure is to account for the mixed age nature of the grazing livestock on the farmlets. For horse grazers, a conservative conversion ratio of five was used.

The efficiency index 'ewe equivalents per acre' has its limitations. It does not take into account several other agricultural land uses. In fact it underestimates the intensity of agricultural land use. This is illustrated by the cropping of barley where the land in addition will be available for the grazing of livestock. Furthermore, only grazing livestock can be meaningfully converted to ewe equivalents. Thus in farmlets where pigs were also raised, the agricultural land use intensity will be underestimated. To overcome this the second approach is to express farm production in monetary terms. For this purpose, a gross margin analysis approach is taken.

Gross margin is defined as the gross revenue less the variable costs.<sup>1</sup> This form of partial budgetting assumes that fixed costs do not vary with the choice(s) of farm enterprise(s). The use of gross margins here is to provide a monetary value of the total farm production.

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<sup>1</sup> For a discussion on the use of gross margin analysis, see 'Gross Margin Analysis: A Critical Evaluation.' G.R. Tate In Farm Budget Manual 1971, Ed. N.G. Gow.

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It is not an attempt to select the best enterprise type(s) for the farmlets in the survey. In other words, it is not a farm management problem.

Gross margins are commonly expressed as dollars per animal and dollars per acre. The production periods vary between enterprises. While sheep policies are usually within a twelve month production period or less, cattle policies range from as short as three months to more than three years. To express the total farm production in one farming year, the gross margins of cattle policies exceeding twelve months were pro-rated. The farming year is defined as 1st. July<sup>1972</sup> to 30th. June 1973. Costs and prices for goods and services used in determining the gross margins refer to this farming year. The publication 'Farming as a Business, Price List of Farm Commodities, March 1972' was the reference used.

The sale of thoroughbreds is a source of export income as evident in the annual yearling sales. The gross margin of thoroughbred breeding is beyond the scope of this study. The returns from race horses as one respondent had, depends on the success at the race track. Horses kept for recreational purposes can also provide a source of income as observed on two properties where the owners conducted pony riding classes. To overcome these problems of output measurement, the 'gross margin'



is simply calculated as follows:

Gross Margin = \$1.93 (sample average grazing rate/wk) x 52  
(\$/horse/yr)

While the calculation of gross margins for crops such as potatoes were readily arrived at, the vegetable gardening of capsicums and egg plants were not. This is due to the lack of financial and production data. The gross margin for vegetable gardening was thus assumed to be at least equal to the value of the total gross margins from two crops of cabbages per year.

Commercial woodlots were only considered in the measurement of total farm output. The amortisation of the Net Present Value over twenty-five years was taken to be the farm output per acre per year. The discount rate used was 8%.<sup>1</sup>

A summary and the relevant calculations of the gross margins for the various farming enterprises are included in Appendix II.

### The Synthetic Farms

'Synthetic farms' were constructed for comparison purposes with the sample of farmlots from the survey.

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<sup>1</sup> This discount rate is used by the New Zealand Forestry Service.

The synthetic farm can be described as one resembling an average farm found in the two counties concerned in terms of area, farm enterprise, management system and managerial ability, topography, drainage and comparable soil type. In reality of course such similarities are rarely if ever found and variations in all these factors are diverse and to different degrees. The synthetic farm can alternatively be described as an hypothetical representative farm of the district.

The carrying capacities of the synthetic farms will be taken as the best estimated levels of production of farms before subdivision. These farms were constructed with the assistance of the Field Advisory Officers from the Ministry of Agriculture and Fisheries as well as discussions the writer had with local farmers. Two synthetic farms, a factory supply dairy unit and a sheep/cattle farm were constructed.

The dairy farm is a one-man unit. The total area is 132 acres, consisting of Te Arakura silt loam. The milkfat production was 33,000 lb. and 115 cows are milked each season. The unit made 1400 bales of hay. In addition, three acres each of maize and chou moellier were grown as summer feed. Table 2.3 shows the classes of livestock wintered and the carrying capacity of the farm.

Table 2.3

Synthetic Dairy Farm: Livestock Wintered & Carrying  
Capacity (Ewe Equivalents) for the Farming Year

Livestock	No.	Conversion ratio	E.E.
Cows	115	8.0	920
Rising 2-year heifers	23	4.0	92
Heifer calves	28	3.0	84
Total	-	-	1096

Carrying Capacity: 8.3 E.E./ac.

The synthetic sheep/cattle farm consists of 470 acres of the Halcombe silt loam soil type. This farm, like the dairy unit is also operated by one owner-operator. The lambing percentage is 95% and all lambs are sold fat. The farm breeds its own replacements. All sheep are of the Romney breed. The cattle policy is that of selling weaners. It is assumed that 500 bales of hay are made in an average season. The livestock wintered is shown in Table 2.4.

Table 2.4

Synthetic Sheep/Cattle Farm: Livestock Wintered  
and Carrying Capacity (Ewe Equivalents)

Livestock	No.	Conversion ratio	E.E.
Ewes	1500	1.0	1500
Ewe hoggets	500	0.6	300
Wethers	71	0.8	57
Rams	25	0.8	20
In-calf cows	45	6.0	270
1-year heifers	27	3.0	81
Total	-	-	2228

Carrying Capacity: 4.8 E.E./ac.

Table 2.5 summarises the carrying capacities and gross margin (G.M.)<sup>1</sup> for the two synthetic farms.

Table 2.5  
 and Gross Margins  
Carrying Capacities of Synthetic Farms

Farm type	Area (ac.)	Carrying capacity (E.E./ac)	G.M. (\$/ac)
Dairy	132	8.3	131.46
Sheep/cattle	470	4.8	42.80

<sup>1</sup> Gross margin calculations for the synthetic farms are shown in Appendix III.

### Pre-test

The questionnaire was pre-tested on four part-time farmers for any ambiguities of question wording, structure and layout, e.g. the "part-time" occupation (question 52) of the respondent's wife required definition as to mean less than twenty hours worked per week. In addition, it was found that completion of the income and expenditure items of the farming enterprise was difficult on account of the lack of or absence of records kept. However it was decided to include this section at the end of the questionnaire.

### Data Collection

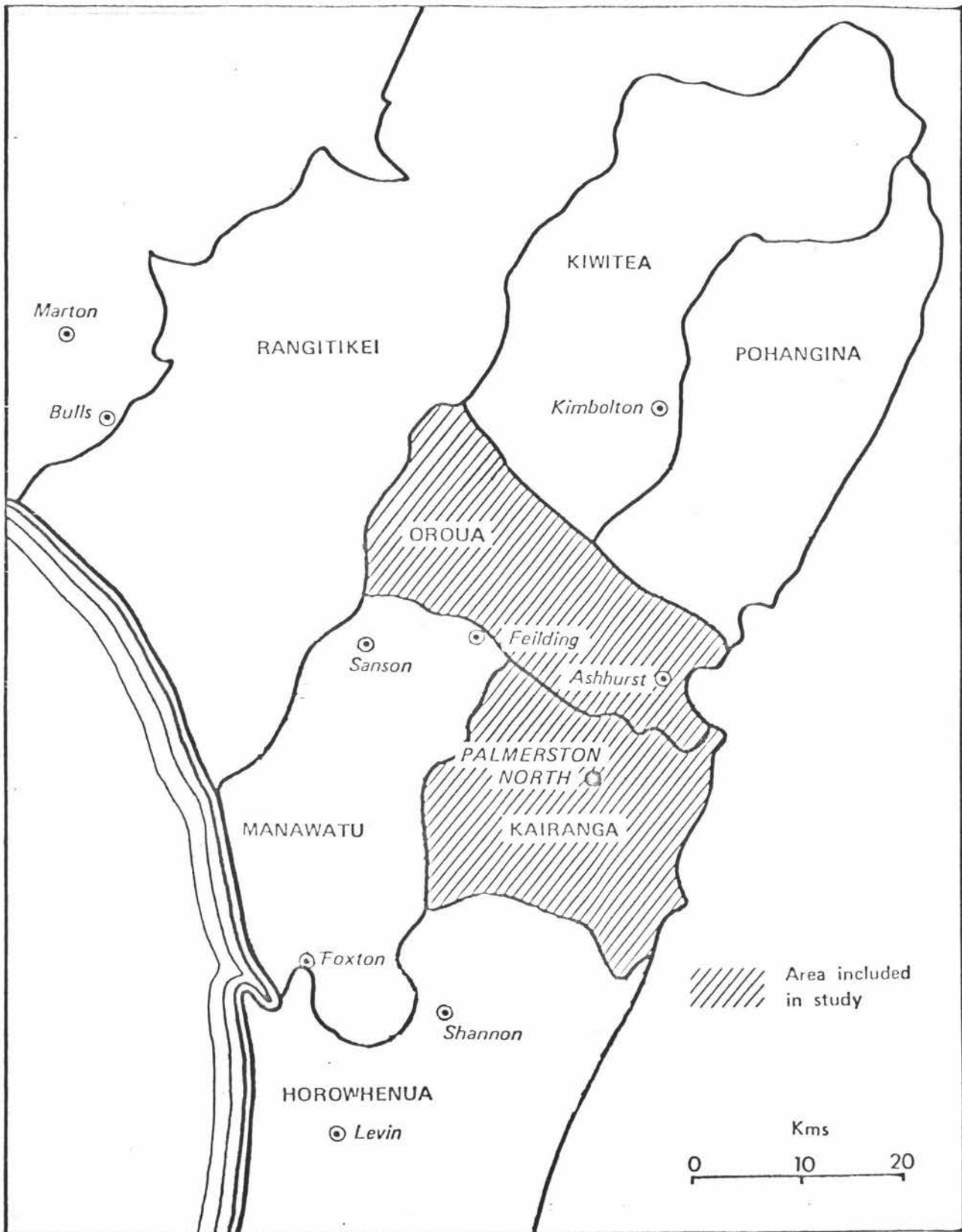
The sampling unit is the part-time farmer owning the subdivision. The part-time farmer is defined as an owner who derives a substantial off-farm income besides farming on a rural subdivision.

The survey covered the area within the boundaries of the Kairanga and Oroua counties (see Figure 1). A mail questionnaire was undertaken.

The criteria for the selection of the population of part-time farmers are as follows:-

- i. Include owners of part-time farmed rural subdivisions with sales registrations dated between 1st. January 1968 and 30th. June 1973.
- ii. Exclude owners of subdivisions farmed in conjunction with other commercial farms i.e.

MAP SHOWING COUNTIES OF THE MANAWATU INCLUDED IN THE STUDY



subdivisions purchased for farm enlargement purposes by full-time farmers.

and iii. Exclude subdivisions owned by retired farmers.

Properties bought by retired farmers who may be by definition part-time farmers were excluded. This is partly because the farmlet may be farmed in conjunction with another commercial farm operated by a manager or a member of the retired farmer's family. This poses problems in the measurement of farm output attributed only to the subdivision. It also avoids the inclusion of subdivisions used as run-offs. In this latter case the livestock wintered on the subdivision will be exaggerated.

The occupations of subdivision owners were researched by making references to the 1972 National Electoral Roll. Local knowledge, assistance from subdividers, part-time farmers and rural delivery contractors were helpful. The two latter sources of information proved to be invaluable in the writer's experience. Failing these, the owners listed in the Manawatu telephone exchange were approached by telephone.

Addresses of part-time farmers were obtained from sales registration files and these were checked with the telephone directory for any changes of addresses since the registration of the sale. Together with the questionnaire were enclosed an introductory letter and

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a self-addressed stamped envelope. These were sent out over a two-week period. Reminder letters together with copies of the questionnaire were sent three weeks after the first mailing.

A third reminder<sup>1</sup> was made by the use of the telephone. The calls were made between 7.30 p.m. and 9.00 p.m.. Two further attempts were made where the owners were not in.

### Response Rate

Questionnaires were sent to the total number of 163 owners of farmlets. There were fourteen non-respondents who could not be contacted for the following reasons — change of address (10), owner was overseas (2), and property was already sold (2).

There were altogether 106 replies received.<sup>2</sup> One of these was received five months after the mailing of the questionnaire; this was excluded from the analysis for the reason that all relevant information had already been processed using the IBM 1620 computer. Another questionnaire was largely left incomplete. This was rejected.

The total number of replies used in the study was 104.

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1 A layout of the telephone reminder is shown in Appendix I.

2 There were two non-respondents who wrote to indicate that they could be of little assistance in the survey because of the recent purchase of their farmlets. One of them also pointed out that he was now staying in another city.



This is a response rate of 70%.

Table 2.6 shows the number of usable replies from the three response groups.

Table 2.6

<u>Response Groups</u>	
<u>Response to</u>	<u>No.</u>
First mailing	77
First reminder (mail)	18
Second reminder (telephone)	9
<b>Total</b>	<b>104</b>

Response Rate: 70%

### Response Bias

Response bias was tested by comparing the mean area of both farmlets of respondents and the total part-time farmed subdivisions located in the two counties and purchased between January 1968 and June 1973. No significant difference was found ( $t=1.20$ ). It was concluded that the 104 respondents was a representative sample of the population.

## CHAPTER III

FINDINGS: THE RURAL SUBDIVISIONS AND THE  
PART-TIME FARMERArea of Farmlands

The total area of the respondents' properties covered by the survey was 1648 acres.<sup>1</sup> The average area was 15.8 acres. The smallest unit was one of five acres while the largest was eighty-one acres. The distribution of farmland sizes is shown in the table below.

Table 3.1

Distribution of Farmland Sizes

Area(ac.)	No.	%
5	1	1
6-10	43	41
11-15	35	34
16-20	7	7
21-25	9	9
26-30	1	1
31-35	2	2
36-40	1	1
46-50	1	1
51-55	1	1
61-65	1	1
76-80	1	1
81-85	1	1
Total	104	100

It can be seen that three-quarters of the farmlands were

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<sup>1</sup> At the time of the survey, metrification has not yet taken place.

in the 6-15 acres range. There were only six farmlets that were thirty-five acres or more.

### Residence of Respondents

There were sixty-one respondents who were already resident on their farmlets while would-be or intending residents numbered thirty-eight. Only five farmlet owners had no intention of living on their properties.

Table 3.2 shows how soon those intending residents would hope to live on the property. Nearly two-thirds of them will be residing within three years while half of them will do so within one year.

Table 3.2

#### Intending Residents: Length of Time Before Residence

Length of time (years)	No.	%
1	19	50
2	4	11
3	2	5
4	3	8
more than 4	10	26
Total	38	100

Comparing the length of ownership with residence between the two groups, intending and already resident, the following points were observed. Respondents from the intending resident group had owned their properties for a relatively shorter period than those in the already resident group.

Table 3.3 illustrates this point. Nearly 90% of the intending residents had owned their farmlets for two years or less compared to 48% in the resident group.

Table 3.3

Length of Ownership in Relation to Residence Status

Length of ownership (years)	Non-intending residents		Intending residents		Already resident	
	No.	%	No.	%	No.	%
2 and less	3	75	34	90	29	48
between 2-3	2	25	1	3	14	23
between 3-4	-	-	2	5	11	18
between 4-5	-	-	-	-	4	7
between 5-5½	-	-	1	3	3	5
Total	5	100	38	100	61	100

Age of House

The ages of the houses on the farmlets surveyed ranged from new to 90 years old. Houses of ages five years and less accounted for 47%(27). The table below shows the distribution of the ages of the houses of the respondents. There were three non-replies to this question.

Table 3.4

Distribution of Age of Houses on Farmlets

Age (years)	No.	%
5 and less	27	47
6-10	2	4
11-20	3	4
31-40	5	7
41-50	4	7
51-60	4	5
71-80	4	7
81-90	4	7
Total	59	100

### Housing Area

Table 3.5 shows the distribution of the area used for housing purposes on sixty-two farmlots. The mean area was 0.8 acres.

Table 3.5

<u>Distribution of Housing Area</u>	
Area (ac.)	No.
0.25	9
0.30	1
0.50	24
0.75	7
1.00	14
1.25	1
2.00	2
2.25	1
2.50	1
3.00	1
4.00	1
Total	62

To see if houses built recently (five years and less) had larger housing areas than the older ones, these two factors were cross-tabulated as presented in Table 3.6. No significance emerged.

Table 3.6

Housing Area in Relation to Age of House

Housing area (ac.)	Age of house		
	5 yrs. & less No.	More than 5 yrs. No.	Total No.
0.3 and less	2	7	9
0.5	12	9	21
0.75	5	2	7
1.00	6	8	14
more than 1.00	1	6	7
Total	26	32	58

No answer: 4

$$\chi^2=7.81 \text{ 4df. N.S. } 0.10 < p < 0.05$$

Household Water Supply

An important item to be considered when living in the countryside is the household water supply. Only three cases were serviced by a town or city water supply. Two of these three properties were serviced by the Palmerston North city supply while the third was serviced by the Feilding Borough supply. Storage of rain water was done by thirty-two of the residents and this and the combination of two sources, namely bore and rain storage were the main sources of household water supply amongst part-time farmers. Table 3.7 includes the other sources encountered in the survey.

Table 3.7

Sources of Household Water Supply of Residents

Source/s	No.	%
Rainwater storage	31	52
Bore & rainwater	17	27
Community scheme	3	5
Bore	2	3
Spring	2	3
Rainwater & stream/river	2	3
Rainwater & spring	1	2
Rainwater & dam	1	2
Total	59	100

No answer=2

Storage tanks used by the residents varied from 500 gallons to 8000 gallons capacities, with total gallonage per farmlet ranging from 500 to 16000 gallons.

Excluding the three properties that were serviced by public schemes, forty-seven of the residents had adequate household water supplies while eight did not. The latter group was asked if any action was taken to overcome the inadequate supply; five of the eight respondents intended to install additional storage tanks, one intended to put down a bore, another purchased water in the summer and one resident intended to connect the toilet to the farm water supply to conserve fresh household water. One resident did not answer this question on the adequacy of the household water supply.

### Distance to Work

One feature of country living is the necessity to travel a longer distance to work when the work place is situated in the city. However the further the distance from the city centre, the less attractive the property will be to the commuter in terms of travelling time and costs. In both groups of respondents, i.e. the residents and non-residents, the greater proportion had their work places situated in Palmerston North.

There were forty-one of those in the resident group who worked in Palmerston North. In a functional sense their farmlet properties can be defined as urban. There were five part-time farmers whose work places were in Feilding and another worked in Ohakea. Part-time farmers whose work places were either at home or variable because of the nature of their occupations e.g. builders and agricultural contractors accounted for 20%(12). The question on work place was not applicable to one respondent because of his retirement and another did not answer the question.

The main means of transport to work amongst the residents was asked in question 51. It was found that the private vehicle was the most frequently used. The use of the private car accounted for 78%(48) and three residents made use of the private truck. The use of company vehicles was mentioned in eight cases. One part-time farmer used a motorcycle and another his bicycle.



### The Part-time Farmer

The largest single age group of the respondents was between 31-35 years of age. This is illustrated in Table 3.8. Taking a broader age range, from 31-45 years, nearly two-thirds of the respondents were found in this category. Only four respondents were fifty-six years or older.

Table 3.8

#### Age of Respondents

Age group(yrs)	No.	%
20-25	4	4
26-30	14	14
31-35	31	30
36-40	18	18
41-45	18	18
46-50	7	7
51-55	6	6
56-60	1	1
61 and over	3	3
Total	102	100

No answer=2

Of the 104 respondents, 100 were married and 89 of this latter group have children.

As shown in Table 3.9, ages of children of married part-time farmers were in the main seventeen years or younger i.e. they were still mainly of schooling age.

Table 3.9

Age of Children of Part-time Farmers

Age of children (years)	No. of part-time farmers			
	Resident No.	Non-resident No.	All farmers No.	%
17 & less	42	26	68	76
More than 17	6	3	9	10
17 & less plus more than 17	9	3	12	14
Total	57	32	89	100

No answer = 2

Single part-time farmers = 4

Not applicable (no children) =9

This relatively younger age of children would confirm one of the main reasons for the property purchase, this was the favourable surroundings for the bringing up of children (reasons for the purchase of farmlets are discussed later in this chapter).

The patronage of the different types of schools by resident part-time farmers is shown in Table 3.10.

Table 3.10

Schools Attended/Intended by Children of  
Resident Part-time Farmers

Age group (years)	No reply	N.A.*	Type of school				
			country	city	board -ing	country + city	country+ boarding
less than 6	12	-	17	4	-	-	-
6-11	-	-	17	11	-	2	-
12-13	-	-	5	4	1	1	1
14-17	-	1	-	9	-	1	-

\*Not applicable because the child has left school.

It would appear that the intended schooling of children less than six years of age would be mainly at country schools. Children in the 6-11 age group of seventeen residents attended country schools, and city schools were used by eleven residents while two residents made use of both country and city schools.

It would seem that country schools were popular with the resident part-time farmers. Generally speaking, it was found that this group of users of country schools were satisfied with the school facilities.

Occupations of part-time farmers were classified into six categories,<sup>1</sup> namely professional, semi-professional, trade, clerical, sales and service personnel, worker and other. The criteria used to classify the occupations are as follows:-

A. Professionals have

- i. existing theory and skills
- ii. training institutions
- iii. a community mandate
- iv. a code of ethics
- v. the client's welfare as the primary objective

B. Semi-professionals have characteristics as in (i) to (iv) of A, but different from the professional category on the following:-

- i. shorter training period
- ii. regular supervision on the job

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<sup>1</sup> Krause E.A., 'The Sociology of Occupations,' Little, Brown and Company. 1971, p 77.

C. Trade

The primary objective of this occupational is profit making.

D. Clerical, sales and service personnel have

- i. training on the job.

E. Workers

- i. Manual labour is required on the job.

F. Other

This category includes occupations not classified under the previous five categories.

Table 3.11 gives an indication of the varied occupations of the part-time farmers surveyed.

Table 3.11

Occupational Groups of Husbands/bachelors

Occupation	No.	%
Professional	36	35
Semi-professional	13	13
Trade	33	32
Clerical, sales & service personnel	13	13
Worker	6	6
Other	3	3
Total	104	100

The survey indicated that part-time farmers from the two counties were from a wide range of occupations. The professional was well represented. One third of those under this category were known to be self-employed (for

the occupations listed under each category, see Appendix IV). Part-time farmers from the trading category accounted for 32%(33). In this group nearly 85%(28) were self-employed.

The distribution of occupational groups of their wives (where applicable) presented a different picture. Amongst the married respondents, forty-four were housewives. The rest had some form of employment, part-time or on a full-time basis. In this latter group, i.e. those that had occupations other than housewife, the semi-professional and the clerical, sales and service personnel groups accounted for 75%(40). On the other hand there were only four professionals, all of whom were on a salaried basis. Table 3.12 shows the distribution of the occupational classes.

Table 3.12

Occupational Groups of Wives<sup>\*</sup>

Occupation	No.	%
Professional	4	8
Semi-professional	28	53
Trade	2	4
Clerical, sales and service personnel	12	23
Worker	5	9
Other	2	4
Total	53	100

No answer = 3

\* Housewives are excluded in this grouping

Working on a part-time basis amongst the wives was slightly more common than on a full-time basis. Table 3.13 indicates this.

Table 3.13

Employment Basis of Wives

Basis	No.	%
Part-time	31	56
Full-time	24	44
Total	55	100

No answer = 1

A greater number of the wives going to work did not arise from the commitments due to the property purchase. Asked if this was so, 81%(43) said no to the question. There were two non-replies.

Family Income

Question 53 was designed to ascertain the family income of the part-time farmers. Replies to this question have two deficiencies. Firstly, the term 'family income' was not defined. Thus the question can be interpreted as earnings including that from parents as well as from the children and members of the extended family. Secondly, whether the income was gross or net was not specifically pointed out to the respondent.

The author has interpreted family income in this study

as the gross income earned by the respondent and where the respondent was married, to include that of the spouse.

The table below shows the distribution of family income groupings amongst the part-time farmers.

Table 3.14

Distribution of Family Income Groups

Income(\$)	No.	%
Less than 4000	4	4
4000-6000	33	35
6000-8000	18	19
8000-10,000	15	16
More than 10,000	25	26
Total	95	100

No answer = 9

Distribution of family income levels appeared to confirm that part-time farmers were not typically from the higher income sector of the community. Fifty-one respondents had family incomes ranging from four thousand to eight thousand dollars. The part-time farmers with incomes greater than ten thousand dollars accounted for 27%(25).

Mortgage Requirements

No mortgages were required in sixteen of the properties surveyed. Although mortgages were required in eighty-

five of the property purchases, the percentage of debt to the Current Market Value appeared to be low. Nearly three-quarters of the mortgaged properties had mortgage debts of 40% or less as seen in Table 3.15. This low mortgage debt may be partly due to the way the question was worded, the respondent being asked the 'proportion of the current market value of land and improvements' his mortgage borrowing represented. Due to the high appreciation of land prices, this percentage will necessarily be low. Overestimation of the current market value on the part of the respondent will again give a low percentage of mortgage debt relative to the current market value.

One respondent had already paid off his mortgage.

Table 3.15

Percentage of Debt Relative to Current Market  
Value on Mortgaged Properties

Percentage of debt	No.	%
Less than 20	22	29
21-30	21	28
31-40	13	17
41-50	15	20
51-60	5	7
Total	76	100

No answer = 8



Solicitor funds provided nearly half of the first mortgages raised. This is shown in Table 3.16. Only nineteen respondents required second mortgages and a further three required third mortgages. Lenders of second mortgages however were varied with solicitors, vendors, other persons, banks and other firms contributing significant proportions.

Table 3.16

Type of Lenders and Number of Mortgages

Lender	Mortgage					
	First		Second		Third	
	No.	%	No.	%	No.	%
Solicitor	41	49	4	21	1	33
Bank	15	18	3	16	1	33
Vendor	8	10	3	16	-	-
Insurance Coy.	6	7	-	-	-	-
Other firm	7	8	4	21	-	-
Govt. institution	4	5	1	5	-	-
Relative	1	1	1	5	1	33
Other person	2	2	3	16	-	-
Total	85	100	19	100	3	100

No answer = 1

The total number of mortgages was 107. Of this total, solicitor funds again contributed an important proportion (43%). Only 3% of the mortgages were financed by relatives and government accounted for 5 % only.

While government institutions and relatives were

important lenders in the traditional farming sector,<sup>1</sup>  
this does not apply to the sample of part-time farmers.

Table 3.17 shows the number of each type of mortgage repayment arrangement made by part-time farmers.

Table 3.17

Type of Mortgage Repayment

	Type of mortgage							
	First		Second		Third		Total	
	No.	%	No.	%	No.	%		%
Table	31	41	15	83	-	-	46	47
Flat	45	59	3	17	3	100	51	53
No answer	9	-	1	-	-	-	10	-
Total	85	100	19	100	3	100	107	100

Compared to the farming sector<sup>2</sup> the length of term of the mortgages was short term i.e. five years and less, as can be seen in Table 3.18.

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1 J.G. Miller, 'A Survey of Farm Credit in New Zealand' Dept. of Agriculture, Wellington 1964, p 20.

2 Ibid.

Table 3.18

Length of Term of Mortgage

Term (yrs)	Type of mortgage							
	First		Second		Third		Total	
	No.	%	No.	%	No.	%		%
5 & less	57	71	16	94	2	67	75	75
6-10	5	6	-	-	-	-	5	5
12-20	15	19	1	6	-	-	16	16
25-35	3	4	-	-	-	-	3	3
Indefinite	-	-	-	-	1	33	1	1
No answer	5	-	2	-	-	-	7	-
Total	85	100	19	100	3	100	107	100

Except for money lent by government institutions, average interest rates for first mortgages were not widely varied (for table see Appendix V) amongst the various lenders.

As presented in Table 3.19 it can be seen that 82%(84) of the money were lent at interest rates between 7-8%.

Table 3.19

Interest Rates

Interest rate(%)	Type of mortgage							
	First		Second		Third		Total	
	No.	%	No.	%	No.	%		%
3	1	1	-	-	1	33	2	2
6	4	5	-	-	-	-	4	4
6½	3	4	-	-	-	-	3	3
7	18	22	4	22	1	33	23	22
7½	10	12	5	28	-	-	15	15
8	42	51	3	17	1	33	46	45
8½	4	5	1	6	-	-	5	5
9	-	-	2	11	-	-	2	2
10	-	-	2	11	-	-	2	2
12	-	-	1	6	-	-	1	1
No answer	3	-	1	-	-	-	4	-
Total	85	100	19	100	3	100	107	100

### Reasons for the Property Purchase

All respondents except one answered this question concerning the main reason for the purchase of the property. The main reasons given are listed in Table 3.20.

Table 3.20

#### Main Reason for the Property Purchase

Reason	No.	%
Rural environment (R.E.)	39	38
Favourable surroundings for bringing up children	14	14
Investment	6	6
Cheaper living	1	1
Farming interest	11	10
As a business	3	3
Retirement	1	1
R.E. and favourable surroundings for bringing up children	9	9
R.E., children and health	5	5
Other combinations	14	14
Total	103	100

No answer = 1

Rural environment was by far the most common single main reason given by the respondents. Elaboration to this reason for the farmlet purchase emphasized the 'getting away from the city' and 'cramped suburban housing' in favour of a quiet countryside living style. Altogether thirty-nine respondents gave this reason. Consideration given to the bringing up of children was indicated by fourteen respondents. A combination of rural environment and favourable surroundings for the

bringing up of children accounted for another nine. Investment on the other hand as a main reason was stated by only six respondents. Other combinations of the reasons are listed in Appendix VI. Here again rural environment and favourable surroundings for the bringing up of children were the most often mentioned reasons for the purchase. These two reasons as combinations with other reasons were mentioned twenty-five and twenty-three times respectively. Health and investment were mentioned eleven and eight times respectively, cheaper living another three times and tax savings twice. Other reasons accounted for a further three times.

In addition to the main reason for the property purchase the respondents were asked for their secondary reasons. Altogether seventy-six respondents answered this question. Investment as a single reason topped the list, followed by favourable surroundings for the bringing up of children (see Table 3.21).

Table 3.21

Secondary Reason for the Property Purchase

Reason	No.	%
Investment	19	25
Favourable surroundings for bringing up children	18	24
Rural environment	7	9
Health	4	5
Cheaper living	2	3
Other single reason	3	4
Combination of reasons	23	30
Total	76	100

In the group of combination of reasons, again investment was the most often mentioned reason with tax savings in second place.

It would appear that although economic reasons for the rural property purchase were not of primary importance, nevertheless they were often quoted as a secondary reason.

Reasons for the purchase such as love of the rural environment or even interest in farming need not necessarily be associated with optimal use of farming resources. On the contrary, the emphasis on rural environment and the favourable conditions for the bringing up of children suggest that the farmland was to serve for recreational purposes and a style of living. How the land is used and to what intensity it is farmed is the main objective of this study and will be discussed in a later chapter.

### Ownership of Other Real Estate Properties

To see the extent of ownership of other real estate properties amongst the part-time farmers, both residents and non-resident, a cross-tabulation of other real estate properties owned and intention of residence was made as presented in Table 3.22.

Table 3.22

#### Ownership of Other Real Estate Properties In Relation to Residence Status

Other properties owned	Intention to reside (yrs)						
	already resident	non- intending	1	2	3	4	more than 4
None	48	-	8	2	1	3	4
Rural	2	-	1	-	-	-	-
Urban	9	5	7	2	1	-	5
Rural + urban	1	-	1	-	-	-	1
Total	60	5	17	4	2	3	10

No answer = 3

The five non-intending residents had other urban properties while in the intending resident group, fifteen of them owned some other real estate. In this latter group, ownership of their properties is likely to be a transitional arrangement until their houses on the farmlets are built. In the already resident group, a higher percentage of 79% did not own other real estate. Urban property ownership among all respondents were more common than rural ones.

While the farm businesses of fifty-one respondents qualified for taxation purposes, thirty-three did not. A further thirteen respondents either were not sure or did not know, and there were seven respondents who did not answer the question.

### The Purchase Decision in Retrospect

Question 58(a) of the questionnaire attempted to find if the respondents had any regrets regarding their property purchases. It can be argued that even if the respondent had felt a measure of regret, he would unlikely admit it by indicating so in the questionnaire. This is a possible weakness of the question; however in the following question, 58(b), the respondent was asked the unforeseen advantages and disadvantages that were experienced since the property purchase. The objective here was to find out the nature of these advantages and disadvantages, and to draw attention to the disadvantages — the likely problems that could be encountered in the ownership of farmlands. It is on this 'filter question' basis that question 58(a) can be justified.

Question 58(a) was answered by 103 of the 104 respondents.

They all replied that the decision to buy the property was justified. This is not surprising in view of the escalation of the property values over the period. Hence they have acquired a more effective hedge against inflation, and the capital appreciation of these



properties was of the order of two to four times that of the purchase price. This aspect of the capital gain was as one respondent put it, 'beyond his wildest expectation' and 'so much so soon'. In fact capital gain as an unforeseen advantage was quoted by thirty-eight of the respondents who answered question 58(b). Other advantages mentioned are included in Table 3.23.

Table 3.23

Unforeseen Advantages

Advantage	No.
None	19
Capital gain	38
More relaxed and healthy physically working on the land	5
Improvement in market for farm products	2
Ability to be self-sufficient in food and fuel	2
Contact with farmers and rural community has been rewarding	2
Peace and quiet	2
Excellent feed for horses	2
Other	6

No answer = 32

In the list of unforeseen advantages classified as 'other' in the above table, the advantages given were "sheer enjoyment", children enjoy area more than expected, really good land, handy to town, the respondent could live on the land earlier than he and his wife expected, and the sixth respondent found that he tended to stop

home more often, and hence less overall mileage travelled. This last point is of interest in terms of less total distance travelled by resident part-time farmers. Further studies could be made to ascertain whether part-time farmers do in fact holiday at their farm properties instead of travelling a distance for their vacations.

There were thirty-six respondents who did not consider that they had experienced any unforeseen disadvantages. However several disadvantages mentioned seem to suggest that some buyers of these farmlets were not aware of the implications associated with country living or they underestimated their importance. Such disadvantages include drainage, wind, lack of household water, distance from work and shops, and time required to work the property. The table below shows the disadvantages mentioned.

Table 3.24

<u>Unforeseen Disadvantages</u>	
Disadvantage	No.
None	36
Lack of time to work on property	5
Wind	3
Property too small	3
Lack of household water	3
Distance from shops and work	3
Improvement costs <sup>£</sup>	6
Drainage	2
Restriction on building	2
Housing loans not available	2
Children's activities needing trips to town	2

contd.

### Unforeseen Disadvantages

Disadvantage	No.
Lack of cooperation from neighbours	2
Lack of facilities (rubbish disposal, milk delivery, public transport) previously taken for granted	3
Other**	10

\*Items included a marked underestimate of costs associated with water supply and septic tanks, long drive, fencing, and orchard establishment. In this latter case, the unit was used for fruit growing and cut flowers.

\*\*Disadvantages in the group classified as 'other' are listed in Appendix VII.

It would appear that generally speaking, part-time farmers were pleased with their property purchases and have not experienced many unforeseen disadvantages as suggested by Mr de Cleene's<sup>1</sup> comments that "many holders soon find themselves with an inadequate capital to really enjoy the fruits of their endeavours. Most of the units are unserviced by water. Many have fencing to do and few, if any, have buildings in the original stages... .. some people find themselves not in the position to enjoy the benefit of the unit as they first contemplated."

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1 T. de Cleene, 'The Valuation of Fringe Lands,' paper presented at the 1974 Valuation Seminar. Palmerston North.

## CHAPTER IV

### FINDINGS: FARMING ACTIVITIES

#### Farming Enterprises on Farmlets

Animal production was the main farming activity found in ninety-two of the farmlets, with cattle being the most common livestock farmed. This is followed by sheep farming. The other main farm enterprises are included in Table 4.1. There were two respondents who did not indicate the main farming enterprises; one farmlet was leased and the other let for grazing.

Table 4.1

#### Main Farming Enterprises

Farm enterprise	No.	%
Cattle	59	58
Sheep	22	22
Horses	10	10
Horticulture	4	4
Cropping	3	3
Forestry	2	2
Pigs	1	1
Poultry	1	1
Total	102	100

No answer = 2

As secondary enterprises, sheep and cattle again were the main livestock farmed as shown in Table 4.2. There were eighteen respondents who had no secondary farm enterprises. The 'other' category consisted of the various combinations of the farming activities. These

combinations are shown in Appendix VIII.

Table 4.2

Secondary Farm Enterprises

Farm enterprise	No.	%
Sheep	20	25
Cattle	17	21
Horses	8	10
Cropping	7	9
Pigs	4	5
Poultry	1	1
Horticulture	1	1
Forestry	1	1
Sheep and horses	4	5
Sheep and pigs	3	4
Other	15	19
Total	81	100

No answer = 5

No secondary enterprise = 18

In addition to the above farming activities, two respondents were breeding pedigree dogs, another bred and trained sheep dogs and two respondents had small herds of dairy goats.

It would appear then that farming activities of the part-time farmers generally favoured the less labour intensive requiring sheep and cattle enterprises.

The high beef schedule at the time of the survey and the relatively low labour requirements involved in beef cattle farming were likely reasons for its popularity

24  
as the main farming enterprise.

The most common single cattle policy was that of buying weaners and selling them before the second winter ( see Appendix IX ). This is followed by a policy of buying week-old calves, hand rearing and selling them fat before the second winter. This policy demands higher labour inputs, but its popularity can be explained by the involvement of the family including the children in the farm work (discussed later in this chapter), readily mixed calf-feed and 'pour-on' drenches. These factors possibly contributed to its ranking as the second most commonly adopted policy.

Beef cattle farming as the secondary farm enterprise was noted in fifteen farmlots. Again the policy of buying weaners and selling them before the second winter was the main single cattle policy adopted (see Appendix X).

It is interesting to note that over three-quarters of the farms with cattle as the main and secondary enterprises had policies which purchased young stock for fattening purposes. This is probable due to a lesser capital requirement for this class of stock.

On twenty-two farmlots, sheep farming was the main farming enterprise. Of these, three properties were on lease, another six were on a grazing arrangement. One respondent had part of his farmlot leased as well as farming the rest on his own account.

The following table refers to the thirteen farmlets that were farmed by the owners.

Table 4.3

Sheep Policies on Farmlets Farmed on Own  
Account with Sheep as the Main Enterprise

Policy	No.
Lamb production, breeding own replacements	3
Lamb production, buying replacements as older ewes	3
Dry sheep	2
Lamb production, buying replacements as older ewes and dry sheep	2
Other	2
Total	12

No answer = 1

A combination of black wool production and lamb production, breeding own replacements was one of the policies included in the 'other' group. The second part-time farmer here had a policy of fattening store lambs.

Sheep farming as a main enterprise was less popular than beef fattening. This can be explained by the more skilled operations e.g. crutching as well as the equipment and facilities required. There were four part-time farmers who indicated the ownership of shearing equipment. Sheepyard facilities as a problem hampering the farming operations were mentioned by ten respondents. In six of these instances, yards were either built or were in the

process of being constructed. The other four respondents will continue to borrow the facilities.

A dry sheep policy, because of easier management was surprisingly not a common policy as would be expected. While the two part-time farmers with a dry sheep policy had inadequate farming experience or none at all, those with a lamb production policy were either fully or fairly experienced. It would seem that farming experience would be a factor influencing the choice of sheep policy adopted by part-time farmers, with the more experienced part-time farmer adopting the more complex one e.g. lamb production. In addition, the educational aspect of lambing to children and the desire of the part-time farmers to have their children enjoy seeing spring lambs frolicking on their farmlands can also explain the popularity of farming wet ewes.

One criticism levelled at part-time farmed properties is that the land is used to graze a few riding ponies for the children. The survey found that altogether, thirty-three part-time farmers owned horses on their farmlands. However, only ten had them as the main farming activity. In this group, there were six who had stud horses for breeding purposes, while another followed a policy of breeding standard-bred racing horses. The other three part-time farmers owned the horses for recreational purposes. It is evident that horses as the main farm enterprise and owned for the main purpose of recreation form a small proportion of the farmlands



surveyed.

The ownership of horses not as a main farm enterprise by the remaining twenty-three part-time farmers were for several purposes as listed in Table 4.4.

Table 4.4

Main Purpose for the Ownership of Horses  
Not as the Main Farm Enterprise

Purpose	No.
Recreation	15
Breeding	6
Racing	1
Total	22

No answer = 1

Cropping as the main farming enterprise was found in three farmlets. In the 1972/1973 farming season, two properties were leased for the cropping of barley. The third part-time farmer in this group had a variety of crops, namely grass seed (eight acres), mangolds (five acres) and barley (seven acres).

There were four respondents who had horticulture as the main farming enterprise. While two of the part-time farmers had intensive agricultural land use including cut flowers, orcharding and berryfruit growing, the third had a mixture of dry sheep farming and one and a half acres of gooseberries; the fourth part-time farmer

in this group farmed one acre of vegetables and the rest of the property was let for grazing. This respondent indicated his intention to go market gardening.

The cropping and horticultural activities are further discussed later in chapter five. Forestry programmes on surveyed farmlets are also discussed there.

There was one pig farming unit consisting of a herd of twelve sows and one boar and operated as the main farm enterprise. The policy was one of selling porkers. The respondent indicated an intention of increasing sow numbers on the farmlet. It is interesting to note that the respondent's wife and children spent eight and fourteen hours per week respectively working on the farm.

The four respondents who indicated pig farming as the secondary farming enterprise did so to cater for home consumption purposes.

The one part-time farmer who indicated poultry as the main farm enterprise had six of the ten acres leased to a neighbouring farmer. Although twenty-three chickens were kept and eggs were sold on a private basis, it was intended by the part-time farmer to run a greater number of layers and also be involved in broiler production.

Altogether the sale of eggs privately was done by nine part-time farmers. The popularity of keeping chickens

for a home supply of eggs is indicated by the number of respondents who were self-sufficient in this food item (see Table 4.5 as discussed later in the chapter).

### Self-sufficiency in Food

From Table 4.5 it can be seen that more resident part-time farmers were self-sufficient in the food items listed than their non-resident counterparts. In terms of number of part-time farmers with some degree of self-sufficiency, vegetable production for home consumption topped the list of food items. However the average of 57% self-sufficiency suggests the popularity of small gardens on the farmlets. Two part-time farmers were vegetarians. On the other hand self-sufficiency in red meats where applicable, appeared to be comparatively higher.

It is likely that self-sufficiency in food items would be higher and a more common feature when the non-resident part-time farmers intending to reside there actually do so. This intention of self-sufficiency was elaborated by four non-residents.

### Intended Main Farm Enterprise Changes

Some intended changes to the main farming enterprises elaborated by respondents indicate a more intensive farming programme e.g. cropping and increasing sow numbers (see Appendix XI). Livestock production however would appear to remain the main farming activity.

Table 4.5

Self-sufficiency (S.S.) in Food Items

Food item	Self-sufficiency (%)			No. of Part-time Farmers with some degree of S.S.			% of Total Part-time Farmers	Overall Mean S.S. (%)*
	Highest	Lowest	Mean	Resident	Non-resident	Total		
Vegetables	100	10	57	36	6	42	40	23
Sheep meat	100	10	74	26	8	34	33	24
Potatoes	100	10	69	23	6	29	28	19
Beef	100	20	83	18	6	24	23	19
Eggs	100	10	82	21	-	21	20	16
Poultry	100	10	67	13	-	13	13	9
Pork	100	50	96	10	2	12	12	12
Milk	100	50	88	6	-	6	6	5

\* This is obtained from the following computation:-

$$\frac{\text{No. of part-time farmers with some degree of S.S.} \times \text{Mean S.S.(\%) of food item}}{\text{Total No. of Part-time farmers in survey (104)}}$$

It can be seen that while cattle was the main livestock farmed on the farmlets surveyed, a wide range of farming activities was evident, some on a commercial line and many others as interests or hobbies, and also catering to a degree of self-sufficiency in home grown food items.

#### Farming Arrangement

The farmlet owner has several alternatives when deciding the farming arrangement to be adopted on his property. Besides farming the property himself, he can have the farmlet leased, payment usually being made on a per acre per year arrangement. Letting the farmlet for grazing is another alternative, in which case the arrangement will be a shorter term one, the fee paid will be on a weekly and per head basis. Another alternative is to farm an area he could manage and lease out or let the rest of the farm. The various farming arrangements encountered in the survey are illustrated in Table 4.6.

Table 4.6

#### Farming Arrangement on Farmlets

Farming arrangement	No.	%	Area (acres)	%
On own account	71	68	1019	62
Leased	13	13	250	15
Let for grazing	12	13	232	14
Own account + let for grazing	4	3	110	7
Own account + leased	3	3	27	2
Leased + let for grazing	1	1	10	1
Total	104	100	1648	100

Table 4.7

Residence on the Farmlet In Relation to Farming Arrangement

	Farming arrangement			Total
	Own account	Leased &/or let for grazing	Own account & leased/let	
	No.	No.	No.	
Resident	45	10	6	61
Non-resident	26	16	1	43
Total	71	26	7	104

$$\chi^2 = 7.14, 2 \text{ d.f. } 0.05 < p < 0.2$$

Properties farmed by the owners themselves appeared to be by far the most common farming arrangement.

To see if there was any association between the farming arrangement and owner's residence on the rural property, they were cross tabulated as presented in Table 4.7.

It would appear that significantly more resident owners farmed the properties themselves than their non-resident counterparts.

A leasing arrangement involves no capital outlay for stock as well as bringing in a secure return. Leasing fees indicated by six respondents ranged from \$10 per acre per year to \$40 per acre per year. The average fee received was \$23 per acre per year.

A grazing policy is another that requires no capital outlay for livestock. There is little or no risk in such a policy. Table 4.8 gives an indication of the grazing rates received.

Table 4.8

Livestock	<u>Grazing Rates</u>			
	Grazing rates (\$/week)			
	1971/1972		1972/1973	
	lowest	highest	lowest	highest
Sheep	.05	.10	.10	.10
Dairy cattle	.30	1.00	.50	1.00
Beef cattle	.50	1.00	.50	1.00
Horses	1.00	1.25	.50	5.00

By far the most common grazing arrangement made was with the neighbouring farmers. This is followed by contact with 'farmer friends'. Whether they were neighbours or not in this latter group was not specified by the respondents. It is surprising to note that grazing arrangement made through newspaper advertisements accounted for only one case as shown in Table 4.9.

Table 4.9

Grazing Arrangement

Arrangement	No.
Neighbour	13
'Farmer friend'	6
Relative	1
Solicitor	1
Stock agent	1
Newspaper advertisement	1
'Privately'	2
Total	25

Whether respondents would make use of a 'grazing wanted and for lease' information service organised by the Ministry of Agriculture and Fisheries was examined by question 33. It was found that of the twenty respondents who indicated their intention to let their properties over the next two years, two-thirds of them will not use this service. This is not surprising as there appeared to be personal contact with the farmers in the district who were seeking grazing opportunities



as was shown in Table 4.9. Although in the survey the use of newspaper advertisements was limited, the 'grazing wanted' columns in the local newspaper appear to be well subscribed. For these reasons, the writer feels that a grazing information service run by the Ministry of Agriculture and Fisheries is not warranted.

#### Employment of Farm Labour

Employment of non-family labour on farmlands that were completely or partly farmed on own account was not a common feature. Table 4.10 indicates this. Only four part-time farmers employed some form of casual labour. These properties however had horticulture or cropping as the main farm enterprises.

Table 4.10

#### Employment of Farm Labour by Part-time Farmers

Type of labour employed	No. of farms
Family	49
Non-family	5
Total	54

No answer<sup>1</sup> = 24

This characteristic of family involvement in the working

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<sup>1</sup> The high non-response to this question can be attributed to the ambiguous wording of the question. Thus 'labour employed' could be taken to refer to paid labour only by the respondent.

of the farmlet amongst part-time farmers is further studied by indicating the degree of work participation amongst the family members. This is presented in Table 4.11.

Table 4.11

Work Participation Amongst Family Members

Family member	No.
Husband only	16
Wife only	5
Children only	4
Husband + wife	13
Husband + children	1
Wife + children	2
Husband, wife + children	6
Husband + casual worker	2
Husband, wife + casual worker	1
Husband, wife, children + casual worker	1
Single owner	3
Total	54

No answer = 24

It is interesting to note that farm work amongst married owners of farmlets was shared by their wives and children. On five farmlets, farm work was done by the wife only. An indication of the hours worked per week by each member of the family is shown in Table 4.12. Because of the low response to this question, no definite conclusion can be drawn.

Table 4.12

Hours Worked per Week on the Farm by Family Members

Family member	No. of respondents	Hours	
		Total	Mean
Husband	20	249	12
Wife	13	161	12
Children	11	65	6

There seemed to be some difficulty in detailing the normal hours worked per week. This difficulty is manifested by answers from two respondents. They described their normal hours worked on the farm as 'erratic' and 'as required'.

Work exchange arrangements was not a common feature amongst the part-time farmers surveyed.

Use of Contractors

The hiring of contractors can help to overcome machinery, skill and time requirements. The survey found that 65% of the respondents hired contractors in 1972 and 70% of them intended to do so over the next two years. Haymaking was the main operation in which agricultural contractors were used (Table 4.13).

Table 4.13

Type of Contracting Service Employed and Intended  
Use over the next Two Years

Operation	1972 No.	Intended No.
Hay making	26	32
Drainage	5	4
Topdressing	6	11
Cultivation <sup>✕</sup>	8	10
Weed control	5	4
Fencing	5	4
Other <sup>✕✕</sup>	13	16

✕ Operations involving seed bed preparation

✕✕ See Appendix XII

More Time For Farming

Over three-quarters (69) of the respondents who answered this question would like to have more time for farming activities. No significant difference however emerged between farmlots operated by the owners and those leased or let for grazing.

Problems Facing the Part-time Farmer

Question 40 required the listing in order of importance, the three major problems facing the part-time farmer in the coming year. The results are tabled below.

Table 4.14

Indication of Three Major Problems Facing  
the Part-time Farmer

Item	Order of importance		
	1st.	2nd.	3rd.
None	12	15	16
Subdivision	13	8	8
"Finance"	10	2	3
Water supply	8	5	1
Weed control	5	3	5
"Time"	3	8	3
Drainage	4	3	2
Lack of experience	2	-	2
Other <sup>*</sup>	24	27	21
No answer	23	33	43
Total	104	104	104

<sup>\*</sup> See Appendix XIII

There were twelve respondents who did not foresee any problems, fifteen respondents indicated only one problem while another sixteen listed two problems only.

Fencing requirements for subdivisions seem to be the item mentioned most often. This is not surprising as the subdivision of the original farm tended to maximise the use of the road frontage rather than to facilitate effective farm management by the new owners. It was found that on sixteen farmlands surveyed, there were no boundary fences at the date of possession. Improvements in the form of permanent fencing represented an increase

of 54% (130) since the date of possession of the farmlands.  
Animal health and weed control did not appear to be a  
felt problem.

## CHAPTER V

### FINDINGS: AGRICULTURAL LAND USE INTENSITY

In this chapter, the 104 respondents are grouped into two main categories. These are as follows:-

Group A includes farmlets where the agricultural land use data were known. This group is further subdivided into:

- i. Farmlets concerned with animal production
- ii. Farmlets where horticulture and cropping were commercial enterprises.
- and iii. Farmlets where the land was mainly used for afforestation.

Group B includes farmlets where the complete agricultural land use details were unknown for various reasons.

The mean farm outputs (\$/acre) of these groups are calculated. On livestock farmlets (Group A(i) ), an attempt is made to compare the intensity of agricultural land use with the synthetic farms, firstly on a carrying capacity (ewe equivalents wintered per acre) basis and secondly, the mean farm output. This comparison is then extended to include all 104 respondents. The index used in this latter comparison is the mean farm output, expressed in dollars per acre.

#### Group A

##### i. Farmlets Concerned with Animal Production

Altogether there were sixty-nine farmlets in this category, covering a total area of 1084 acres. Of this

area, 38 $\frac{1}{4}$  acres were used for housing purposes for forty-five homes. The sixty-nine properties provide the data for the carrying capacity comparison with the synthetic farms evolved for this purpose.

On the basis of soil type and discussion with the Field Advisory Officers from the Ministry Of Agriculture and Fisheries, the sixty-nine farmlets were designated as either suitable for dairying or sheep/cattle farming<sup>1</sup>. The area of each soil type suitable for the two types of farming is shown in Tables 5.1 and 5.2.

Table 5.1

Soil Types of Farmlets Classified as  
Suitable for Dairying

Soil type	No. of farms	Area (acres)
Kairanga silt loam	12	194
Kairanga fine sandy loam	3	30
Kairanga heavy silt loam	1	11
Manawatu fine sandy loam	1	31
Te Arakura silt loam	2	33
Te Arakura fine sandy loam	4	47
Te Arakura sandy loam	4	54
Ashurst silt loam	1	10
Total	28	410

Average Carrying Capacity: 6.1 E.E./ac.

<sup>1</sup> The writer also benefitted from discussions he had with local farmers and visual inspection of the farmlets.



Table 5.2

Soil Types of Farmlets Classified as  
Suitable for Sheep/cattle Farming

Soil type	No. of farms	Area (acres)
Tokomaru silt loam	3	30
Milson silt loam	2	46
Marton loam + Halcombe loam	19	326
Shannon silt loam	1	20
Shannon silt loam (rolling phase)	3	54
Marton silt loam	8	110
Halcombe hill soils	3	61
Tuapaka hill soils	2	27
Total	41	674

Average Carrying Capacity: 4.9 E.E./ac.

Table 5.3 presents the number of livestock wintered in 1973. Cattle represented 61% of the total livestock (ewe equivalents) wintered; sheep accounted for a further 28% and horses made up the other 11%.

Table 5.3

Livestock Wintered (E.E.) in 1973 on Farmlets  
Suitable for Dairying or Sheep/Cattle Farming

Livestock	C.R.	Suitable farm type		Total E.E.
		Dairy E.E.	Sheep/cattle E.E.	
Sheep	0.8	635	661	1296
Young fattening cattle	3.0	786	1038	1824
Old fattening cattle	5.0	475	515	990
Young breeding cattle	3.0	33	102	135
Old breeding cattle	6.0	42	138	180
Mares	6.0	186	96	282
Stallions	6.0	6	6	12
Geldings	6.0	114	120	234
Other horses	6.0	42	30	72
Sheep grazers	-	-	358	358
Dairy cattle grazers	-	62	288	350
Beef cattle grazers	-	102	18	120
Horse grazers	-	1	20	21
Total		2484	3390	5874

The average carrying capacity on dairy farmlets was 6.1 E.E./ac., and ranged from 0.6 to 13.3 E.E./ac.. A carrying capacity as high as 13 E.E./ac. can be explained by surplus feed accumulated towards the winter, enabling a higher than the usual number of livestock to be wintered. However, this high carrying capacity is unlikely to be sustained throughout the farming year. On the other hand, the farmlet with the low carrying

capacity of 0.6 E.E./ac. was due to the owner changing over his enterprise from cattle fattening to the growing of tomatoes, pumpkins and vegetables.

The carrying capacity on farmlets suitable for sheep/cattle farming ranged from 0.5 to 9.6 E.E./ac.. There were two farmlets that had carrying capacities of less than 1 E.E./ac.. Both owners had only bought their properties in June 1973; they indicated that additional livestock will be carried in the following farming year. The average carrying capacity of the forty-one farmlets in this group was 4.9 E.E./ac..

The difference in carrying capacities between the synthetic farms and the sample of farmlets can be seen in Table 5.4.

Table 5.4

Comparison of Carrying Capacity between Synthetic Farms and Average Carrying Capacities of Farmlets

	Carrying capacity (E.E./ac)	
	Dairy	Sheep/cattle
Synthetic farms	8.3	4.8
Farmlets	6.1	4.9

The distribution of the carrying capacities on the sixty-nine farmlets is presented in Table 5.5.

Table 5.5

Distribution of Carrying Capacities on Farmlands  
Suitable for Dairying or Sheep/Cattle Farming

Carrying capacity (E.E./ac)	Suitable farm type		Total No.
	Dairy No.	Sheep/cattle No.	
Less than 1	1	2	3
1 - 1.9	1	5	6
2 - 2.9	4	2	6
3 - 3.9	3	6	9
4 - 4.9	2	4	6
5 - 5.9	4	8	12
6 - 6.9	2	6	8
7 - 7.9	1	4	5
8 - 8.9	4	1	5
9 - 9.9	1	2	3
10 - 10.9	4	1	5
13 - 13.9	1	-	1
Total	28	41	69

It would appear that where land suitable for dairying had been subdivided, carrying capacity was below that of such land used for dairying. On the other hand, land suited to the farming of cattle and sheep was found to have a carrying capacity comparable to that before subdivision.

The carrying capacity measurement of agricultural land use intensity while lending itself to easy reference in discussions, does not account for crops grown and livestock not meaningfully convertible to ewe equivalents

e.g. pigs. As previously discussed, a more accurate measure is made in value terms. The following table shows the mean farm production per acre expressed in dollars per acre. Not included were poultry which were encountered on a small scale in the survey and income derived from the breeding and sale of dogs. Home vegetable production was also excluded.

Table 5.6

Comparison Between Farm Production on Synthetic  
Farms and Mean Farm Production on Farmlets  
Concerned with Animal Production

	Farm Production(\$/ac)	
	Dairy	Sheep/Cattle
Synthetic farms	131.46	42.80
Farmlets	89.36	54.27

The results from this analysis support the conclusions made previously on a carrying capacity basis.

ii. Farmlets With Cropping or Horticulture as  
Main Commercial Enterprises

In this group there was one cropping farmlet and another two farmlets were used intensively for horticultural purposes. The three farmlets covered an area of forty-one acres, of which 0.55 acre was used for housing

purposes on two of the farmlets. The area of each crop grown on the three properties is shown in Table 5.7.

Table 5.7

Area of Crops Grown on Farmlets with Cropping  
or Horticulture as Main Commercial Enterprises

Crop	Area (ac)
Grass seed	8.00
Mangolds	5.00
Barley	7.00
Strawberries	10.75
Apples	4.00
Gooseberries	0.50
Blackcurrants	0.25
Cut flowers	4.95
Total	40.45

All the three properties were farmed on own accounts. While one of the horticultural units was under strawberries only, the other had a variety of crops grown. These included strawberries, apples, gooseberries and blackcurrants. In addition, 60,000 daffodils, 5000 anemones and 50,000 gladioli were grown on less than five acres.

The mean farm outputs for the two horticultural and one cropping units were \$1393.70 and \$55.23 per acre respectively.

### iii. Farmlets Under Forestry

There were two respondents who indicated that forestry was their main farm enterprise. Their farmlets were classified as suitable for sheep/cattle farming. Only one of the farmlets had a substantial area planted to be of any commercial importance. The woodlot of this eleven-acre subdivision consisted of ten acres of *Pinus radiata*, six acres were planted in 1972, and the remaining four acres in 1973. The soil type of this farmlet was of the Tuapaka hill soils, a soil type suitable for forestry purposes. On the other property, the soil was of the Marton silt loam type; this soil is suitable for fattening and dairying. Landscaping was given as the main purpose for the tree planting programme in this latter farmlet. The respondent intended to plant fifty trees of oak, willow and poplar in 1973 and 1974. In the 1972/1973 farming year, two-hundred and twenty (220) bales of hay were made from five acres of this farmlet, the hay being sold standing. In another section of the questionnaire, the respondent indicated his intention to let his farmlet for grazing as well as hay cropping.

Both farmlets had gorse control problems.

The mean farm output was \$12.24 per acre.<sup>1</sup>

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1 This was derived from the total proceeds obtained from the sale of hay at 50 cents per bale and the amortisation of the Net Present Value of the return from forestry (see Appendix II (ii)).

Group B    Farmlets Where Farming Details were  
Mainly Unknown

In assessing the total farm production, the writer encountered several difficulties relating to the inadequacy of data. In one case where the farmlet was partly farmed on the owner's account and partly let for grazing, the area apportioned to each farming arrangement was not indicated by the respondent. This farmlet was placed in Group B. On the other properties with farming arrangements as shown in Table 5.8, the number of livestock was not stated. To illustrate the difficulty in determining the livestock wintered, one respondent pointed out that there were no boundary fences, and there was a "wandering mob of sheep."

Table 5.8

Farming Arrangement and Area of Farmlets where  
Farming Details were Mainly Unknown

Farming arrangement	Suitable Farm Type		Total Area (ac)
	Dairy (ac)	Sheep/cattle (ac)	
Leased to other farmer	58	153	221
Let for grazing	22	175	197
Leased + let for grazing	10	-	10
Leased + farmed on own account	14	6	20
Let + farmed on own account	-	10	10
Just taken possession	-	42	42
Total	114	386	500



The four farmlets in the 'just taken possession' category were farmed on own accounts at the time of the survey. However, the owners had only recently taken over the properties which were stocked after June 1973. Beef fattening was the main enterprise on the four farmlets. Of the total area of 500 acres in Group B, 34 acres were known to have been cropped for barley and 10 acres for wheat.

In determining the agricultural land use intensity of these farmlets, the findings of the Palmerston North City Council Economic Development Committee<sup>1</sup> as presented in Table 5.9 are assumed. The carrying capacities of commercial farms assumed for part-time farms in this group can be criticised to be on the higher side. The writer however contends that these assumptions are justified since 86% of the total area in this group were either leased or let for grazing to commercial farmers, and can be thus be expected to be farmed as efficiently as commercially operated farms.

Table 5.9

Average Carrying Capacity and Gross Margins of  
Farmlets where Farming Details were Mainly Unknown

Soil type	Av. Carrying capacity(E.E./ac)	Gross Margin (\$/E.E.)
Alluvial flats	5.2	11.50
Terrace & easy hills	4.5	11.50
Hills	3.0	11.50

<sup>1</sup> Palmerston North City Council Economic Development Committee. Report of Pastoral Sub-committee. Dec. 1973.

The farm output (\$/ac) of each farmlet in Group B is calculated as follows:-

$$\frac{\text{Av. Carrying Capacity} \times \$11.50(\text{G.M.}) \times \text{Effective area}^*}{\text{Total area}}$$

\* Effective area is defined as total area less area used for housing purposes.

The mean farm outputs for farmlets suitable for dairying and sheep/cattle farming in this group were \$56.20 and \$49.31 per acre respectively.

#### Mean Farm Outputs(M.F.O.) of Farmlets

A summary of the mean farm outputs (\$/ac) of the four groups of respondents is tabulated below.

Table 5.10

#### Intensity of Agricultural Land Use on Farmlets Suitable for Dairying or Sheep/cattle Farming

Group	Dairying		Sheep/cattle	
	Area (ac)	M.F.O. (\$/ac)	Area (ac)	M.F.O. (\$/ac)
<u>A</u> i. Animal production	410	89.36	674	53.16
ii. Cropping/ Horticulture	21	1393.70	20	55.23
iii. Forestry	-	-	23	12.24
<u>B</u> Details Unknown	114	56.20	386	49.31

This table indicates a wide variation of farm output ranging from \$12 per acre on afforested land to nearly \$1400 per acre found in the horticultural farmlets. Over a third of the part-time farmlets were in the region between \$51 to \$70 per acre (Table 5.11).

Table 5.11

Distribution of Agricultural Land Use Intensity on  
Farms Suitable for Dairying or Sheep/cattle Farming

Farm output (\$/ac)	Dairying		Sheep/cattle farming		Total	
	No.	%	No.	%	No.	%
10 and less	-	-	3	5	3	3
11 - 30	1	3	11	17	12	12
31 - 50	6	15	18	28	24	23
51 - 70	15	38	21	32	36	35
71 - 90	5	13	7	11	12	12
91 - 130	5	13	4	6	9	9
131 - 170	4	10	1	2	5	5
301 - 400	1	3	-	-	1	1
More than 1000	2	5	-	-	2	2
Total	39	100	65	100	104	100

It must be noted that of the thirty-nine farmlets classified as suitable for dairying, ten of them representing 28% of the total area of 545 acres were used for sheep/cattle farming by the commercial farmers prior to subdivision. Another 4% (23 acres) was used for cropping purposes. On the sixty-five farmlets classified as suitable for sheep/cattle farming and covering a total area of 1103 acres, 85% of this area

was actually used for sheep/cattle farming before subdivision. The corresponding area used for dairying accounted for 13% (141 acres) and the remaining 2% (20 acres) was used for a combination of sheep and cropping enterprises.

While the mean farm output on dairying land was lower after subdivision, the horticultural units attained a farm output far greater than that obtained from dairying. On the other hand a relatively lower mean farm output found on the cropping area on sheep/cattle farm land was recorded. This can be explained by the lower gross returns relative to horticulture obtained from the crops mangold and barley grown. Land used for forestry yielded the lowest output relative to the other farming activities. As previously explained, gorse control problems and in one of the two farmlands, soil type as well favoured this land use.

The intensity of agricultural land use comparison between the synthetic and part-time farms is finally presented in Table 5.12.

Table 5.12

Comparison of Intensity of Agricultural Land Use  
Between Synthetic Farms and Part-time Farms

Farm type	Farm Output (\$/ac)	
	Dairying	Sheep/cattle farming
Synthetic farms	131.46	42.80
Part-time farms	148.50	51.31

The intensive agricultural land use on the two horticultural farmlets had the effect of increasing the mean farm output of the 'dairying' farmlets. The mean farm output of \$148 per acre is higher than the commercially operated dairy farm. On 'sheep/cattle' farmlets a higher farm output than the synthetic farm is also evident. This difference can be attributed to the more intensive farming activities e.g. calf rearing using nurse cows and by hand rearing methods, and crops including potatoes, mangolds, barley and vegetables (commercially operated) were grown in addition to the livestock farmed. Pigs for home consumption as well as operated on commercial lines also contributed to a higher farm output than on the synthetic sheep/cattle farm. On the other hand the difference can be due to the higher farm outputs assumed for the farmlets where the complete farming details were unknown. On Terrace

and Easy Hill country farm land, this was \$51.75 per acre farmed. The effect of this higher farm output relative to the synthetic sheep/cattle farm is examined by assuming the farm production on Terrace and Easy Hill country land an output equal to that of the synthetic farm i.e. \$42.80 per acre. The mean farm output of the 104 farmlets was found to be \$48.44 per acre. Furthermore, if a farm output of \$34.50 per acre i.e. a carrying capacity of 3 E.E. per acre at a gross margin of \$11.50 per E.E.(as in Hill country farm land) is assumed, the mean farm output of all farmlets was found to be \$45.91 per acre. Again this value of farm output remains higher than that of the synthetic sheep/cattle farm.

In addition to the agricultural production from the farming of the subdivision, the provision of land for housing in sixty-two of the farmlets surveyed also generated a product which can be termed as residence product. The other forty-two farmlets have a potential residence product, but to be consistent with the measurement basis of current farm production, this potential residence product is excluded from the analysis. A monetary estimate for the residence product can be made.

The comparable alternative to the purchase of a rural subdivision is to buy an urban section. The residence product is estimated to be the opportunity cost at 8% per annum of the average price of a housing section of

\$4100 in 1973.<sup>1</sup> This gives a value of \$328 per year. To compute the residence product on a per acre basis, this figure (\$328) is divided by the total area of the farm or farmlet. On a ten acre farmlet this is equivalent to \$32.80 but only \$3.28 on a 100 acre commercial farm. Table 5.13 compares the mean total product (Farm output + Residence product) between the part-time and synthetic farms. It is evident that on both types of farming land, the total outputs from the subdivisions were higher than on commercial farms.

Table 5.13

Comparison of Intensity of Land Use Between  
Synthetic Farms and Part-time Farms

Farm type	Mean Total Output (\$/ac)	
	Dairying	Sheep/cattle farming
Synthetic farms	133.95	43.49
Part-time farms	169.78	63.88

Conclusion

The study revealed that the intensity of agricultural land use and land use as measured by the mean farm output and mean total output respectively were at higher levels than before the subdivision of the farm land.

---

<sup>1</sup> The average price of sections in Palmerston North for the half year ended June 1973 was \$4117. Source: Urban Real Estate Market in New Zealand 1971-73. Research Paper 73-3. Valuation Dept. New Zealand.

## CHAPTER VI

### SUMMARY AND DISCUSSION

The main objective of this research was the investigation of the agricultural land use on rural subdivisions owned by part-time farmers in the Manawatu. Gross margin analysis was used to compute the farm output in one farming year. This is expressed as dollars per acre. This approach provides a single index of comparison between commercial farms before and after subdivision into farmlets operated on a part-time basis.

The shift to the countryside on the urban periphery is a spillover from the urbanisation process. Survey evidence indicated the part-time farmer's motivation was to be located in a rural environment. This was generally the main reason given by the respondents for the farmlet purchase. Compared to the urban and suburban dweller, a greater area used for housing purposes was found amongst the resident part-time farmers. The bulk of the part-time farmers had occupations unrelated to agriculture. Professionals and members from the trading group were the two most common occupations.

While the traditional farming of sheep and cattle was predominant amongst part-time farmers, a wide range of farming activities was encountered in the survey. These ranged from a management-free (from the part-time farmer's viewpoint) system of leasing the farm to an intensive horticultural unit requiring expertise and



equipment. The participation of the family members in the farmwork would appear to indicate the recreational nature of part-time farming. Recreational needs met on the home 'farm' instead of the weekends and/or annual holidays away can be seen as an energy saving contribution.

Properties that were not farmed by the owners themselves were either let for grazing or leased to other farmers. The flexibility of part-time farming was exemplified by the arrangement to farm an area the part-time farmer could manage and leasing or letting the rest of his farm. It does not follow that subdivided dairying land would be lost to dairy production. This was shown by the number of dairy cattle grazers which would otherwise have to be carried on the dairy farms or require the purchase of additional land or run-offs — financial resources which could be spent on increasing the milking herd, pasture improvement or used as working capital. Grazing arrangements, policies and management systems to complement part-time farming with commercial farming activities warrant further research.

That part-time farming associated with rural subdivisions in the Manawatu is wasteful of farmland was not substantiated by the results of the survey. Although a proportion of the part-time farms had lower farm outputs than commercial farms, this loss in farm production was made up by other intensively farmed units. The survey found that on both subdivided land suitable for dairying and sheep/cattle farming, the agricultural land use

intensity after subdivision was higher. This is indicative of a potentially higher agricultural production that can be achieved by part-time farms. The land use intensity was even higher when the residence product has been taken into account.

While it has been argued that rural subdivisions such as the ten acre block development pose planning problems in the future, the need for a rural style of living beyond the straitjacket of the quarter-acre suburban section or smaller has gained little attention. It is not difficult to envisage an area subdivided not necessarily into ten acres to provide its residents a rural environment and its related activities. The method of analysis used by Ward (1957) measuring the loss of agricultural production brought about by the rural residential development and the costs encountered in developing an alternative site is relevant.

Rural subdivisions used for part-time farming satisfy a need for a section of society for a lifestyle associated with farming, a rural environment enjoyed by them without the implication of full-time farming. In fact the residence product provided by part-time farming has often been ignored. In addition, this system of farming allows some to pursue their farming interests without the qualification of high ingoing costs required today. The blanket minimum area requirement and the criterion of 'an economic farm' before subdivision can be done do

not take into account these societal needs.

A positive approach would be to design the accomodation of agriculture, housing, lifestyle and recreation instead of a staunch attitude for the preservation of agricultural land.

APPENDIX I (1)

Questionnaire

MASSEY UNIVERSITY

AGRICULTURAL ECONOMICS AND FARM MANAGEMENT DEPARTMENT

Dear

RURAL SUBDIVISION LAND USE SURVEY

I am writing to ask for your help in the preparation of a thesis which is part of my Master of Agricultural Science requirement. I hope you can assist me by completing the questionnaire enclosed.

The project aims to study the land use of subdivided farmlands and also the underlying motivation of the owners of the subdivisions. A lot has been said about rural subdivisions e.g. 10 acre blocks and hopefully this study will contribute to a better understanding of the issue.

Please be assured that all information you have given will be treated confidentially. Anonymity is ensured by the questionnaire bearing only a number. Any data reproduced will be in the form of generalised statements and statistical tables.

You may feel that your farm is unsuitable in some way, or that some of the questions do not apply in your particular case. Could you please then return a partially completed questionnaire rather than provide a nil return for either of the above reasons.

Yours sincerely,

A handwritten signature in dark ink, appearing to read 'Kim Boo Keng'. The signature is stylized with a large, looped 'K' and a cursive 'B'.

Kim Boo Keng,  
Post-graduate Student.

THE ECONOMIC ENQUIRY INTO LAND-USE CHANGES ASSOCIATED  
WITH RURAL SUB-DIVISION IN THE MANAWATU

October 1973

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

QUESTIONNAIRE NO. \_\_\_\_\_

RURAL SUBDIVISION LAND USE SURVEY

How to answer the questions?

If you own more than one property, please give details only of your home farm property.

Most of the questions give a range of answers. Could you please tick the box which best describes your position?

e.g.

YES ☒ NO ☐

Some questions require your opinion; spaces have been left for your reply.

For other questions a number is required, please put the number inside the appropriate box.

e.g.

Please indicate "N.A." for questions that do not apply to your property.

If for any reason you prefer not to answer some of the questions, please complete the questionnaire with the exception of those particular questions.

1. Are you already residing on your farm property?

YES ☐ NO ☐

a) IF YES: When did you start to live on this property?

month year

b) IF NO: do you intend to live there?

YES ☐ NO ☐

IF YES: When will it be?

within 1 yr  
" 2 yrs  
" 3 yrs  
" 4 yrs  
more than 4 yrs


c) At the moment is your property: on lease to another person?

let for grazing?

farmed on own account?

other (specify)

.....


2. What is the total area of your property?

ac.

3. What is the approximate area used for housing purposes (include lawn, roading, recreational facilities e.g. tennis courts)?

ac./sq/ft.



4. a) How old is the house?

 yrs

b) If mature, has it been substantially renovated  
in the last 5 years?

YES ☐ NO ☐

c) Do you intend making improvements to your house?

YES ☐ NO ☐

5. How many paddocks bounded by permanent fences were there  
at the date of purchase?

6. a) What is the present number of paddocks bounded by  
permanent fences?

b) Of these, how many are supplied with permanent water?

7. Do you intend constructing in the next 2 years

a) additional permanent fencing?

YES ☐ NO ☐

b) additional piped or dam water supply to the paddocks?

YES ☐ NO ☐



11. Are storage tanks used?

7

7

IF YES: Please specify capacity and numbers.

Individual tank capacity	Number of tanks

12. Is present household water supply adequate?

□

□

IF NO: What is proposed action?

.....

## LAND USE

13. What are the main and secondary farm enterprises?

sheep

cattle

horses

pigs

poultry

cropping

forestry

horticulture

other (specify)

.....

.....

[illegible]

14. Do you intend making changes to your farming activities over the next 2 years?

YES

☐

NO

☐

IF YES: Briefly what are the changes?

.....

.....

.....

SHEEP (If not applicable please continue with question 19)

15. How many sheep, belonging to you did you winter in June 1972 and 1973?

	June 1972	June 1973
ewe hoggets		
2 tooth ewes		
4 tooth and older ewes		
rams		
wethers		
killers (home consumption)		
TOTAL		

16. How many sheep losses were there between June 1972 and June 1973? ewes

wethers

other

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

17. What, if any, do you consider to be the 2 sheep problems that cost you most in terms of control and/or loss of production and/or deaths on your property?

.....

.....

18. What item/s would nearest describe your sheep policy?

- a) lamb production breeding own replacements
- b) " " buying replacements as ewe lambs
- c) " " " " as 2 tooth ewes
- d) " " " " as older ewes
- e) dry sheep
- f) a small stud
- g) other (describe)


.....  
 .....

CATTLE (If not applicable please continue with question 23)

19. How many cattle, belonging to you did you winter in June 1972 and 1973?

	June 1972	June 1973
<u>Fattening Cattle</u>		
Bulls/steers/heifers under 1 yr old		
" " " between 1-2 yrs old		
" " " over 2 yrs old		
<u>Breeding Cattle</u>		
Replacement heifers		
In-calf heifers and cows		
Bulls		
TOTAL		

20. How many cattle losses did you have between June 1972 and June 1973?

--

21. Which item/s would nearest describe your cattle policy?

- a) buying week old calves, hand rear and sell fat before the second winter (18-20 mths of age)
- b) buy weaners, sell before the second winter (18-20 mths)
- c) " " sell after the second winter (30 mths or older)
- d) " " winter and sell in spring
- e) buy yearlings in spring and fatten before the next winter
- f) breeding herd rearing own replacements
- g) " " buying in replacements
- h) stud herd
- i) other (describe) .....


22. What, if any, do you consider to be the 2 cattle health problems that cost you most in terms of cost of control and/or loss of production and/or deaths in your property?

.....  
.....

PIGS (If not applicable please continue with question 25)

23. How many pigs, if any, do you normally carry?

sows and gilts  
boars  
other pigs


24. How would you describe your pig policy?

.....  
.....  
.....

HORSES (If not applicable please continue with question 27)

25. How many horses belonging to you do you have on the farm?

Type	Number
mare/s	
stallion/s	
gelding/s	
other/s	

26. For what main and secondary purposes are these horses for?

recreation

breeding (stud)

farm work

other (specify)

.....

Main	Secondary

POULTRY (If not applicable please continue with question 30)

27. How many birds do you normally have?

Chickens	Ducks	Turkeys	Geese

28. Are these birds housed or on free range?

housed

free range


29. Are any of the eggs sold?

YES ☐ NO ☐

IF YES: Are they sold privately or through  
the egg floor

privately ☐  
egg floor ☐

GRAZING

30. Was the farm or part of the farm let for grazing to livestock

between June 1971 and June 1972?

YES ☐ NO ☐

and between June 1972 and June 1973?

YES ☐ NO ☐

IF YES: What was type and number of livestock, price received per head per week  
and what was the length of time they were let to graze?

Livestock	June 1971/72			June 1972/73		
	Number	Length of time (wks)	Price received per head per week	Number	Length of time (wks)	Price received per head per week
Sheep						
Cattle:dairy						
beef						
Horses						
Other (specify)						
.....						



31. Do you intend to let for grazing over the next 2 years?

YES

☐

NO

☐

Why? .....

.....

.....

32. How was the above grazing arranged e.g. from newspaper advertisements?

.....

.....

33. If a "grazing wanted and for lease" service is provided by the Ministry of Agriculture and Fisheries, would you use it?

YES

☐

NO

☐

IF YES: How do you think this service should be run?

.....

.....

And finally, would you be prepared to pay a reasonable fee for this service?

YES

☐

NO

☐

CROPPING

34. Could I please ask you details of your cropping programme (include hay and vegetables)?

Year	Crop	Area (acres)	Production (if known)
1971/72			
1972/73			
1973/74 (intended)			

FORESTRY

35. Could I ask you details of your forestry programme, if any?

Year of planting	Species	Area (acres)
1970 and earlier		
1971		
1972		
1973		
1974 (intended)		

36. a) For what main and secondary purposes were these trees planted?

landscaping  
erosion control  
commercial woodlot  
shelter belt  
other (specify)  
.....

Main	Secondary

b) If erosion control is one of the purposes, was the cost of establishment subsidized by the Catchment Board?

YES ☐ NO ☐

37. Did the Forestry Encouragement Grant influence your decision?

YES ☐ NO ☐

38. OTHER LAND USES (please describe)

.....  
.....  
.....  
.....  
.....  
.....

39. Have you been hampered in your farm operations by the:

a) lack of improvements e.g. sheepyards?

YES

☐

NO

☐

IF YES: What are these?

.....  
.....

and what was action taken?

.....  
.....

b) lack of machinery?

YES

☐

NO

☐

IF YES: What are these?

.....  
.....

and what was action taken?

.....  
.....

40. What do you consider to be the three (3) major problems facing you on your property in the coming year? (List in order of importance)

- a. ....  
b. ....  
c. ....

LABOUR

41. What labour do you employ?

	Owner	Wife	Children	Permanent	Casual
Full-time					
Part-time					
Normal hours per week					

42. Do you have any work exchange with any other person?

YES ☐ NO ☐

IF YES: What are these operations?

.....  
.....

43. Would you like to have more time for farming activities than you have at present?

YES ☐ NO ☐

44. Did you employ any agricultural contractors last year?

YES ☐ NO ☐

IF YES: What were the operations?

.....  
.....



47. a) How many cattle, sheep and pigs were killed for home consumption between June 1972 and June 1973, and what were their carcass weights?

	Number	Individual carcass weight (lb)
Cattle		
Sheep		
Pigs		

- b) Do you kill and dress stock for home consumption yourself?

Or do you have it done by a retail butcher?

at an abattoir?

at a freezing works?

by anyone else (please specify)

.....

Sheep	Cattle	Pigs

48. Please indicate what age group you are in.

20-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61 and over

49. What is your occupation? (Please be as specific as you can)

.....

50. What is the location of your place of work or if more appropriate your base/headquarters?

.....

and what is the road distance from home to work

miles

51. What is your most frequent means of transport to work? (Tick one only)

private car

☐

public transport

☐

other (specify)

☐

.....

52. Are you married?

YES

☐

NO

☐

IF YES: What, if any, is your wife's occupation other than housewife?

none

occupation

Is it part-time (i.e. less than 20 hours per week) or full-time?

part-time

☐

full-time

☐

And finally is the additional income needed because of the property purchase?

YES

☐

NO

☐



53. What family income group are you in?

less than \$4000	\$4000-6000	\$6000-8000	\$8000-10,000	more than \$10,000

54. Do you have any children?

YES ☐ NO ☐

IF NO: Please continue with question number 55.

IF YES: What are their ages?

.....

and what types of school do your school-age children attend?

Children's Age school type	Less than 6 years (intended)	6-11 yrs	12-13 yrs	14-17 yrs
country school				
city day "				
boarding "				
other				

Comments on general school facilities (e.g. heating, school bus service etc.)

.....  
 .....  
 .....  
 .....  
 .....

55. What were your main and secondary reasons for buying this property?

investment  
rural environment  
tax savings  
cheaper living  
favourable surroundings for bringing up children  
health  
other (specify) .....

Main	Secondary

Elaboration: .....  
.....  
.....  
.....  
.....

56. Do you have other real estate properties?

YES ☐ NO ☐

IF YES: Are these rural and/or urban?

rural ☐  
urban ☐

57. How would you rate your previous farming experience?

fully experienced	<input type="checkbox"/>
fairly confident	<input type="checkbox"/>
enough to cope	<input type="checkbox"/>
inadequate	<input type="checkbox"/>
no experience	<input type="checkbox"/>

58. a) In retrospect do you feel that the decision to buy this property was a wise one? YES ☐ NO ☐

b) What, if any, are the advantages and disadvantages that were not foreseen when buying this property?

Advantages: .....

.....

.....

.....

Disadvantages: .....

.....

.....

.....

59. Was a mortgage necessary for the purchase of the property? YES ☐ NO ☐

IF YES: Could I ask you details of the mortgage?

	1st	2nd	3rd
Type of mortgage			
Type of lender: bank			
govt. institution			
insurance co.			
stock firm			
other firm			
vendor			
solicitor			
relative			
other person			

continued over ...

	1st	2nd	3rd
What was the interest rate?			
What was the term (in years)?			
What was type of repayment?			
(i) Table (principal & interest)			
(ii) Flat (interest only)			

60. In your opinion what proportion of the current market value of land and improvements does your mortgage borrowing represent?

less than 20%	21-30%	31-40%	41-50%	51-60%	61-70%	71% and over

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

YES ☐ NO ☐

62. Could I ask you some details of your farm income and expenditure for 1971-72 and 1972-73?

	1971/72 \$	1972/73 \$
<u>INCOME</u>		
Gross Farm Income		

continued over ...

	1971/72	1972/73
<u>EXPENDITURE</u>		
Cash wages: permanent		
casual		
interest		
rates		
stock purchases		
stock foods		
fertiliser		
lime		
seeds		
fuel, oil and grease		
cartage		
contracts		
repairs and maintenance		
farm requisites		
heat and light		
accountancy		
telephone		
insurance		
other expenses		
total depreciation		

63. a) What is the total value of your plant and machinery?

\$

b) Please indicate whether you possess the following items:

	YES	NO
shearing plant	<input type="checkbox"/>	<input type="checkbox"/>
wool press	<input type="checkbox"/>	<input type="checkbox"/>
tractor	<input type="checkbox"/>	<input type="checkbox"/>
top-dresser	<input type="checkbox"/>	<input type="checkbox"/>
spray outfit	<input type="checkbox"/>	<input type="checkbox"/>
rotary hoe	<input type="checkbox"/>	<input type="checkbox"/>
dehorner	<input type="checkbox"/>	<input type="checkbox"/>

and c) Could you please list the items of plant and machinery not included above that cost more than \$100?

.....

.....

.....

.....

.....

.....

64. Could you please comment on any additional points that you feel have not been covered in the questionnaire e.g. weed infestation, dogs, trespass etc.

.....

.....

.....

.....

.....

.....

.....

.....

.....

You have now completed the questionnaire. This amount of information will give me a picture of your property as well as the use it is put to. I would appreciate very much if you could write down your telephone number in the space below. This will enable me to make any clarification of your answers should the need arise.

I would like to thank you for your assistance with this long questionnaire. If you would like to know the outcome of this survey, please tick the box below and I would be happy to send you a summary of my thesis.

☐

Could you please put this completed questionnaire in the envelope supplied and post it before this information is lost or forgotten. An early reply would be greatly appreciated.

Thank you again.

Yours sincerely,

*Jim Bookeng*

-----  
Telephone number \_\_\_\_\_

APPENDIX I (ii)

Telephone Reminder



My name is Keng and I am doing a Masterate project concerning land use on farmlets.

I have posted questionnaires to owners who I understand own such farmlets.

Some have been returned with addresses unknown but in your case I am not sure what position you are in and I am ringing to try and clear things up with your help.

1. Did you receive the questionnaire?

If answer is No: If I send you one would you kindly complete it and send it as soon as you can?

2. If Yes: If I send you another would you kindly complete it and send it as soon as you can?

Or would you rather I go through the questionnaire with you at some convenient time?

3. If Yes but not prepared to answer the questionnaire:

Can you please tell me why you did not reply?

If I send you a shorter questionnaire would you kindly fill it?

APPENDIX II (i)

Summary of Gross Margins Used To Calculate Values of  
Farm Production (\$ per acre)

<u>Enterprise/Policy</u>	<u>Gross Margin (\$)</u>
Buy weaners, sell before the second winter (18-20 mths.)	44.60/wnr.
Buy weaners, sell after the second winter (30 mths. or older)	50.92/wnr.
Buy weaners, winter and sell in spring	28.10/wnr.
Buy yearlings in spring and fatten before the next winter	17.28/ylg.
Buy week-old calves, hand rear and sell fat before the second winter (18-20 mths.)	87.17/calf
Buy week-old calves, use nurse cows, fatten and sell before the second winter (18-20 mths.)	105.84/calf
Buy week-old calves, hand rear and sell fat after the second winter (30 mths. or older)	97.57/calf
Buy week-old calves, hand rear and sell as weaners in March	41.17/calf
Buy Fresian weaner heifers, use A.I. and sell as in-calf rising two-year old heifers	45.70/wnr.
Breeding herd, rearing own replacements	47.80/cow
Breeding herd, buying in replacements (1 year cull cows)	52.40/cow
Stud herd <sup>1</sup>	95.60/cow
Horses	100.36/horse
Lamb production, breeding own replacements	11.50/ewe
Lamb production, buying replacements as older ewes	9.58/ewe
Ewe hoggets, sell as two-tooths	4.72/hgt.
Wether hoggets, sell in September/October	5.30/hgt.
Stud herd (sheep) <sup>2</sup>	23.00/ewe

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1 Taken as twice that of G.M. for breeding herd, rearing own replacements

2 Taken as twice G.M. of lamb production, breeding own replacements

Enterprise/PolicyGross Margin (\$)

Killers (home consumption) <sup>3</sup>	5.30/head
Black wool production <sup>4</sup>	5.30/head
Buy weaner pigs, fatten to porker for home consumption	6.29/wnr.
Breeding herd, fatten and sell as porkers	237.98/sow
Breeding herd, fatten and sell as baconers	334.69/sow
Breeding herd, sell as weaners	136.08/sow
Feed barley - 50 bus/ac	21.47/ac.
65 bus/ac	39.59/ac.
Grass seed	63.25/ac.
Mangolds	165.50/ac.
Main crop potatoes - 16 tons/ac	576.75/ac.
21 tons/ac	625.25/ac.
Pumpkins (gate sales)	378.04/ac.
Strawberries(gate sales)	1792.96/ac.
Apples <sup>5</sup>	700.00/ac.
Blackcurrants(gate sales) <sup>6</sup>	1127.00/ac.
Gooseberries <sup>7</sup>	700.00/ac.
Cut flowers (outdoors) <sup>8</sup>	2000.00/ac.
Market gardening <sup>9</sup>	500.00/ac.
Forestry (Pinus radiata)	15.31/ac.

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3 Taken as equivalent to policy of wether hoggets

4 Taken as equivalent to policy of wether hoggets

5 Source: Advisory Services Division. M.A.F. Hastings

6 Source: R.J. Ivess, M.A.F. Christchurch, May 1974

7 Author's estimation

8 Author's estimation

9 Taken as twice G.M. of spring cabbage (\$250/ac.,  
Source: C. Cook, M.A.F. Christchurch March 1971)

APPENDIX II (ii)

Gross Margin Calculations

Cattle: Buy Weaners, Sell Before the Second  
Winter (18-20 mths.)

Purchased in April/May, wintered on grass and hay, sold  
fat March/April. Average weight: 200 kg. @ \$0.70/kg.

Losses 3%.

Gross Revenue

0.97 (1 - 0.03 losses) @ \$140	\$135.00
--------------------------------	----------

Direct Costs

Cost of weaner	\$80.00	
Veterinary & animal health	3.50	
Hay: 6 bales, contract baling & carting @ \$0.35/bale	2.10	
Interest: 7% on \$80	5.60	
Total Direct Costs		\$91.20

GROSS MARGIN : \$44.60 per weaner

Cattle: Buy Weaners in Autumn, Sell After the  
Second Winter (30 months or older)

Average weight: 230 kg. @ \$0.70/kg.

8% losses

Gross Revenue

0.92 (1 less 0.08 losses) @ \$161	\$148.12
-----------------------------------	----------

Direct Costs

Cost of weaner	\$80.00	
Veterinary & animal health	3.50	
Hay: Weaners only, 6 bales, contract baling & carting @ \$0.35/ bale	2.10	
Interest: 7% on \$80 for two years	11.60	
Total Direct Costs		\$97.20

GROSS MARGIN : \$50.92 per weaner

Cattle: Buy Weaners, Winter and Sell in Spring

No losses

Gross Revenue

Sale of yearling	\$115.00
------------------	----------

Direct Costs

Cost of weaner	\$80.00	
Veterinary & animal health	2.00	
Hay: 6 bales, contract baling & carting @ \$0.35/bale	2.10	
Interest: 7% on \$80 for 6 months	2.80	
Total Direct Costs		\$86.90

GROSS MARGIN: \$28.10 per weaner



Cattle: Buy Yearlings in Spring, Fatten Before  
the Next Winter

Purchased in October, sold fat March/April.

Average weight: 200 kg. @ \$0.70/kg.

No losses

Gross Revenue

1 fat steer @ \$140	\$140.00
---------------------	----------

Direct Costs

Cost of yearling	\$115.00	
Veterinary & animal health	2.00	
Interest: 7% on \$140 for 7 months	5.72	
Total Direct Costs		\$122.72

GROSS MARGIN : \$17.28 per yearling

Cattle: Buy Week-old Calves, Hand Rear and Sell  
After the Second Winter (30 mths. or older)

No losses; bull schedule: average weight 181 kg. @  
 \$0.80/kg.

Gross Revenue

Sale of steer	\$144.80
---------------	----------

Direct Costs

Cost of calf	\$20.00	
Calf rearing <sup>1</sup>	16.43	
Veterinary & animal health	5.20	
Hay: 6 bales, weaners only, contract baling & carting @ \$0.35/bale	2.10	
Interest: 7% on \$20 for 30 months	3.50	
Total Direct Costs		\$47.23

GROSS MARGIN : \$97.57 per calf

<sup>1</sup> See Cropping and Livestock Gross Margins, M.A.F.  
 Palmerston North October 1972, Regional  
 Publication No.23

Cattle: Buy Week-old Calves, Use Nurse Cows,  
Fatten and Sell Before the Second  
Winter (18-20 mths.)

Buy in-calf cull cows in June, 90% calving, losses 2%;  
 sell cows in January.

Calf losses 5%. Approximately 75% of calves reach  
 181 kg. slaughter weight. Bull schedule 181-260 kg.

@ \$0.80/kg. Average price \$140

3 calves to 1 nurse cow

Gross Revenue

Sale of 3 beasts: 0.95 (less 5% losses) x 3	\$399.00
@ \$140	
Cull cow: 0.93 (1 less 2% losses) @ \$92.75	90.90
Total Gross Revenue	\$489.90

Direct Costs

Cost of replacement nurse cow	\$100.00
Cost of 2.1 (90% calving) @ \$20	42.00
Veterinary & animal health @ \$5.20	15.60
Hay: 3 weaners @ \$2.10	6.30
Interest: 7% on \$100 for 7 months	4.08
7% on \$42 for 18 months	4.41
Total Direct Costs	\$172.39

GROSS MARGIN : \$317.51 per cow  
\$105.84 per calf

Cattle: Buy Week-old Calves, Hand Rear and SellFat Before the Second Winter (18-20 mths.)

5% losses. Approximately 75% of calves reach 181 kg.  
slaughter weight. Bull schedule 181-260 kg. @ 80¢/kg.

Gross Revenue

0.95 (1 less 5% losses) @ average price of \$140	\$133.00
---	----------

Direct Costs

Cost of calf	\$20.00	
Calf-rearing	16.43	
Veterinary & animal health	5.20	
Hay: 6 bales, contract baling & carting @ \$0.35/bale	2.10	
Interest: 7% on \$20 for 18 months	2.10	
Total Direct Costs		\$45.83

GROSS MARGIN : \$87.17 per calf

Cattle: Buy Week-old Calves, Hand Rear and Sell  
as Weaners in March

No losses

Gross Revenue

Sale of weaner @ \$80 \$80.00

Direct Costs

Cost of calf	\$20.00	
Calf rearing	16.43	
Veterinary & animal health	1.00	
Hay: 6 bales, contract baling & carting @ \$0.35/bale	2.10	
Interest: 7% on \$20	1.40	
Total Direct Costs		\$40.93

GROSS MARGIN : \$41.17 per calf

Cattle: Buy Fresian Weaner Heifers, Use A.I. and  
Sell In-calf Rising Two-year old Heifers

Purchase weaner heifers in January/February, sold  
 in-calf in April (20 mths.), 10% sold fat in April,  
 average weight 400 lb. @ \$28/100 lb. = \$112.

No losses

Gross Revenue

Sale of in-calf heifer: 0.9 @ \$130	\$117.00
Sale of 20 mth. fat heifer: 0.1 @ \$112	11.20
Total Gross Revenue	\$128.20

Direct Costs

Cost of weaner	\$70.00
A.I.	2.00
Veterinary & animal health	3.50
Hay: 6 bales, contract baling & carting @ \$0.35/bale	2.10
Interest: 7% on \$70	4.90
Total Direct Costs	\$82.50

GROSS MARGIN : \$45.70 per weaner

Cattle: Breeding Herd Rearing Own Replacements

All weaners except 20% replacement sold in autumn.

Calving 90%. No losses. 1 bull to 8 cows

Gross Revenue

Weaners: 63 weaners/100 cows @ \$80	\$50.40
Cull cows: 0.2 of \$92.75	18.55
Bull: 1 bull for 4 years \$200 x 1/8 x 1/4	6.25
Total Gross Revenue	\$75.20

Direct Costs

Bull: @ \$400 — \$400 x 1/4 x 1/8	\$12.50
Veterinary & animal health	3.00
Hay: 6 bales @ \$0.35/bale, contract baling & carting	2.10
Interest: 7% on \$140	9.80
Total Direct Costs	\$27.40

GROSS MARGIN : \$47.80 per cow

Cattle: Breeding Herd, Buying in Replacements

Buy in-calf cull cows; 90% calving; 2% losses.

One year breeding life. Sell all weaners in autumn.

Average price of cull cow: 350 lb. @ \$26.50/100lb.

= \$92.75

Gross Revenue

Sale of weaner: 0.90 @ \$80	\$72.00	
Boner cow: 0.98 (1 less 2% losses) @ \$92.75	90.90	
Total Gross Revenue		\$162.90

Direct Costs

Replacement cow @ \$100	\$100.00	
Veterinary & animal health	3.50	
Interest: 7% on \$100	7.00	
Total Direct Costs		\$110.50

GROSS MARGIN : \$52.40 per cow



Fat Lamb Ewe Flock, Breeding Own Replacements

Lambing 100%; ewe hogget replacement 25%; ewe hogget losses 4%; ewe losses 4%.

Gross Revenue

Wool: Ewe : 11 lb. @ \$0.45/lb.	\$4.95	
0.25 ewe hgt. (7½ lb) @ \$0.45/lb.	0.84	
Lamb: 0.74 : 1 lamb/ewe less 0.26 (0.25 hgt. replacement + 4% of 0.25 = 0.01, hgt. losses)	6.66	
Culled ewe: 0.21 @ \$3.50 (0.25 less 4% losses)	0.74	
Total Gross Revenue		\$13.19

Direct Costs

Ram replacements: 1 ram to 50 ewes for 4 years	0.20	
Shearing & crutching	0.47	
Veterinary & animal health	0.40	
Interest: 7% on ewe @ \$8.00	0.56	
7% on 0.25 hgt. replct. @ \$3.60	0.06	
Total Direct Costs		\$1.69

GROSS MARGIN : \$11.50 per ewe

One Year Fat Lamb Ewe Flock

6 year old ewes purchased, one year breeding life;  
100% lambing; 3% losses

Gross Revenue

Sale of lamb	\$9.00	
Cull ewe: 0.97 @ \$3.50	3.40	
Wool: 8 lb. @ \$0.45/lb.	3.60	
Total Gross Revenue		\$16.00

Direct Costs

Cost of ewe	\$5.00	
Ram replacement	0.20	
Shearing & crutching	0.47	
Veterinary & animal health	0.40	
Interest: 7% on \$5.00	0.35	
Total Direct Costs		\$6.42

GROSS MARGIN : \$9.58 per ewe

Ewe Hoggets

Purchased in Jan/Feb, sell as shorn 2-tooth ewes in Jan/Feb; no losses.

Gross Revenue

Sale of 2-tooth ewe	\$6.50	
Wool: 8½ lb. @ \$0.45/lb.	3.83	
Total Gross Revenue		\$10.33

Direct Costs

Replacement of hogget	\$3.60	
Shearing & crutching	0.47	
Veterinary & animal health	0.40	
Interest: 7% on \$3.60	0.25	
Total Direct Costs		\$4.72

GROSS MARGIN : \$5.61 per hgt.

Wether Hoggets

Purchased in Jan/feb, sell fat and off-shears in  
Sept/Oct; 4% losses

Gross Revenue

Wether hogget: 0.96 (1 less 0.04 losses)	\$7.20	
Wool: 6½ lb. @ \$0.45/lb.	2.93	
Total Gross Revenue		\$10.13

Direct Costs

Replacement of hogget @ \$3.80,	\$3.80	
Shearing & crutching	0.47	
Veterinary & animal health	0.40	
Interest: 7% on \$3.80 for 7 months	0.16	
Total Direct Costs		\$4.83

GROSS MARGIN : \$5.30 per hgt.

### Gross Margins : Pigs

The sow performance assumed in the calculation of the gross margins for the various pig policies is shown below.

No./litter (born)	11.0
No./litter (weaned)	9.0
Litters/year	1.8

The direct costs involved in the breeding of weaners are listed below.

#### Direct Costs

1200 lb. per litter @ \$0.04/lb (\$48 x 1.8 litters/yr)	\$86.40
Boar feed costs — 4500 lb. @ \$0.04/lb = \$180 per 50 sows	3.60
Boar replacement — 1 boar @ \$200/50 sows	4.00
Sow replacement — 20% replct. rate 1 gilt @ \$40	8.00
Creep feed — 16.2 piglets @ 4lb/pig @ \$0.06/lb.	3.89
Animal health	4.00
Sundry charges — 16.2 piglets @ \$0.20	3.25
Direct Costs	\$110.54
Less revenue from chopper (15% as choppers @ 200 lb. livewgt. @ \$0.12/lb)	3.60
Total Direct Costs per sow	\$109.94
Total Direct Costs per weaner — \$106.94/16.2	\$ 6.60

Pigs: Buy Weaner, Fatten to Porker for Home  
Consumption

Gross Revenue per Porker

'Sale' of porker - 81 lb @ \$0.39/lb \$31.59

Direct Costs per Porker

Cost of weaner \$15.00

To feed weaner - Total livewgt.: 45lb

Livewgt. gain : 20lb

Conversion 2.5:1

Feed eaten: 50 lb @ 2.50  
 \$0.05/lb

To pork weight - Total livewgt.: 110 lb

Dressed weight: 81 lb

Livewgt. gain : 65 lb

Conversion 3.0:1

Feed eaten: 195 lb @ 7.80  
 \$0.04/lb

Total Direct Costs \$25.30

GROSS MARGIN : \$6.29 per porker

Pigs: Breeding Herd, Fatten and Sell as Porkers

Gross Revenue per Porker

Sale of porker - 81 lb @ \$0.39/lb \$31.59

Direct Costs per Porker

Cost of breeding weaner \$6.60

To feed weaner - Total livewgt.: 45 lb

Livewgt. gain : 20 lb

Conversion 2.5:1

Feed eaten: 50 lb @ 2.50  
\$0.05/lb

To pork weight - Total livewgt.: 110 lb

Dressed weight: 81 lb

Livewgt. gain : 65 lb

Conversion 3.0:1

Feed eaten: 195 lb @ 7.80  
\$0.04/lb

Total Direct Costs \$16.90

GROSS MARGIN per porker : \$14.69

GROSS MARGIN per sow : \$14.69 x 16.2 = \$237.98

Pigs: Breeding Herd, Fatten and Sell as Baconers

Gross Revenue per Baconer

Sale of baconer - 130 lb @ \$0.36/lb \$46.80

Direct Costs per Baconer

Cost of breeding weaner \$6.60

To feed weaner 2.50

Feeding to porker weight 7.80

Feeding from porker to baconer wgt.

Total livewgt.: 176 lb

Dressed wgt. : 130 lb

Livewgt. gain : 66 lb

Conversion 3.5:1

Feed eaten: 231 lb @ \$0.04/lb 9.24

Total Direct Costs \$26.14

GROSS MARGIN per baconer : \$20.66

GROSS MARGIN per sow : \$20.66 x 16.2 = \$334.69



Pigs: Breeding Herd, Sell as Weaners

Gross Revenue per Weaner

Sale of weaner	\$15.00
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Direct Costs per Weaner

Cost of breeding weaner	\$6.60
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GROSS MARGIN per weaner : \$8.40

GROSS MARGIN per sow (9 wnr./sow, and 1.8 litters

per year) :  $16.2 \times \$8.40 = \underline{\$136.08}$



Ryegrass Seed (Ariki)

Gross Revenue per acre

50 bus. at \$2.00	\$100.00
Straw: 80 bales at \$0.25 (in paddock)	20.00
Gross Revenue	\$120.00

Direct Costs per acre

Fertiliser	7.40
Weed spraying	2.00
Mowing	0.65
Threshing	13.00
Cartage to dressing shed	1.10
Sacks 3¢/bus.	1.50
Dressing charges	12.00
Store charges & Cert.	4.40
Insurance (3 mths)	3.00
Baling at 13¢ per bale	11.70
Total Direct Costs	\$56.75

GROSS MARGIN PER ACRE: \$63.25

Source: Cropping and livestock Gross Margins, Ministry of Agriculture & Fisheries, Palmerston North October 1972. Regional Publication No.23

Gross Margin for Manrolds

Yield: 40 ton/ac.

Gross revenue per acre

At \$6.00 per ton

\$240.00

Direct costs per acre

Cultivation \$6.25

Drilling 9.00

Seed: 4 lbs at \$0.65 2.60

Fertiliser: 8 cwt. 15% K super 18.00

Weed spray<sup>1</sup> ton lime 18.00

Thinning (extra labour) 5.00

Inter-row cultivation 14.00

Pushing out 1.50

Total Direct Costs

\$ 74.45

Gross Margin per acre: \$165.50

Source: Cropping and livestock Gross Margins, Ministry of  
Agriculture & Fisheries, Palmerston North October  
1972. Regional Publication No.23

Gross Margin for Main Crop Potatoes

Gross revenue per acre

	<u>16 tons</u>	<u>21 tons</u>
Tables at \$70/ton(14½ & 19 tons)	1015.00	1260.00
Rejects & smalls at \$16/ton (1½ & 2 tons)	24.00	32.00
Total Revenue	1039.00	1292.00

Direct costs per acre<sup>1</sup>

Cultivation	8.00	8.00
Moulding	1.75	1.75
Planting	6.00	6.00
Seed: 1 ton at \$100 average	100.00	100.00
Fertiliser, NPK mix	27.00	27.00
Insecticide	6.00	6.00
Spray- blight \$11 )		
- moth \$ 6 )	46.00	46.00
- application \$29 )		
Digging	3.00	3.00
Picking up, sewing, loading \$6/ton	96.00	126.00
Grading \$0.30/ton	4.80	6.30
Sacks, \$14/ton & twine \$4.90/ton	78.40	102.90
Levy: \$1.30/ton average	20.80	27.30
Freight \$4/ton average	64.00	84.00
Total costs	462.25	666.75
<u>GROSS MARGIN PER ACRE</u>	<u>576.75</u>	<u>625.25</u>

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1 Source: Cropping and livestock Gross Margins, Ministry of Agriculture & Fisheries, Palmerston North, October 1972. Regional Publication No. 23

Gross Margin for Pumpkins(crown)

Gate sales. Yield 8 tons.

Gross Revenue

2240 pumpkins (average wgt. 8lb.) \$560.00  
 @ 25¢ each

Direct Costs

Land preparation: ploughing @ \$7/ac.	\$7.00
Discing- 2 cuts @ \$2/cut	4.00
Harrowing @ \$2/ac.	2.00
Seed: 3 lb/ac. @ \$4.89/lb	14.69
Seed sowing: 4 hours by hand @ \$1.60/hr	6.40
Fertiliser: 10 cwt./ac N.P.K. @ \$101.34/ton	50.67
labour- 1 day /ac	12.80
Weed control: 3 cultivations @ \$2	6.00
hand hoeing- 1 day(4 hrs) @ \$1.60/hr	6.40
Harvesting: As time and labour available	
45 hrs @ \$1.60	72.00

Total direct costs \$181.96

GROSS MARGIN: \$378.04/acre

Strawberries

Gate sales, 2 year production period.

Price per lb. 25¢

	Year 1 (7 tons)	Year 2 (9 tons)
Gross revenue at 25c	3921.00	5040.00
Total direct costs	3068.29	2229.66
Gross Margin	851.71	2810.34

GROSS MARGIN: \$1792.96 per acre per year ~~EEK~~

Source: Ministry of Agriculture & Fisheries, Hastings 1973.

~~EEK~~ Discounted at 8%

Forestry: Pinus radiata

Costs are assumed to incur at the beginning of each year and the revenue at the end of year twenty-five.

<u>Year</u>	<u>Operation</u>	<u>\$/ac</u>
1	tree stock	20
	planting	30
	preparation (includes fencing)	15
2	blanking	20
	release clearing	
5	pruning	30
7	pruning	25
9	pruning	22
10	thinning	20
25	harvesting; 7000 cu.ft. @ 30¢/cu.ft.	2100

Cash Flow (\$/ac)

	<u>Year</u>						
	1	2	5	7	9	10	25
Costs	65	20	30	25	22	20	-
Revenue	-	-	-	-	-	-	2100
Cash profile	-65	-20	-30	-25	-22	-20	+2100

Net Present Value = \$163.42

Discount rate = 8%

Amortized value = \$15.31



## APPENDIX III (i)

Synthetic Factory Supply Dairy FarmCapital Stock

115 cows @ \$140	\$16,100	
23 Rising 2 yr. hfrs. @ \$110	2530	
28 Rising 1 yr. hfrs. @ \$70	1960	
Total		\$20,590

Gross Revenue

33,000 lb. bfat. @ \$0.50/lb.	\$16,500.00	
92 bobby calves @ \$18	1,656.00	
4 2 yr. old in-calf hfrs. @ \$120	480.00	
22 cull cows @ \$92.75	2,040.50	
Total Gross Revenue		\$20,676.50

Direct Costs

A.I.: 138 cows @ \$2.00	\$276.00	
Shed expenses: 115 @ \$1.60	184.00	
Power: 115 @ \$3.00	345.00	
Veterinary & animal health: 115 @ \$3.50	402.50	
Hay: 1500 bales @ \$0.35/bale, contract baling & carting	525.00	
500 bales barley straw @ \$0.30/bale	150.00	
Interest: 7% on \$20,590	1441.30	
Total Direct Costs		\$3323.80
Total Gross Margin :	\$17352.70	
Gross Margin per cow:	\$150.89	
GROSS MARGIN per acre:	<u>\$131.46</u>	

## APPENDIX III (ii)

Synthetic Sheep/Cattle Farm

Area: 470 acres

Calving percentage : 90%

Lambing percentage : 100%

Capital Stock: Cattle

42 cows @ \$140	\$5880	
10 2-yr. in-calf hfrs. @ \$140	1400	
11 weaner hfrs. @ \$90	990	
2 bulls @ \$200	400	
Total		\$8670

Gross Revenue

11 wnr. hfrs. @ \$70	\$770.00
25 wnr. steers @ \$80	2000.00
2 2-yr. hfrs. @ \$110	220.00
7 cull cows @ \$92.75	649.25

Direct Costs

Veterinary & animal health @ \$3/cow	\$156.00	
Hay: 6 bales/cow @ 35¢/bale	109.20	
Bull depreciation: 0.325 on \$400	130.00	
Interest on \$8670 @ 7%	606.90	
Total Direct Costs		\$1002.10

Total Gross Margin : \$2637.71

Gross Margin per cow: \$50.71

contd. p 125

Synthetic Sheep/Cattle Farm (contd)Capital Stock: Sheep

500 ewe hgts. @ \$6.50	\$3250.00	
1532 M.A. ewes @ \$6	9192.00	
31 wether hgts. @ \$7	217.00	
25 rams @ \$20	500.00	
Total		\$13159.00

Gross RevenueWool

1494 ewes (1532 less 38 losses) @ 11 lb. per ewe = 16434 lb.		
488 ewe hgts. (500 less 12 losses) @ 8½ lb. = 4148 lb.		
30 wether hgts. (31 less 1 loss) @ 8½ lb. = 255 lb.		
22 rams (25 less 2 losses) @ 5lb. = 110 lb.		
Total wool clip = 20947 lb. @ 45¢/lb.		\$9426.15
1001 lambs @ \$9	\$9009.00	
101 2-th. @ \$6	606.00	
63 cull M.A. ewes @ \$5.50	346.50	
234 C.F.A. ewes @ \$3.50	819.00	
Total Gross Revenue		\$10,780.50

Direct Costs

6 ram replacements @ \$40	\$240.00	
Shearing & crutching @ 47¢	955.98	
Vet. & animal health : 1532 @ 40¢	612.80	
Interest on \$13159 @ 7%	921.13	
Total Direct Costs		\$2729.91

contd. p 126

Synthetic Sheep/Cattle Farm (contd)

Total Gross Margin: \$17476.74

Gross Margin per ewe: \$11.40

Total Gross Margin from sheep and cattle  
enterprises = \$20,113.89

GROSS MARGIN per acre: \$42.80

## APPENDIX IV (i)

Occupation of Husband/Bachelor

<u>Occupation</u>	<u>No.</u>
<u>Professional</u>	
Doctor	4
Chemist	1
Solicitor	1
Engineer	2
University lecturer	8
Accountant	3
Veterinarian	4
Landscape architect	1
Company director	4
Manager	8
<u>Semi-professional</u>	
Teacher	5
Technical officer	6
Jockey	1
Display artist	1
<u>Trade</u>	
Builder	8
Electrical contractor	3
Agricultural contractor	4
Retail store owner	6
Garage proprietor	1
Real estate agent	1
Printer	1
Panelbeater	2
Mechanic	2
Blocklayer	1
Watchmaker	1
Carpenter	3

Occupation of Husband/Bachelor (contd)

<u>Occupation</u>	<u>No.</u>
<u>Clerical, sales &amp; service personnel</u>	
Civil servant	5
Clerk	1
Salesman	7
<u>Worker</u>	
Gardener	1
Metal-worker	1
Freezing worker	3
Nurseryman	1
<u>Other</u>	
Retired (non-farmer)	1
Army officer	1
Fat stock drafter	1

## APPENDIX IV (ii)

Occupation of Wife

Occupation	No.
<u>Professional</u>	
Dietician	1
Lecturer	1
Accountant	1
Physiotherapist	1
<u>Semi-professional</u>	
Teacher	11
Nurse	6
Display artist	1
Secretary	5
Illustrator	1
Technician	2
Typist	2
<u>Trade</u>	
Shop owner	2
<u>Clerical, sales &amp; service</u>	
	<u>personnel</u>
Sales assistant	3
Clerk	7
Saleswoman	1
Cashier	1
<u>Worker</u>	
Nursery worker	1
Waitress	1
Cook's assistant	1
Machinist	2
<u>Other</u>	
Part-time farmer	2

## APPENDIX V

Interest Rates Charged by Lenders (%)

Lender	Type of Mortgage								
	First			Second			Third		
	Mean	High	Low	Mean	High	Low	Mean	High	Low
Solicitor	7.8	8.5	6.0	9.9	12.0	8.5	8.0	8.0	8.0
Bank	7.7	8.5	7.0	7.7	8.0	7.5	7.0	7.0	7.0
Vendor	7.4	8.0	6.0	8.3	9.0	8.0	-	-	-
Other firm	7.1	8.0	6.0	8.0	10.0	7.0	-	-	-
Insurance coy.	7.4	8.0	7.0	-	-	-	-	-	-
Govt. institution	5.8	7.0	3.0	7.0	7.0	7.0	-	-	-
Other person	7.8	8.0	7.5	7.0	7.0	7.0	-	-	-
Relative	-	-	-	7.0	7.0	7.0	3.0	3.0	3.0



## APPENDIX VI

Other Combinations of Main Reason for Property  
Purchase

Reasons	No. of Farmers
Investment + Favourable surroundings for the bringing up of children (F.S.C.)	2
Rural environment (R.E.) + tax savings	1
R.E. + health	1
R.E. + investment	1
R.E. + investment + F.S.C.	2
R.E. + health + investment	1
R.E. + cheaper living + F.S.C.	1
R.E. + investment + F.S.C. + health	1
R.E. + health + other	1
R.E. + cheaper living + F.S.C. + other	1
F.S.C. + other	1
"All listed reasons equally important"	1
Total	14

## APPENDIX VII

Other Unforeseen Disadvantages

Disadvantage	No.
Unsuitable soil type for sewage disposal	1
Very old house	1
Poor access to property	1
Contractors not always available when required	1
Wife's isolation	1
Property flat, few trees and straight roads	1
"Tied to property"	1
"Poor farmer"	1
Mortgage repayments	1
Ill feeling generated by ten acre lot subdivision	1

## APPENDIX VIII

Other Secondary Farming Enterprises

<u>Farm enterprise</u>	<u>No.</u>
Sheep + forestry	2
Sheep + poultry	2
Sheep + cropping	2
Sheep + horses + pigs	1
Cattle + horses	2
Cattle + cropping	1
Cattle + sheep dog breeding	1
Horses + pedigree dog breeding	1
Horses + cropping	1
Cropping + poultry	1
Cropping + horticulture	1
Total	15

## Appendix IX

Cattle Policies on Farmlets Farmed on Own  
Account With Cattle as the Main Enterprise

Policy	No.
1. Buy weaners, sell before the second winter (18-20 mths. of age)	12
2. Buy week-old calves, hand rear and sell fat before the second winter (18-20 mths.)	8
3. Buy weaners, sell after the second winter (30 mths. or more)	4
4. Buy weaners, winter and sell in spring	1
5. Buy yearlings in spring and fatten before the next winter	1
6. Breeding herd, rearing own replacements	1
7. Breeding herd, buying in replacements	1
8. Stud herd	-
9. Policy (1) & (8)	1
10. " (1) & (2)	1
11. " (1) & (3)	1
12. " (1) & (4)	1
13. " (1) & (5)	1
14. " (2) & (5)	1
15. " (2) & (6)	1
16. " (3) & (5)	1
17. Other	4
Total	40

In the 'other' group, two respondents had a policy of buying calves and selling them as weaners in the autumn market, another bought yearlings in winter and sold them in spring. The fourth respondent in this group had a combination of two policies, viz. buying week-old calves, hand rear and sell fat before the second winter and also two milking cows for household consumption.

## APPENDIX X

Cattle Policies on Farmlets Farmed on Own Account  
with Cattle as the Secondary Farm Enterprise

Policy	No.
Buy weaners, sell before the second winter (18-20 mths. of age)	5
Buy week-old calves, hand rear and sell fat before the second winter (18-20 mths.)	3
Buy weaners, sell after the second winter (30 mths. or more)	1
Buy weaners, winter and sell in spring	1
Buy yearlings in spring and fatten before the next winter	2
Stud herd	1
Buy Fresian weaner heifers, use A.I. and sell as in-calf rising two-year heifers	1
Total	14

## APPENDIX XI

Intended Changes to Farming Enterprises

Change to	No.
Breeding stud cattle	3
Cropping	3
Increase sow numbers	3
More emphasis on beef cattle fattening	5
Calf rearing	1
Full-time market gardening	1
Less cropping	1
Broiler chickens	1
Establishing orchard	1
Small woodlot	2
Breeding sheepdogs	1

## APPENDIX XII

Other Contracting Service Employed and  
Intended Use Over the Next Two Years

Operation	1972/1973 No.	Intended No.
Shearing	4	3
Dam construction	2	2
Precision drilling	2	1
Bulldozing track	1	3
Barley threshing	1	1
Potato digging	1	1
Hedge trimming/removal	2	-
Small seed harvesting	-	2
Lime spreading	-	1
Insect pest control	-	1
Levelling of future nursery site	-	1
Total	13	16

## APPENDIX XIII

Other Three Major Problems Facing the Part-time  
Farmer

Item	Order of importance		
	1st.	2nd	3rd
Storage facilities	2	5	2
Topdressing	3	3	4
Drought	8	-	1
Animal health	1	2	1
Stockyards	1	1	4
"Falling stock market"	1	1	1
Exposed to wind	1	1	1
Availability of pig feed	1	-	-
Resiting house on property	1	-	-
Construction of house and drives	2	-	1
"Paying interest bill"	1	-	-
"Capital expenditure for extras"	1	-	-
Building garage and outbuildings	-	1	-
Property is too small	-	1	-
Tree planting programme	-	1	-
Availability of contractors	-	1	-
Noxious animals	-	1	-
Metalling drives	-	1	-
Clearing overgrown trees	-	1	-
Extra water for garden	-	1	-
"Improving farm out of income"	-	1	-
Added expense by not living on property	-	2	-
"Lack of flexibility"	-	1	-

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Item	1st	2nd	3rd
"Need to maintain low expenses"	-	1	-
"Convincing the Inland Revenue that its a farm"	1	-	-
Pig housing	-	1	-
Lack of casual labour	-	-	3
Construction of central race	-	-	1
"Co-operation of neighbour"	-	-	1
Lack of machinery	-	-	1
Total	24	27	21

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