

Characteristics of Smallholdings in New Zealand: Results from a Nationwide Survey

Andrew J. Cook
and
John R. Fairweather

Research Report No. 278
September 2005



LINCOLN
UNIVERSITY
Te Whare Wānaka O Aoraki



Research to improve decisions and outcomes in agribusiness, resource, environmental, and social issues.

The Agribusiness and Economics Research Unit (AERU) operates from Lincoln University providing research expertise for a wide range of organisations. AERU research focuses on agribusiness, resource, environment, and social issues.

Founded as the Agricultural Economics Research Unit in 1962 the AERU has evolved to become an independent, major source of business and economic research expertise.

The Agribusiness and Economics Research Unit (AERU) has five main areas of focus. These areas are trade and environment; economic development; business and sustainability, non-market valuation, and social research.

Research clients include Government Departments, both within New Zealand and from other countries, international agencies, New Zealand companies and organisations, individuals and farmers.

Two publication series are supported from the AERU Research Reports and Discussion Papers.

DISCLAIMER

While every effort has been made to ensure that the information herein is accurate, the AERU does not accept any liability for error of fact or opinion which may be present, nor for the consequences of any decision based on this information.

A summary of AERU Research Reports, beginning with #242, are available at the AERU website www.lincoln.ac.nz/aeru/

Printed copies of AERU Research Reports are available from the Secretary.

Information contained in AERU Research Reports may be reproduced, providing credit is given and a copy of the reproduced text is sent to the AERU.

Studies in land use change and socio-economic consequences

**Characteristics of Smallholdings
in New Zealand: Results from a Nationwide Survey**

**Andrew J Cook
and
John R Fairweather**

September 2005

Research Report No. 278

**Agribusiness and Economics Research Unit
P O Box 84
Lincoln University
Canterbury
New Zealand**

Ph: (64) (3) 325 2811

Fax: (64) (3) 325 3847

<http://www.lincoln.ac.nz/AERU/>

ISSN 1170-7682

ISBN 0-909042-61-6

Contents

LIST OF TABLES	III
LIST OF FIGURES	III
PREFACE.....	V
ACKNOWLEDGEMENTS.....	VII
SUMMARY.....	IX
CHAPTER 1 INTRODUCTION, BACKGROUND AND RESEARCH OBJECTIVES. 1	
1.1 Introduction	1
1.2 Studies of smallholders and smallholdings	2
1.3 Aims and objectives.	4
1.4 Report structure	4
CHAPTER 2 METHOD	5
2.1 Introduction	5
2.2 Questionnaire design and testing	5
2.3 Sampling and response rate	6
2.4 Representiveness of the sampling procedure	8
2.5 Conclusion.....	9
CHAPTER 3 RESULTS	11
3.1 Introduction	11
3.2 Types of smallholder and general characteristics.....	11
3.3 Land and production.....	15
3.4 Production-related issues.....	19
3.5 General attitudes.....	23
3.6 Work and income	26
3.7 Conclusion.....	28
CHAPTER 4 DISCUSSION AND CONCLUSION	29
4.1 Introduction	29
4.2 Summary of results.....	29
4.3 The impacts of smallholding	31
4.4 Limitations and implications for future research	35
4.5 Conclusion.....	36
REFERENCES	37
APPENDIX 1 THE QUESTIONNAIRE.....	39

List of Tables

Table 1. Numerical Details about the Sample.....	8
Table 2. Types of Smallholder	12
Table 3. Summary of written smallholder responses	12
Table 4. Gender	13
Table 5. Size of smallholding.....	13
Table 6. Years lived on smallholding.....	13
Table 7. Previous farm experience	14
Table 8. Land Use and Value of Production - Livestock.....	16
Table 9. Land Use and Value of Production - Plants	17
Table 10. Tree crop varieties.....	17
Table 11. Exotic tree varieties for forestry or firewood.....	18
Table 12. Land Use and Value of Production – Other lands uses.....	18
Table 13. Income range.....	19
Table 14. Production compared to two years ago	20
Table 15. Production in two years time.....	20
Table 16. Capital investment.....	21
Table 17. Environmental practices on smallholding.....	21
Table 18. Intention to plant trees.....	22
Table 19. Intention to plant one or more species	23
Table 20. Importance of reasons for living on a smallholding.....	24
Table 21. Disadvantages of living on a smallholding	25
Table 22. Attitude towards sustainability.....	26
Table 23. Hours of work per week.....	26
Table 24. Off-farm employment status	27
Table 25. Off-farm income (Respondent)	27
Table 26. Off-farm income (Partner)	28
Table 27. Smallholder gross on-farm income	31
Table 28. Gross on-farm income comparisons.....	32
Table 29. Three selected variables by gross income level (percentages).....	33

List of Figures

Figure 1 Map showing sample regions	7
---	---

Preface

The topic of smallholders continues to be newsworthy and occupies attention among those interested in rural affairs in New Zealand. The AERU has responded to this attention by conducting a number of studies of smallholders in recent years. The present report continues this theme but, importantly, gives a nationwide perspective on recent developments. It builds on recent work for MAF by analysing survey data in more detail. The report covers a range of topics relating to smallholders including their production, intentions, capital investment, attitudes and employment. It will be of interest to policy makers and others interested in rural issues.

Prof. Caroline Saunders
Director

Acknowledgements

We acknowledge the assistance of the surveyed smallholders who took time to fill out the questionnaire. William Kaye-Blake provided the Statistics New Zealand data.

Funding for this research was provided by the Ministry of Agriculture and Forestry.

Summary

- This research investigated land use and the social and environmental effects of smallholding. The research was designed to provide a comprehensive understanding of smallholders and smallholdings by means of a nationwide survey.
- To conduct the survey a sample of 3,934 cases was randomly selected from the smallholding population of 0.04 to 40 hectares in size. The survey derived 947 usable responses with a revised response rate of 28 per cent.
- Analysis of the survey data was undertaken using three categories of smallholder. This analysis showed some differences between the lifestyler, hobby/smallfarmer and farmer/horticulturalist. There were noticeable differences, for example, in size, number of years of residence and amount of farm experience. However, there were no differences in terms of engagement in productive activities such as livestock and plant production.
- In further analysis it was found that almost all smallholders intend to plant trees for landscaping or commercial purposes. However, the analysis also showed that smallholders do not voluntarily engage in environmental monitoring and environmentally friendly practices to the same extent as other farmers and growers. In addition, the use of, and intentions to use, organic methods were not as prevalent as that for other farmers and growers. Nevertheless, it was also found that smallholders valued the merits of country life including peace and quiet and clean air.
- In discussion of the results emphasis is given to production and it is shown that while there appears to be high levels of production on some of the smallholdings the result is skewed by a small number of smallholders with high production income, while a sizable proportion did not report any income.
- Lack of difference between self declared lifestylers and other smallholders is discussed in terms of the common assumption that lifestylers engage less in farming activities.
- A discussion of environmental impacts predicts a ‘greening’ of the landscape due to smallholders’ intending to plant various tree varieties.

Chapter 1

Introduction, Background and Research Objectives

1.1 Introduction

There has been considerable growth in the last decade in subdivision of rural land for smallholding (properties up to 35 hectares in size). This recent growth is commonly associated with the preferences of suburban New Zealanders for a country lifestyle. Smallholding is enabled by the policies and plans of local authorities that allow for the subdivision of rural land. Given demand, the subdivision of land is financially attractive to rural landowners, because it provides a means of extracting capital from a large landholding. As Williams (1997) has plainly pointed out, subdivision is performed to satisfy social demand and is generally economically sensible for the owners of larger rural properties. Nevertheless, while smallholding seems economically sensible and meets a social need, the increasing number of smallholdings is likely to have its own particular impacts on rural communities and their environs.

Increases in demand, recent prices and the subdivision of land for smallholding has drawn comment from property and investment analysts (e.g., Sluyter, 2002; Carnachan, 2002) as well as interest from popular media (e.g., Grant, 2000; Baird, 2002). Such publications commonly portray 'lifestylers' who live on 'lifestyle blocks' as families who want to want to 'play' at being a farmer, while the household is supported by employment in a town or city. In our view, the term 'lifestyler' is a simplified characterisation of smallholders since some smallholders seek to be productive. Notwithstanding this issue, it is likely that smallholding affects rural communities as well as having impacts upon agricultural activity.

While a number of broader topics associated with smallholding have been studied (including planning issues, economic performance, the needs for services, and general descriptive work) current knowledge of smallfarmers and smallholdings is limited by a lack of national survey data. A particular subdivision of land may have its own particular effects on the environment and community, which comes to the immediate attention of local authorities through consent applications for land use and subdivision. However, of concern due to the growth in smallholding are effects of an incremental or cumulative nature that may not be readily apparent in localised studies. Indeed, as Peterson (1999) has noted, environmental assessment for small-scale activities has not been completed successfully in New Zealand because the view is primarily informed by localised consent applications and impact assessments. While there has been a good deal of research on smallholding, the growth in smallholding and the ensuing potential for cumulative effects and impacts on the social and physical environment means there is an imperative and need for a national survey of smallholders.

This report meets this need by providing a detailed analysis of smallholder survey data. These data have been previously analysed in an official report for the Ministry of Agriculture and Fisheries (MAF, 2004a). The earlier report had a descriptive emphasis and included a focus on smallholders' awareness of biosecurity issues. The present report is more detailed and focuses mainly on the characteristics of smallholders. It also gives more attention to analysis of the data.

1.2 Studies of Smallholders and Smallholdings

There has been much New Zealand research over the last two decades on smallholdings and smallholders. Like the general popular view of ‘lifestylers’ and ‘lifestyle blocks’, an early significant finding was that smallholdings were becoming popular because of a desire to enjoy country life. As Paterson (2000:2) has observed “...it tends to be the quality of life, with small supplementary income, that is sought, rather than any notion of maximum production”. An early study by Mears (1974), of part-time farmers on the urban fringe of Christchurch came to a similar conclusion. While concerned with land valuation and subdivision, Mears (1974) suggested the imperative for a rural/urban lifestyle was the perception of a better life in a rural location. Fairweather (1993), in a more targeted study, found from interviews with Canterbury smallholders that the attraction of somewhat idealised image of a rural lifestyle was important in the decision to purchase a smallholding. Edwards (1992), in a study of hobby farmers, had similarly identified that ideas of a better lifestyle were important in the desire to own a smallholding, but added the qualifier that these smallholders did not necessarily wish to become farmers. Fairweather (1993) similarly found that for many smallholders farming and agricultural interests rank relatively low, whereas their motivations were the appeal of the rural environment and its associated lifestyle, including clean air and open spaces.

In a more in-depth discussion of smallholder lifestyle issues Swaffield and Fairweather (1998) identified a number of dimensions to smallholder idyllic desires. The desires which they described as involving an ‘Arcadian ideal’ were held to involve: a celebration of rural peace, relaxation and pleasure, social stability, material wealth and associated comforts, and simple living. As Swaffield and Fairweather (1998) have pointed out, this work has interpreted the social phenomena by surveying the perceptions of those involved. The approach is an attempt to avoid imposing a particular interpretation but, instead, seeks out the subjective preferences and understandings of the people involved. The result is that the study was not about research topics such as a planning or an environmental issue but dealt with issues that the smallholders themselves regard as important. In earlier work, Fairweather (1993) and Fairweather (1996) described key motivations for smallholding as well as relevant disadvantages of smallholding. These factors were subsequently found to be important in a survey of North Canterbury smallholders (Fairweather & Robinson, 2000) and form a basis for the study of social motivations and disadvantages in this research.

Other research has resulted in similar findings to the work of Fairweather and associates. A review of this research by Hayes (2002) has noted that Elson, Chambers and Morad (1996:65) commented that smallholding involved ‘yearning for a heavenly retreat’. Hayes (2002) also conducted research along similar lines to Fairweather. From interviews with 18 lifestyle block residents in North Canterbury, Hayes (2002) derived a list of complaints and related actions taken by the residents. These results provide for a detailed view of complaints. Noise, smell, weed control, increasing land values, crowding and water issues were identified as prominent factors that often resulted in a complaint to the local council.

Another area of research of relevance to smallholding are studies of the trend for farm work to be supplemented by off-farm employment. New Zealand studies suggest this trend as resulting from agriculture becoming less labour intensive (MAF, 2004b). The growth in smallholdings is potentially another contributing factor because it may affect the process of structural adjustment of farm size so that some farms have insufficient area of land to support full-time farm work. Analysis of off-farm income undertaken by the Ministry of Agriculture and Forestry (MAF, 2004b) showed that three quarters of New Zealand farms had either off-farm

work or off-farm investment or both. As well as demonstrating that many farms interact in ways other than via agricultural production, there is an indication that farming families are involved in a range of activities beyond their use of the land for production. In support of this being a trend Fairweather (1993) showed that more farming families in North Canterbury sought off-farm work in 1992 than in 1987.

It has been found that farm survival is not the most prominent factor in decisions to undertake work off-farm. Fairweather (1995) found that the changing role of farm women reflected the changing role of women in society. In contrast, Taylor and McCrostie-Little (1995) concluded from their New Zealand studies that it is a need for income that is responsible for off-farm income. However, an imperative to work and the changing role of women in society may not be so easily separated as the former may well be intertwined with the latter.

In addition to the motivations and problems of smallholders raised by smallholders themselves and recognition that rural households have been undergoing change, there has also been research conducted on changes in land use. Moran (1997) usefully summarised changes in land use associated with the subdivision of agricultural land from the 1970s. One conclusion was that smaller divisions of agricultural land, particularly in the earlier part of the period for study, were associated with changes in farm type and were associated particularly with an increase in horticultural production. The effect was to subdivide farmland into more viable units for this type of production. The second wave of subdivision, distinguishable from the first by motive, is recognised as being associated with the desire for a rural lifestyle, with production being a secondary consideration.

The immediate implication of the second wave is concern over impacts on agricultural production from the increase in smallholding, where land previously used for farming fails to be used for the production of agricultural goods. As Hayes (2002) observed, such concerns have resulted in legal challenges to the subdivision of farmland with appeals to the courts for the purpose of overturning decisions to subdivide. The Environment Court has found the efficient use of the land area had bearing on decisions to subdivide rural land while expressing concern over the changes that might occur in the rural landscape (e.g., *Tata Partnership v Tasman District Council* 22/1/03, Judge Kenderdine, Commissioners Rowan and Mills, EnvC Wellington W6/2003). However, as When (2002) has highlighted, the courts have also concluded that while subdivision of rural land would not necessarily sustain the life supporting capacity of the soil and maintain resources for future generations, it is possible to argue that other uses can be condoned where they provide for the needs and rights of an expanding community. This suggests that possible loss of land for agricultural production through the subdivision of rural land can be balanced by the fact that communities and future generations may receive benefit by simply living on the land.

Recent research has improved our understanding of the current scale of smallholders in New Zealand. The Ministry of Agriculture and Forestry (2004a) research assessed with accuracy the national extent of smallholding and estimated the accuracy of information about smallholdings. The research also emphasised some issues and problems associated with rural life. The research found that many smallholders were engaged in agricultural production but in general this production was not found to solely support their households. It was also found that smallholders acted responsibly in the control of Tb, but that some killed and consumed their own animals in an unregulated manner. However, it was noted that smallholders were, in general, engaged in the management of diseases pests and weeds and were aware of biosecurity

issues and practice. A further finding was that smallholders would, in general, take appropriate action to alert authorities regarding new exotic diseases, pests or weeds.

1.3 Aims and Objectives.

The aims of this research were to characterise smallholders generally, to analyse them by type and identify the social and environmental impacts of smallholding. The meeting of these aims has involved the gathering of information about smallholdings by conducting a national survey. Our concern is with social, socio-economic and environmental issues associated with smallholding and the investigation of such issues by means of a nationally representative survey of New Zealand smallholders. The national survey is important because it provides a sound based to make a preliminary assessment of the impacts of smallholding in New Zealand. National data enables the study of cumulative effects, in other words, information is derived regarding the accumulation of minor changes over time and incremental change spreading across the landscape. Social demand and the ability to subdivide have led to a growth in smallholding and this growth will likely lead to particular social effects involving changes in rural communities, different types and intensities of agricultural production, and differences in the types and intensity of environmental impacts. While there have been a number of useful studies of smallholdings conducted in New Zealand, these studies have nevertheless themselves been somewhat partial due to the lack of information about the population of smallholders. In conducting a national survey we believe our research meets a burgeoning need for a national study that accurately represents the activities associated with smallholding and describes their consequences.

1.4 Report Structure

This report is organised as follows. Chapter 2 describes the survey method used in this research and Chapter 3 presents the survey results. Finally, Chapter 4 discusses the results and draws a conclusion to the study.

Chapter 2

Method

2.1 Introduction

The research objective of investigating smallholdings was achieved by surveying a random sample from the nationwide smallholding population by means of a postal questionnaire. This chapter outlines the questionnaire and its development. It then describes the selection of the sample, establishes its representativeness and reports the response rate.

2.2 Questionnaire Design and Testing

Question design drew from earlier research (Fairweather & Robertson, 2000), but modified the original questionnaire to respond to the present research objectives. The questionnaire (see Appendix 1) was designed to find out the size of land uses on the smallholding, investigate disease, pest and weed management, and examine general attitudes. There were only two open-ended questions included in the questionnaire. The remaining questions asked for a numerical response.

The questionnaire was divided into five sections. The first section was designed to gain relevant background information about the smallholding from each respondent including size, length of ownership, and previous farm experience. A question asked about intentions to stay on the smallholding. This first section of the smallholding questionnaire concluded with a self-report of how the respondent described themselves, for example, did they see themselves as lifestylers or smallfarmers. The final question asked if they had noticed an increase in the frequency or occurrence of native birds.

The second section included questions relating to land and production, either by selling their produce or choosing to use what they produced for their own use. A table was designed so respondents could record approximate land area for each land use, and record subsequent sales and/or value of production for their own use. The question was broken down into livestock, plants, and other land uses. Questions were included on Tb testing, whether the household consumed meat from the smallholding, did they have stock pens, and what their intentions were regarding encouraging native bush and tree planting. Other questions covered changes in level of production, level of capital investment and a variety of farm practices.

The third section covered disease, pest and weed management. Smallholders were asked if they managed or monitored disease, weeds or pests, how important it was to control exotic pests, how likely they were to occur on their smallholding. They were asked about information sources on this topic, whether any exotic disease, pest or weed had occurred in their smallholding, and if so, what had they done about it. Finally, they were asked if they knew the 0800 number to phone to report a possible new exotic disease, pest or weed.

The fourth section covered general attitudes including values, organic intentions, and the importance of full time employment. Two questions covered motivation for smallholders and disadvantages of smallholders.

The final section covered respondent characteristics. Included here were questions on employment, the average number of hours worked on the property by any person, and whether work was paid or unpaid. The off-farm employment status (full-time or part-time) of the respondent, their partner, and any other adult members of the household were also established in this section.

The smallholding questionnaire was pre-tested by ten men and women to ensure that the opinions and attitudes of both genders were encompassed. In general, the questionnaire made sense to people and it was easily understood. Pre-testing feedback was recorded and formed the basis of the reworked and final version. Only minor modifications were made so that the questions were easier to understand, instructions for the respondents were simplified, and other questions eliminated in an effort to remove as much ambiguity as possible.

2.3 Sampling and Response Rate

A random sample of candidate smallholders was supplied by AgriQuality. The sampling frame consisted of all land parcels from the Land Information New Zealand (LINZ) Core Record System (CRS) within the size range of 0.4 – 35 hectares that intersected appropriate land cover classes from the Land Cover Database (LCDB) v. 1.1. Land parcels that were part of larger blocks listed in either AgriQuality's AgriBase farm database or the Valuation Roll were excluded. Names and addresses were attached to the land parcels using a combination of AgriBase, LINZ's title estate database, Telecom white pages and Marketreach's systems.

The target sample size was set at 300 for each of 16 regions (see Figure 1, next page), to give a total of 4,800 cases nationwide. However, the final mail out figure was 3,934 because the names and addresses of owners/occupiers of all 4,800 land parcels could not be definitively ascertained. It was estimated that, given a response rate of 25 per cent, 980 cases would be derived which would give a sound basis for analysis.

The questionnaire was posted out, accompanied with a letter of invitation and a freepost reply envelope on 19 January 2004. The letter of invitation explained the purpose of the survey and offered a prize draw. A polite reminder postcard was posted out on 10 February 2004 to those from whom no reply had been received.

There were 1,469 questionnaires returned giving a crude response rate of 37 per cent (Table 1). However, there were 485 questionnaires returned which were discarded. Of these 232 questionnaires that were returned as undeliverable mail to Lincoln University and labelled as 'return to sender', 'gone no address', 'box closed', or 'not a boxholder on rural delivery'. A further 143 questionnaires were returned from people who were not smallholders. In total, these 485 discarded questionnaires accounted for 12 per cent of the total 3,934 questionnaires posted out. People with lot sizes larger than 35 hectares filled in some questionnaires, which were excluded, but ten between 35 hectares and 40 hectares were retained since these respondents considered themselves to be smallholders. There were a total of 947 questionnaires coded as usable responses, giving a net response rate of 28 per cent.

Figure 1 Map showing sample regions

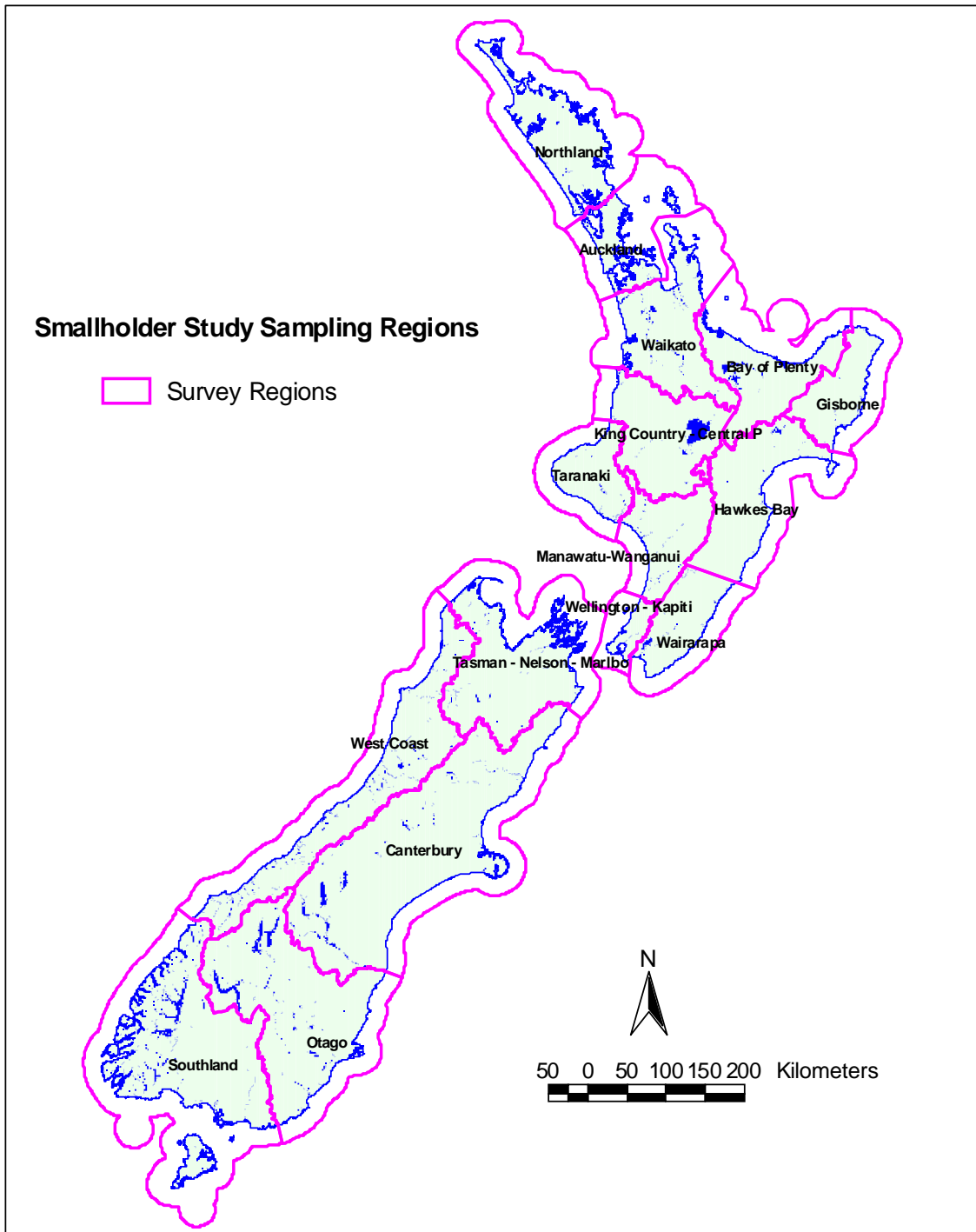


Table 1. Numerical Details about the Sample

	No.	%
Original number in the sample	3,934	
Total number returned	1,469	37
Incorrectly addressed	232	
Not a smallholder	143	
Re-addressed but not returned	110	
Subtotal	485	12
Viable smallholdings	3,449	
Questionnaires returned	984	
Usable questionnaires	947	
Adjusted Response rate		28

2.4 Representiveness of the sampling procedure

In order to ensure that the sample fairly included all regions in New Zealand, a disproportionate stratified sample was used. Equal numbers of questionnaires were sent out to all regions of New Zealand. Such a stratified sample is not necessarily the same as a simple random sample. For our purpose of conducting a national study it is necessary to establish that the stratified sample produced a sample that was equivalent to a simple random sample. We need to examine the data by regions in case some regions are different from others, in which case our sample would reflect these differences and inferences to the population would be weakened.

To establish whether or not the stratified sample produced a sample that was equivalent to a simple random sample we tested for the possibility that some smallholders with particular attributes may have been under or over represented. To enable sufficient numbers for chi-square tests with respondent data, four areas were derived from the sixteen regions. These areas were:

- Northland, Auckland, Waikato and King Country-Central (n = 197).
- Taranaki, Bay of Plenty, Gisbourne and Hawkes bay (n = 242).
- Manawatu-Wanganui, Wellington-Kapiti, Wairarapa and Tasman-Nelson-Marlborough (n = 256).

West Coast, Canterbury, Otago and Southland (n = 231).

Chi-square tests were performed to ascertain differences between the four areas with respect to the following survey data with the results showing no evidence of significant differences ($p > 0.05$).

- Gender
- Age
- Years lived on the smallholding
- Smallholding size
- GST registration
- Respondent off-farm income
- Respondent partners off-farm income
- Type of smallholder (lifestyler, hobbyfarmer, smallfarmer, farmer, horticulturalist/grower)
- Respondent off-farm employment status.

A Chi-square test did find evidence of a significant difference ($p < 0.05$) between the four areas based on survey data for off-farm employment for respondent partners. Of note, smallholder partners from the northern region were shown to be less engaged in part-time work and more engaged in full-time work, and more of them had no off-farm work than those from the other three areas. However, while this is evidence of a difference that could introduce a bias, only 233 of the 947 respondents (24.6 per cent) replied to this question and there was no evidence of interactions between these data and type of smallholder, which we rely on to investigate the survey data. Given these qualifiers, and no evidence of significant differences in the other tests, overall the tests indicate that the stratified sampling did not bias the results.

2.5 Conclusion

The sampling design used in this study of smallholders worked well in that sufficient replies were received to give a reasonable representation of the smallholding population. While there were some imperfections in the original population list, these did not prevent a useful sample from being obtained.

Chapter 3 Results

3.1 Introduction

This chapter presents the survey results. In general, the mean and standard deviation are provided for interval measures and frequency per response category is reported for nominal data. Tests for relationships between various measures were undertaken using t-tests (unequal variance assumed) correlation, or chi-square, depending upon whether the tests were of frequency or nominal data. In addition, written responses have been categorised for the purposes of including them in the analysis. There were 947 usable responses, however, because some questionnaires did not have responses for every item, the number of responses to each item is reported.

For the purpose of investigating differences between smallholders with different characteristics and motivations, types of smallholder were derived from the preferred term respondents selected to describe themselves. These types were used to investigate differences in the attributes, practices and attitudes of the lifestyler, the hobby/smallfarmer, and the farmer/horticulturalist. As well as showing significant differences between types, comment is made where there is no evidence of difference. This comment is made to draw attention to areas where, for example, the lifestyler or hobby/smallfarmer are behaving much like the production orientated farmer/horticulturalists.

Apart from the presentation of the types at the beginning of the results, the order of presentation generally corresponds with the order in which they were presented in the questionnaire to the respondents.

3.2 Types of Smallholder and General Characteristics

To ascertain types of smallholder, five terms were provided in the questionnaire as well as a space for the writing of an 'other' response. Most of the 947 who answered this question (379 or 40 per cent) indicated that the term 'lifestyler' was their preferred description. The next most popular choice was 'smallfarmer' (181 or 20.3 per cent), with hobby farmer (131 or 13.8 per cent) and horticulturalist/grower was also preferred by some respondents (151 or 12.1 per cent). Farmer was the least preferred description (47 or 5.9 per cent). Fifty-nine respondents (79 or 6.2 per cent) preferred a description other than the five that were provided.

While five descriptions were provided for the respondents to choose from, tests against the other factors measured in the questionnaire found few differences between the five categories while those in the 'other' category were excluded. There were few differences between farmers and horticulturalists, and few differences between the hobby farmer and small farmer indicating that these labels represented two groups (hobby/smallfarmer and farmer/horticulturalist). The final categories used in the analysis of the results are presented in Table 2.

Table 2. Types of Smallholder

	n	%
Lifestyler (1)	379	44.4
Hobby/Smallfarmer (2)	312	36.6
Farmer/Horticulturalist (3)	162	19.0
Total for the three types	853	100.0

A summary of the written descriptions of the term that best described the respondent is presented in Table 3. As can be seen there were a variety of responses that have been classified into seven summary classifications. While of interest, the numbers comprising these summary classifications do not have sufficient numbers to warrant adding them to the types discussed above.

Table 3. Summary of written smallholder responses

Summary term	Description	No.	Summary term	Description	No.
Holiday home (2)	Holiday home	1	Retired (15)	Retired	7
	Bach	1		Retired farmer	1
Equine (5)	Equine	2		Retired horticulturist	1
	Riding for the disabled	1		Retired sheep farmer	1
	Horse Breeder	2		Retired small farmer	5
Leased (5)	Landlord		Other (19)	Inherited owner	1
	Lease out land			Conservationist	1
	Leased for research	1		Employee	1
	Our property is leased	2		Engineer	1
Farming related (7)	Contractor	1		Garden Centre	1
	Shearer	1		Residence	1
	Stock Trader	1		Residential	2
	Support farm	1		Investment	2
	Utilise large shed	1		Practising medicine	1
	Holding paddocks	1		Family	1
Tourism (4)	Bed and breakfast	1		Cultural/Environment	1
	Tourism/stud	1		Ecologist	1
	Tourism/Grazing	1		Educators	2
	Tourism/Developer	1		Native forest restoration	2

3.2.1 Gender and age

Males comprised 66.3 per cent (628 of 918) of the sample and the average age was 52.8 years. The youngest respondent was 21 and the oldest was 91. There were no significant differences between types of smallholder in terms of age, however, as shown in Table 4 there were differences based on gender. There were more male lifestyler respondents than there was for the hobby/smallfarmer and farmer/horticulturalist categories.

Table 4. Gender

	Male	Female	Total
Overall	628 68.4%	290 31.6%	918 100.0%
Lifestyler (1)	270 73.6%	97 26.4%	367 100.0%
Hobby/Smallfarmer (2)	200 66.2%	102 33.8%	302 100.0%
Farmer/Horticulturalist (3)	98 62.8%	58 37.2%	156 100.0%
Significant differences (chi-square)	1-2, 1-3		

3.2.2 Size of smallholding

Overall the average size for the smallholdings was 8.50 hectares. As shown in Table 5, there were differences in size depending upon the type of smallholder. Lifestylers were of smaller average size than the other types of smallholder but there was no significant difference between the hobby/smallfarmer and the farmer/horticulturalist.

Table 5. Size of smallholding

	N	Mean	Std. Deviation
Overall	883	8.50	8.53
Lifestyler (1)	353	5.20	6.68
Hobby/Smallfarmer (2)	291	10.28	8.51
Farmer/Horticulturalist (3)	152	11.97	8.86
Significant differences (t-test)	1-2, 1-3		

3.2.3 Years lived on smallholding

The average number of years that the smallholders had lived on their smallholding was 12.22 years with the longest length of stay being 79 years. The results presented in Table 5 show farmer/horticulturalists, who on average had lived on their properties approximately 20 years, had lived on their properties longer than lifestylers and hobby/smallfarmers whose average length of stay was 11 or 12 years. In addition, there was a positive relationship between years lived on a smallholding and size ($r = 0.15$, $p < 0.01$) suggesting smaller sizes for more recent purchases of smallholdings.

Table 6. Years lived on smallholding

	N	Mean	Std. Deviation
Overall	851	12.44	11.34
Lifestyler (1)	352	11.01	10.05
Hobby/Smallfarmer (2)	284	12.07	9.83
Farmer/Horticulturalist (3)	148	15.42	15.03
Significant differences (t-test)	1-3, 2-3		

3.2.4 Previous farm experience

There were 925 smallholders who answered the question regarding previous farm experience. Of these 659 (71.2 per cent) indicated they had previous farm experience and 266 (28.8 per cent) indicated they had not. Proportionately fewer lifestylers had farm experience than had other smallholders. There was no meaningful difference in terms of having farm experience between hobby/smallfarmers and farmer/horticulturalists.

Of further interest, relationships were found between farm experience and size as well as between farm experience and number of years farming. Smallholders with farm experience had a smallholding of a larger size (t-test, $p < 0.01$) and also had been living on their smallholding for a longer period of time (t-test, $p < 0.01$).

Table 7. Previous farm experience

	Yes	No	Total
Overall	665 71.3%	268 28.7%	933 100.0%
Lifestyler (1)	226 59.8%	152 40.2%	378 100.0%
Hobby/Smallfarmer (2)	241 78.0%	68 22.0%	309 100.0%
Farmer/Horticulturalist (3)	127 79.9%	32 20.1%	159 100.0%
Significant differences (chi-square)	1-2, 1-3		

3.2.5 How long intend to stay on smallholding

Smallholders were asked to either indicate whether they intended to stay on their property indefinitely or to specify the number of years they intended to stay. In reply the majority indicated indefinitely (735), while the average length of intended stay for the remaining 209 respondents was nine to ten years. There were no significant differences between smallholder types based on length of stay indicating that smallholders of all types intended similar lengths of stay.

Of interest, the 735 that indicated they would stay indefinitely also reported a longer period of stay on their smallholding than had those who indicated a specific number of years (t-test, $p < 0.01$). Smallholders who had spent more time on their properties planned to stay longer whereas more recent smallholders did not plan to stay as long.

3.2.6 Increase in native birds

Of the 927 smallholders 471 (50.8 per cent) indicated they had observed an increase in native birds and 326 (35.2 per cent) indicated they had not. A small proportion (14 per cent) indicated they were unsure. There were no significant differences between smallholder types based on their bird observations.

3.3 Land and Production

Land use and production was analysed using three question sets that respectively dealt with livestock, plants and other land uses. The latter category included gardens and non-productive uses. As the results presented in the following tables show, the responses to this question were not as complete as they should have been. Not everyone responded to this question even though it was set up to cover all land uses, productive and unproductive. It is possible that the question may have been seen by some smallholders as relating solely to production so that if they had little or no production they may have not made a response.

For the livestock land uses, the main activity was grazing (Table 8). The table shows responses to five aspects of production, giving the number of respondents for each question, and these responses tend to decline going across the table since relatively few provided income figures. The grazing of beef and sheep occurred on many of the smallholdings although the grazing of sheep had a lower average value of production compared to beef. Deer, goats and poultry had the largest stock numbers, and deer and dairy had higher levels of average gross income on average. Accounting for more than one use based on stock numbers and land area there were 505 smallholdings that had livestock on their properties with some having more than one type of animal. The unweighted average gross income was \$8,973. Value of production for own use was high for dairy, beef grazing and goat production. There were a total of 53 smallholdings engaged in organic livestock production. For deer, there were 40 per cent who were organic, and for dairy there were 22 per cent who were organic.

Table 8. Land Use and Value of Production - Livestock

Livestock	Stock Numbers		Land area (ha)		Gross income (\$)		Value of Production for Own Use (\$)		Organic
	n	Avg.	n	Avg.	n	Avg.	n	Avg.	
Dairy	35	45	33	9.09	4	15,033	7	5,656	10
Grazing - beef	274	32	225	6.67	10	6,289	56	4,099	11
Grazing - sheep	353	138	191	5.25	11	3,543	59	909	0
Tussock or danthonia			256	6.65	0				0
Calf rearing	53	171	164	5.81	0	2,613	72	1,952	1
Deer	54	334	70	5.80	1	21,910	43	850	22
Goat	42	245	23	6.44	22	4,070	16	5,091	2
Horses	57	112	41	2.95	2	4,576	13	635	2
Poultry	43	1,070	10	4.53	2	1,274	13	927	1
Pigs	15	208	6	8.00	1	425	3	300	4
Average		236		6.12		8,973		2,042	

For plant uses, the main activities in terms of numbers of smallholdings were fruit and vineyards (Table 9). Vineyards and fruit had high average gross incomes, although the gross income from nursery crops was the highest, and the value for market gardening was also high. The unweighted average gross income was \$136,130. Gross income levels were higher for these plant land uses than for animal land uses, and this reflects that this group would include commercial horticulturalists. In general though, the number of smallholders engaged in plant production was fewer than those producing or supporting livestock. Accounting for more than one plant land use based on land area there were 115 smallholdings that reported plant production on their properties. Value of production for own use was high for glasshouses, crops fruit and tree corps. There were a total of 14 smallholdings engaged in organic plant production.

Table 9. Land Use and Value of Production - Plants

Plants	Land area in Hectares (ha)		Gross income (\$)		Value of Production for Own Use (\$)		Organic n
	n	Avg.	n	Avg.	n	Avg.	
Crops (grain, seed and fodder)	19	3.37	8	5,173	3	4,156	0
Flowers – open air	15	2.43	11	2,693	1	150	0
Glasshouse/greenhouse/tunnelhouse	11	0.64	7	11,613	2	22,571	
Market garden/vegetables	14	5.76	8	91,072	4	403	0
Fruit (pip, berry, kiwifruit, citrus, etc.)	63	4.65	45	198,082	12	5,900	1
Vineyards	42	6.16	40	158,028	3	472	0
Nursery	16	4.75	11	752,413	0		1
Tree crops	4	7.53	2	1,600	2	5,000	0
Other plants	14	4.86	2	4,500	14	338	12
Average		4		136,130		4,332	

There were relatively few smallholders who reported having tree crops. Table 10 shows that 42 different varieties of tree crops were grown with olives making up about one third of the crops. However, because some smallholders had more than one crop there were only 33 smallholders (0.4 per cent of the respondents) with tree crops. Five provided gross income (range \$60 to \$25,000) and only three gave value of production for own use. Thirty respondents growing tree crops provided the area of these crops with the average area being 2.02 hectares (range 0.01ha to 16ha).

Table 10. Tree crop varieties

Tree crop	Frequency
Olives	16
Walnuts	7
Hazel	6
Avocado	5
Chestnuts	3
Feijoa	2
Macadamia	2
Persimmons	1
Total	42

One hundred and fifteen smallholders reported having exotic tree crops for forestry or firewood. These smallholders constituted 8.2 per cent of the 974 smallholder respondents. As shown in Table 11 these smallholders grew 179 varieties of trees, with Radiata pine and Eucalypt being the most common tree variety constituting 61 per cent of the species that were grown. Only two gave annual gross income which were \$1000 and \$4000 and four gave own value which ranged from \$200 to \$4000. Of the 115 who reported having tree crops 98

provided the area of their crops which ranged from 0.01 hectares to 16 hectares with an average of 2.02 hectares.

Table 11. Exotic tree varieties for forestry or firewood

Exotic species	Frequency	Exotic species	Frequency
Radiata pine	77	Sycamore	2
Eucalypt	36	Western red cedar	1
Macrocarpa	12	Sempervirens	1
Blackwood	9	Cyprus	1
Lucitania	9	Douglas fir	1
Acacia	8	Elm	1
Eucalypt nitens	6	Saligna gum	1
Blue gum	5	Poplar	1
Oak	5	Redwood	1
Cedar	2		
Total			179

For other land uses there were a few smallholders with native scrub or bush (Table 12), although only 12 of the 947 smallholders indicated their land was used for this purpose. Only three reported being engaged in tourism although four had reported tourism activities in an earlier question (see Table 3) and only one was engaged in another form of business. There were few 'other' land use activities. The number of smallholders engaged in other land uses was 29.

Table 12. Land Use and Value of Production – Other lands uses

Activity	Land area in hectares		Gross income		Organic
	n	Avg.	n	Avg.	
Tourism	3	5.33	1	60,000	0
Mature native bush	5	4.20	0		3
Native scrub and regenerating native bush	12	4.08	0		0
Business activity, not farming, horticulture or tourism	1	5.00	1	20,000	0
All other land (houses, gardens, buildings, shelter)	8	3.25	3	5,900	0

Overall the average on-farm gross income for all of the smallholders was \$18,919 per annum for those who reported gross income. However, the number of smallholdings who reported their production exceeded the number reporting the value of production. It is possible that this under-reporting may mean that the data provides an inaccurate indication of the actual average value of production.

An alternative representation of productive land use activity is the total number of smallholders who reported productive land use. There were 611 land users and 12 engaged in other business activities, which made a total of 622 smallholders. This means that 65.7 per cent of

smallholders were engaged in productive land use activities. On the other hand 34.3 per cent did not report any land use activity and appear not to be using the land productively. It is possible that some may not have answered the question because it appeared to be asking only about production even though the section on other land uses included other activities such as gardens. Perhaps those not in production did not notice the other land use categories presented and may have chosen not to respond.

Of further interest in terms of smallholder type, the lifestyle, hobby/smallfarmer and farmer/horticulturalist all had similar proportions engaged in productive output. In addition, the three different types of smallholders were similarly engaged in livestock and plant production. The final aspect of production is its distributional characteristics. Table 13 shows the numbers, proportions and means for four income ranges. Over one half (57 per cent) reported no income and a further 12 per cent reported income of only up to \$1,000. Nearly one quarter (23 per cent) reported income between \$1,001 and \$20,000, and there were eight per cent with high incomes of over \$20,000. We will return to these data in the conclusion when we estimate the value of smallholding production for the nation.

Table 13. Income range

Income Range	No.	%	Mean
0	538	57	0
0 to 1,000	116	12	440
1,001 to 20,000	214	23	6,372
Over 20,000	79	8	208,886
Total	947	100	18,919

3.4 Production-related issues

A number of questions related to production issues and these include: production comparisons, capital investment, environmental practices, consumption of meat products, encouraging native bush and planting intentions. Each topic is considered in turn.

3.4.1 Production compared to two years ago

As shown in Table 14, overall 238 (31.7 per cent) of the 744 smallholders who responded to this question indicated that their production was higher than two years ago. Fifty-nine (7.9 per cent) indicated their production was about the same and 453 (60.4 per cent) indicated it was lower than two years ago. Low numbers meant that comparison between types was made using 'lower' and 'same' combined which showed that more farmer/horticulturalists had reported higher production than hobby/smallfarmers.

Table 14. Production compared to two years ago

	Higher	Lower	Same	Total
Overall	238 31.7%	59 7.9%	453 60.4%	744 100.0%
Lifestyler (1)	104 34.2%	25 8.2%	175 57.6%	304 100.0%
Hobby/Smallfarmer (2)	67 26.7%	19 7.6%	165 65.7%	251 100.0%
Farmer/Horticulturalist (3)	55 44.0%	6 4.8%	64 51.2%	125 100.0%
Significant difference with lower and same combined	2-3			

Table 15 shows how smallholders estimated their production would be in two years time. Most who responded (63 per cent) indicated their production would be about the same. A small proportion (three per cent) estimated that their production would be lower but about one-third (33 per cent) estimated it would be higher. Tests were performed with ‘lower’ and ‘same’ combined because of low numbers and showed that more farmer/horticulturalists and lifestylers had estimated higher production than the hobby/smallfarmers.

Table 15. Production in two years time

	Higher	Lower	Same	Total
Overall	240 33.2%	24 3.3%	458 63.4%	722 100.0%
Lifestyler (1)	109 36.7%	11 3.7%	177 59.6%	297 100.0%
Hobby/Smallfarmer (2)	63 26.9%	4 1.7%	167 71.4%	234 100.0%
Farmer/Horticulturalist (3)	48 40.3%	5 4.2%	66 55.5%	119 100.0%
Significant difference with lower and same combined	1-2, 2-3			

3.4.2 Capital investment in the last year

The level of capital investment for the previous year is shown in Table 16. Overall, there were low levels of capital investment, with most in the none or zero to \$4,999 range. Low numbers of respondents hindered comparisons between smallholder type, but by comparing no investment with some level of investment it was found that fewer lifestylers had made capital investment compared to hobby/smallfarmers and there was also a suggestion ($p < 0.08$) that they had made less investment than farmer/horticulturalists.

Table 16. Capital investment

	None	Up to \$4,999	\$5,000-9,999	\$10,000-19,000	\$20,000-49,999	\$50,000 or more	Total
Overall	325 38.1%	288 29.9%	105 12.3%	56 6.6%	39 4.6%	41 4.8%	854 100.0%
Lifestyler (1)	118 33.7%	132 37.7%	37 10.6%	26 7.4%	19 5.4%	18 5.1%	350 100.0%
Hobby/Smallfarmer (2)	120 44.0%	89 32.6%	34 12.5%	12 4.4%	6 2.2%	12 4.4%	273 100.0%
Farmer/Horticulturalist (3)	49 33.6%	42 28.8%	23 15.8%	14 9.6%	10 6.8%	8 5.5%	146 100.0%

3.4.3 Environmental practices on smallholding

The enquiry regarding a range of environmental practices found that very few smallholders were undertaking these practices (Table 17). The receipt of professional instruction was the most common practice, but this advice was only received by approximately six per cent of the smallholder respondents. The number of respondents undertaking environmental monitoring was low. Practices to replace or avoid the use of chemicals were similarly not being undertaken. While it is reasonable to assume that farming on a smallholding is of small scale, if undertaken at all, environmentally friendly practices were nevertheless not being undertaken. In terms of testing for differences between smallholder types, differences were explored between those who had responded to at least one of the questions and those who had indicated they did not do any of the practices. This enquiry found that hobby/smallfarmers performed more environmentally friendly practices than lifestylers.

Table 17. Environmental practices on smallholding

	Yes	No	Total
Received professional instruction on either the use, storage or disposal of chemicals	49 5.9%	777 94.1%	826 100.0%
Monitored the use of chemicals or fertilisers	8 0.8%	537 98.5%	545 100.0%
Monitored the soil for chemical residues	0	831 100.0%	831 100.0%
Monitored water for chemical residues	1 0.1%	814 99.9%	815 100.0%
Adopted practices to avoid or reduce the use of insecticides	3 0.7%	814 99.3%	817 100.0%
Adopted practices to avoid or reduce the use of certain herbicides	3 0.3%	457 99.4%	483 100.0%
Applied manufactured fertiliser to improve the soil	9 3.0%	295 97.0%	304 100.0%
Applied manure to improve the soil	5 1.1%	453 98.9%	458 100.0%
Grown legumes to improve the soil	0	761 100%	761 100%
Adopted practices to encourage natural insect predators	3 0.4%	678 99.6%	681 100.0%
Used animals to manage pest and weed problems	9 0.9%	491 98.2%	500 100.0%

3.4.4 Consumption of own meat products

In answer to enquiry about the consumption of own meat products and the killing of animals, 400 of 878 (45.6 per cent) of the smallholders indicated they consumed meat products from their smallholding. In addition, of the 428 who answered, 139 indicated they had killed the stock themselves. Of those who indicated they had not done their own killing, 112 indicated had used an abattoir and 188 indicated that another person had done the killing. In a similar result to the finding about TB registration there were no significant differences between smallholder types based on responses to these questions.

3.4.5 Encouraging the growth of native bush and intention to plant trees

Only 53 smallholders (six per cent) did not intend to keep or encourage the growth of native bush whereas 532 (58 per cent) intended to do so. There were 326 smallholders (36 per cent) who indicated they did not have any native bush. There were no significant differences between smallholder types based on responses to these questions.

The smallholders were asked to indicate whether they intended to plant trees over the next five years. They were asked to indicate their intention to plant four common tree species, as well as fruit and nut trees for production and landscape/decorative species. The results of this enquiry are shown in Table 18. A high proportion of growers (60 per cent) intended to undertake landscaping or plant decorative species in the next five years. A good proportion (27 per cent) planned to plant fruit or nut trees and the planting of other specific species ranged from 14 per cent for willows to 19 per cent for eucalypts. There was also 14 per cent who indicated they intended to plant another species in the next five years. In an investigation of differences between farm types it was found that more farmer/horticulturalists intended to plant poplar and more farmer/horticulturalists intended to plant eucalypts when compared to lifestylers. In addition, more farmer/horticulturalists intended to undertake landscaping than other smallholders.

Table 19 shows the number of smallholders who intended to plant one of more species. While most smallholders (222) intended to do one of the plantings a similar number (215) indicated two plantings and there were 245 who intended to do three or more plantings. The total number of smallholders who intended to plant trees in the next five years was 804, which is 84.9 per cent of the number of respondents to the survey.

Table 18. Intention to plant trees

	Intend to plant	%
Willows	137	14.5
Poplar	152	16.1
Eucalypts	183	19.3
Conifers	148	15.6
Fruit or nut trees for production	257	27.1
Landscaping/decorative species	569	60.1
Other	134	14.1

Table 19. Intention to plant one or more species

Number of species	n
1	222
2	215
3	122
4	74
5	28
6	21
Total	804

3.5 General Attitudes

The questionnaire covered a number of questions on attitudes, including: lifestyle, community, and satisfaction.

3.5.1 Importance of lifestyle or land use

To identify the importance of lifestyle and land use, respondents were asked to indicate whether lifestyle, land use or both of these preferences equally were most important to them. Of the 928 respondents who answered this question both lifestyle and land use was the most common choice (516, or 55.6 per cent) followed by lifestyle (292 or 31.5 per cent) with land use being chosen as the most important by the smallest number of respondents (120, or 13.9 per cent). Comparison between responses for type of smallholder found no evidence of significant differences.

3.5.2 Identifying with rural or urban community

The smallholder respondents were asked to choose between rural, urban or 'both equally' in response to the question 'which community do you identify most with?'. Of the 932 respondents who answered this question rural was the most common choice (494, or 53 per cent) followed by both equally (354, or 38 per cent) with urban being the least preferred option (84 or 9 per cent). Respondents of each smallholder type responded similarly to this question.

3.5.3 Satisfaction with the smallholder lifestyle

In general, the smallholder respondents indicated they tended to be satisfied with their smallholding lifestyle (mean 3.46, s.d. 1.07) although 151 respondents (16.2 per cent) were either dissatisfied or strongly dissatisfied. Comparison between responses for type of smallholder found evidence that the hobby/smallfarmer was more satisfied than the farmer/horticulturalist.

3.5.4 Intention to undertake organic production

Overall 149 of 918 respondents (16.2 per cent) indicated they intended to undertake organic production in the next five years. Which was more than the 11 per cent for livestock and 7 per

cent for plants reported in the land use responses suggesting that more will take up organic production. Comparison between responses for type of smallholder found no evidence of significant differences.

3.5.5 Importance of generating full time employment

In general the respondents indicated they considered it only slightly important to be able to generate full-time employment from their smallholding (mean 1.87 s.d. 1.27). Most respondents (568 of 924 or 59 per cent) had indicated that full-time employment was 'Not important at all'. Comparison between smallholder types with reference to these responses found no significant difference between the three types.

3.5.6 Reasons for living on a smallholding

The smallholder respondents were asked to indicate the importance of ten reasons for living on their smallholding. The results of this enquiry are shown in Table 20. Peace, quiet and tranquillity, as well as space, privacy, openness, no close neighbours, and clean air - no smog were the most important reasons for living on a smallholding. Rural or country living was also of moderate importance. Of lesser importance was having a safe and healthy place to raise children, the ability to have animals, and having a place that was relaxing with less pressure. It was also generally important, but less important than other reasons, to meet the need to have a larger section and to have a place to retire. Of least importance in comparison with the nine other reasons was learning about farming as a reason to live on a smallholding.

There were a few differences between smallholder types. Farmer/horticulturalists found space, privacy and no close neighbours of more importance than lifestylers and hobby/smallfarmers. The ability to have animals was of more importance to farmer/horticulturalists compared to lifestylers and hobby/smallfarmers.

Table 20. Importance of reasons for living on a smallholding

	n	Mean	Std. Deviation
Space, privacy, openness, no close neighbours	897	4.15	0.894
Peace and quiet, tranquillity	896	4.14	0.907
Clean air, no smog	893	4.14	0.944
Rural or country living	898	4.04	0.913
Safe and healthy place to raise children	858	3.68	1.39
Less pressure, relaxing	876	3.57	1.23
Can have animals	882	3.40	1.29
Wanted a larger section than you can get in a city or town	856	3.31	1.48
Place to retire	878	3.18	1.46
Learn about farming	856	2.64	1.28

3.5.7 Disadvantages of smallholding

As well as being asked about reasons for living on a smallholding respondents were also asked to assess nine disadvantages. The results of this enquiry are shown in Table 21. Unexpected costs and/or problems with local authorities and time required for work, chores and/or property maintenance were generally ranked as the most relevant disadvantages. Lack of services (water/sewerage/refuse) and land use conflict with established farmers and/or their attitudes to newcomers were generally considered the next most relevant disadvantages. Animal manure on roads, limited number of local clubs, organisations, sport and/or recreation facilities, distance to primary and/or secondary schools and noise and/or undesirable odours from established farmers were relevant but less relevant than the other factors.

In terms of differences between smallholder type, lifestyle judges the inability to subdivide to be a more relevant difficulty than did hobby/smallfarmers. In addition, lifestyle judges the distance to primary and/or secondary schools to be a more relevant than did hobby/smallfarmers.

Table 21. Disadvantages of living on a smallholding

	n	Mean	Std. Deviation
Time required for work, chores and/or property maintenance	905	2.35	1.10
Unexpected costs and/or problems with local authorities	904	2.28	1.22
Lack of services (water/sewerage/refuse)	901	1.80	1.04
Land use conflict with established farmers and/or their attitudes to newcomers	903	1.74	1.02
Can't subdivide any further	900	1.73	1.09
Animal manure on the roads	908	1.68	1.00
Distance to primary and/or secondary schools	881	1.56	0.90
Limited number of local clubs, organisations, sport and/or recreation facilities	898	1.54	0.87
Noise and/or undesirable odours from established farmers	902	1.51	0.88

3.5.8 Attitude towards sustainability

To investigate attitudes towards sustainability respondents were informed that sustainability refers to the mutual achievement of the goals of economic efficiency, environmental quality and social responsibility. Respondents were then asked to indicate their level of sustainability at the moment and also to assess what level of sustainability they would achieve in five years and in ten years. As shown in Table 22, in general the score for smallholder respondents was approaching four, which was labelled 'sustainable'. The results for the estimate of sustainability in five and ten years time show that in general the smallholder respondents projected an increase in their level of sustainability. To a small degree the results show an expectation that over time the level of sustainability will increase. An investigation of differences in responses to the sustainability questions between types found no evidence of differences. In general, smallholders of different types had a similar attitude towards sustainability.

Table 22. Attitude towards sustainability

	n	Mean	Std. Deviation
Sustainability now	868	3.72	0.93
Sustainability in 5yrs	829	3.84	0.84
Sustainability in 10yrs	809	3.95	0.86

3.5.9 Associations or organisations to which smallholders belong

Three hundred and twenty five respondents provided the name or names of associations or organisations to which they belonged. In total there was a wide variety provided with over 200 different associations and organisations identified. To note the more common responses: 23 respondents were members of Federated Farmers and eleven were members of the Farm Forestry Association. Ten belonged to the Fruitgrowers Association, 19 belonged to the Tree Crops Association. There were also eight respondents belonging to the New Zealand Deer Farmers Association. There were only two other organisations volunteered by more than four respondents with five noting Vegfed and five noting CRT.

3.6 Work and Income

A number of questions addressed employment characteristics, including hours in paid work, off farm employment and income.

3.6.1 Number of hours of paid work

Table 23 shows the average number of hours of paid and unpaid work undertaken on respondent smallholdings. Only a small number (42) reported being engaged in paid work but the average number of hours (31.04) approached a 40-hour working week. More partners of respondents were engaged in paid work, though the average numbers of hours was smaller. Other family members comprised an even larger number but the number of hours was even smaller. Eighty-five smallholders employed a contract manager, but on average this was for less than 9 hours per week.

Also shown in Table 21 is unpaid work and this was done by a good many smallholders. The number of hours of unpaid work was, however, minimal with the respondent, for example, only doing approximately 15 hours per week on average.

Table 23. Hours of work per week

	Paid		Unpaid	
	n	Avg.	n	Avg.
The respondent	42	31.04	280	15.14
Partner	90	22.22	476	11.61
Other	103	13.74	471	2.78
Contracted manager	85	8.16		

There was no evidence of significant differences between smallholder types with respect to paid work hours per week for the respondent, respondent partner, other person and contracted manager. There was also no evidence of significant differences based on hours of unpaid work for the respondent, the respondent partner, and other person.

3.6.2 Off-farm employment status

Just over half of the smallholders responded to the enquiry into off-farm employment status (Table 24). For respondents and for partners, just over one third was not employed off farm. For respondents there were 45 per cent employed full time off-farm and 21 per cent part time off-farm, and for partners 36.9 per cent were employed full time off-farm and 27 per cent part time off-farm.

Table 24. Off-farm employment status

	Full time	Part time	Not employed off-farm	Total
The respondent	183	85	137	405
	45.2%	21.0%	33.8%	100.0%
Partner	87	64	85	236
	36.9%	27.1%	36.0%	100.0%
Other	23	5	30	58
	39.7%	8.6%	51.7%	100.0%

3.6.3 Off-farm income

A large proportion of the respondents reported having off-farm income, from, for example, employment and investments (Table 25). Of the 881 who answered this question 780 (87.4 per cent) reported having received off-farm income while 11 per cent reported that this question was not applicable. Of those with off-farm income, many had a substantial income with 382 (43 per cent of the total) earning more than \$40,000 per annum.

Table 25. Off-farm income (Respondent)

Annual income	Frequency	%
Under \$20,000	190	21.6
\$20,000-39,999	208	23.6
\$40,000-59,999	177	20.1
\$60,000-79,999	94	10.7
\$80,000-99,999	39	4.4
\$100,000 and above	72	8.2
Not applicable	101	11.5
Total	881	100.0

The results from the question on partner's off-farm income are shown in Table 26. Slightly more partners than respondents indicated the income question was not applicable. There were also a smaller proportion of partners receiving income over \$40,000 with 31.6 per cent in this higher income group. Overall, the off-farm incomes of smallholders are substantial.

Table 26. Off-farm income (Partner)

Annual income	Frequency	%
Under \$20,000	252	29.9
\$20,000-39,999	196	23.3
\$40,000-59,999	109	12.9
\$60,000-79,999	42	5.0
\$80,000-99,999	27	3.2
\$100,000 and above	29	3.4
Not applicable	187	22.2
Total	842	100.0

In terms of differences between smallholder type with respect to income, there was a suggestion (chi square $p < 0.08$) that proportionately more farmer/horticulturalists (15.4 per cent) reported no off-farm income, which was less than hobby/smallfarmers (11.1 per cent).

Of interest, there were no significant relationships between respondent off-farm income and hours of respondent unpaid work when we would expect that these variables would be inversely related. In addition, there was no significant relationship between off-farm employment status and off-farm income. This relationship is supported further with the finding of no association between off-farm income and income from land and production (see section 3.3). A clearer view of a relationship between off and on-farm work is nevertheless provided by examination of the relationship between off-farm employment status and income from land and production. Those not employed off-farm had high land and production income (mean \$48,067) when compared to those employed part-time off-farm (mean \$4,660) or full-time off-farm (mean \$7,988).

3.6.4 GST registration

There were 501 of the 902 smallholder respondents (55.5 per cent) who indicated they were GST registered. There were 324 (34 per cent) who indicated that GST registration was solely for the smallholding.

3.7 Conclusion

We have presented a variety of results which show smallholders' attitudes, land uses, practices, intentions, and motivations. Where possible the data have been analysed by declared type of smallholders and some interesting differences between the three main types have been reported. However, there were relatively few significant differences between the three types. In response an attempt was made in the previous section (section 3.6) to produce more informative results by working with the on and off-farm income data. This analysis similarly provided few results of significance apart from showing a relationship between income from land and production and employment status. Regardless of the income categories used there were few differences across the groups. We take up this issue again by way of general discussion of the results in the next chapter.

Chapter 4

Discussion and Conclusion

4.1 Introduction

The general aim of this research was to characterise smallholders, to analyse them by type, and to investigate the environmental and social impacts of smallholding. As shall be explained in this chapter the survey and analysis of the results worked well to meet these aims. This chapter begins with a summary of the results, discusses them with emphasis given to significant findings of relevance to the general aims, and then provides some limitations and implications for future research.

4.2 Summary of Results

This summary covers data as they were presented. It begins with background, then covers production, general attitudes and then work and income.

4.2.1 Background

To begin with the more general findings, the self-classification into types provided a useful, if limited, view of different smallholders. Smallholders of different types had different sizes of smallholding. Lifestylers on average had properties of approximately half the size of other smallholders, and they had a greater proportion of men.

The consideration of length of time on the property showed that farmer/horticulturalists had been resident on their smallholdings longer than other types of smallholders, and correspondingly, lifestylers had less farm experience than smallholders of other types.

4.2.2 Land and production

Land and production figures show that approximately 65.7 per cent of smallholders were engaged in production activities. Livestock production, particularly sheep and beef, was very common. However, with an average on-farm gross income of \$18,919, apart from fruit, market gardening and nurseries, incomes from activities on smallholdings were unlikely to be enough to solely support a household. As the off-farm income measures have shown, many smallholders gain substantial income from other sources. However, there is a tendency for those who have on-farm income to have less off-farm employment in terms of numbers in full-time off-farm employment.

4.2.3 Production-related issues

For about one-third of the sample production was reported to have increased over the last two years. Future projections of production gave similar results with only three per cent indicating lower production and about one-third indicating an increase in production. Farmer/horticulturalists reported more increases in production and were more optimistic about future production. However, while many were optimistic, capital investment was generally low with lifestylers making less capital investment than other smallholders.

Most smallholders indicated they would encourage the growth of native bush. Regarding intentions to plant trees, most smallholders intended to plant decorative or landscape trees on their properties. Just under one-third intended to plant fruit or nut species and more than ten per cent indicated the planting of other tree species. Overall, almost 85 per cent intended to plant trees of some kind in the next five years indicating that this section of the rural community will be making a positive contribution to tree planting in New Zealand. More farmer/horticulturalists intended to plant poplar and eucalypts and more of them intended to undertake landscaping.

While the analysis showed that hobby/smallfarmers performed more environmental practices than lifestylers, the survey of environmental practices found overall that very few smallholders engaging in the environmentally friendly practices that we asked about.

4.2.4 General attitudes

The enquiry into general attitudes showed that smallholders tended to give equal weight to both land use and lifestyle when they were asked to consider the importance of these goals. To further describe smallholders, they tended to overwhelmingly identify with the rural environment over an urban one. In addition, in general, smallholders were satisfied with their smallholding lifestyle although approximately 16 per cent were not satisfied.

Regarding organic practices and attitudes, the results showed that 72 of 947 (7.6 per cent) were engaged in some form of organic production and just over 16 per cent indicated they intended to take up organic production.

There were a variety of reasons for living on a smallholding and also a range of reported disadvantages of smallholding. General characteristics of country life were valued including peace and quiet, space and privacy, and clean air. Unexpected costs and problems with local authorities were commonly held disadvantages. There were a few differences between smallholder types in terms of advantages and disadvantages. Farmer/horticulturalists found space, privacy and 'no close neighbours' of more importance than lifestylers and hobby/smallfarmers. The ability to have animals was of more importance to farmer/horticulturalists compared to lifestylers and hobby/smallfarmers.

Almost half the smallholders gave the names of organisations and associations to which they belonged. The variety and number of responses showed that many smallholders were involved, to some degree, with production-related industry organisations and associations.

4.2.5 Work and income

In terms of hours of paid and unpaid work on their properties only a small number were engaged in paid employment, but on average their hours approached full-time employment. Unpaid smallholding work was noticeably less in terms of hours than paid work but was done by about 30 per cent of smallholders. Less than half of the smallholders were employed off-farm, but their off-farm income, which presumably includes investment income, was generally high with almost 40 per cent earning more than \$40,000 per annum. Off-farm income was received by 88.5 per cent of the respondents and 77.5 per cent of their partners. Finally, more than half had GST registration with almost two thirds of these having registration solely for

their smallholding. The land use data shows that most smallholdings are being run as productive businesses, but few served to solely support their households.

4.3 The Impacts of Smallholding

Smallholdings are a major land use in New Zealand at least in terms of numbers if not in terms of production. They have a number of impacts, and here we consider production, employment and income, environment, and impacts on the rural community.

4.3.1 Production

What has been a common point in the debate about smallholding arises from the expectation that smallholders are less involved in production from the land than other farmers and growers. The issue of production needs careful treatment and we begin with estimates of gross production for all smallholders in New Zealand.

The survey results show that the majority of smallholders do engage in some level of productive activity. Given that a recent estimate of the total number of smallholdings is close to 140,000 (Sanson, Cook & Fairweather, 2004) we estimated the total value of production from all smallholders in New Zealand. Table 27 shows the distribution of gross on-farm incomes across all smallholders, the mean income for each group, the estimated population number of smallholdings that correspond to each income bracket, and the estimated value of production for that group.

Table 27. Smallholder gross on-farm income

Income Range	No.	%	Mean \$	Popn. No.	\$m	%
0	538	57	-	79,800	-	0
0 to 1,000	116	12	440	16,800	7	0.3
1,001 to 20,000	214	23	6,372	32,200	205	8.0
Over 20,000	79	8	208,886	11,200	2,340	91.7
Total	947	100	18,919	140,000	2,552	100.0

Given the overall average gross value of production of \$18,919, the estimated total value of production from all smallholdings in New Zealand is shown to be \$2,552m. However, Table 27 also shows that most of this gross income is produced on holdings with income over \$20,000 while the other income ranges account for income of only \$212m. Twenty five per cent produce 8.3 per cent of total gross income and 57 per cent do not have any smallholding income.

These estimates of value of production can be put in perspective by making comparisons to other sectors of primary production. Table 28 below compares our estimates with other sectors of primary production and for the New Zealand economy as a whole. The data show that the value of production from smallholders is small but not insignificant, while the value from those smallholders producing less than \$20,000 is relatively insignificant.

Table 28. Gross on-farm income comparisons

		Estimate from Survey
	\$m¹	\$m
All smallholders		2,552
Smallholders < than \$20,000		212
Horticulture and fruit	2,725	
Livestock and cropping	6,996	
Dairy cattle farming	6,330	
Other farming	1,575	
Forestry and logging	3,650	
Agriculture, forestry and fishing	24,266	
Textile and apparel	2,666	
New Zealand	398,386	

1. Source: Statistics New Zealand, Annual Enterprise Survey: 2003 financial year (provisional).

The data presented here suggest that the lifestyle group of smallholders fits the common preconception that smallholders are not productive, and the ones that are productive are really horticultural or intensive livestock units on which it is possible to earn high incomes on small areas of a land. However, this assessment is not fully accurate because there is still production from some of the remaining smallholdings. If we assume that the over \$20,000 smallholdings fit the horticultural or intensive livestock categories then there are still 49,000 smallholdings in New Zealand producing up to \$20,000 and their total value of production is \$212m. This is 35 per cent of all smallholdings. Thus, the common preconception is not fully accurate and while \$212m is not as large as other sectors of primary production it cannot be dismissed as insignificant. We acknowledge, however, that over one half of smallholders are not productive.

Table 27 shows that 57 per cent of smallholders did not report any income from their land but in the results (section 3.3) it was apparent that some of this group still reported production. On balance there was approximately 34 per cent who were not productive on what presumably would otherwise be land that could be used for agricultural production. Given that an estimate of the total area covered by smallholdings is 753,020 hectares (Sanson, Cook & Fairweather, 2004) there are then 286,148 hectares of land that was not being used for agricultural production. Of further relevance, the growth of smallholding means that over time more productive or potentially productive land is being lost from production. It has been estimated that just over 37,600 hectares is converted to smallholding per year (Sanson, Cook & Fairweather, 2004), which, given that 34.3 per cent will not be used productively, means that 12,968 hectares per year is being lost to non-productive smallholdings. While it could be argued that smallholding was having a small and positive impact on agricultural production because 65.7 per cent were engaged in productive activities, the finding that a proportion of

them were not productive suggests that a negative impact on production may have occurred and will likely continue to occur with further subdivision for smallholding.

The above observations need some qualification in terms of the data in this survey. The unproductive group of smallholders would appear to be lifestylers as commonly understood. However, when we used self-selected categories of smallholders as a basis of analysing the data we did not get results that were consistent with unproductive smallholders being lifestylers. In fact, we have found relatively few differences between types of smallholders. It is possible that the self-selected categories (lifestyler, hobby/smallfarmer or farmer/horticulturalist) may not correspond neatly with intensity of production.

To investigate this further, Table 29 shows smallholder gross on-farm income above or below \$20,000 by self description, preference for land use and lifestyle, and community identified with. Chi square tests were non significant ($p > 0.05$) therefore none of the three variables were associated with farm income. A further consideration was whether there was a relationship between gross on-farm income and size of smallholding. Like the other investigations there was no evidence that size of smallholding had any bearing on the amount of gross on-farm income (correlation, $p > 0.05$). These tests show that income levels vary regardless of self description, emphasis on landuse or lifestyle, identification with a rural or urban community or size of smallholding.

Table 29. Three selected variables by gross income level (percentages)

	\$0 to \$20,000	Over \$20,000	Total
Self description			
Lifestyler	45	43	44
Small farmer	37	35	37
Farm/hort	19	22	19
Most important of the two			
Lifestyle	31	34	32
Land use	13	16	13
Both equally	56	49	56
Community identified with			
Rural	54	48	53
Urban	9	8	9
Both equally	37	44	38

Our results indicate that the presumption that lifestylers are worse than other smallholders in regard to production is incorrect. The lifestyler is no more or no less engaged in productive activity than hobby/smallfarmer and farmer/horticulturalist. Further, our results show that productive activity in the form of gross on-farm income has no relationship with preferences regarding lifestyle or landuse, orientation to either a rural or urban community, and size of smallholding. In summery we found that most smallholders failed to make use of the productive capacity of their land but could not find any particular characteristics that make

these smallholders different from other smallholders. This means that lifestyle smallholders, as defined in this study, do not match to the popular view that there is a uniform group of smallholders who emphasise lifestyle values and do not engage in production. It remains the case that the popular stereotype does not exist.

4.3.2 Employment and income

Most smallholders indicated it was not important to generate full-time income from their properties. Consistent with this attitude are the data relating to off-farm work and income. About two-thirds of smallholders or their partners who had either full-time or part-time off-farm employment, with a lower level of employment for other members of the household. In addition, the proportion receiving off-farm income from various sources was also high with 88 per cent of the smallholder respondents and 77 per cent of their partners having off-farm income. In comparison, it has been estimated from a 1994 study that 46 per cent of New Zealand farmers had off-farm work and an estimated 75 per cent of farmers had income from off-farm work or investments (Ministry of Agriculture and Forestry, 2004b). While these farm data were gathered some time ago, in comparison, the level of smallholder off-farm employment is noticeably higher. In terms of levels of off-farm employment smallholders appear to be behaving somewhat differently to farmers. Generally then, smallholders are not working on their land as much as farmers and this means that they do not contribute greatly to employment on farm land. If such employment is important to sustaining rural communities then smallholders are making a relatively less important contribution.

4.3.3 Environment

Some smallholders were not producing from their land suggesting that any possible negative effects from production that derive from farm inputs would be less likely to occur. Another positive point was that, in general, smallholders had a positive attitude towards sustainability. In addition, it was shown that there was some interest in organic production, but not as much interest as has been found for New Zealand farmers. A national survey in 2000 found that 38 per cent of New Zealand farmers had intentions to use organic methods (Cook, Fairweather & Campbell, 2000) whereas positive intentions were only held by approximately 16 per cent of the smallholders. While the questions were of slightly different formats and strict comparisons should not be made, this should not account for the large difference.

Of particular relevance to the possibility of negative environmental effects is the testing of participation in environmentally friendly practices. The levels of participation in practices to monitor, reduce or avoid the use of agrochemicals were much lower than was found in a national survey of farmers and growers conducted in 2000 (Cook, Fairweather & Campbell, 2000). For example, in the 2000 survey 46 per cent of farmers monitored the use of chemicals or fertilisers whereas the percentage for smallholders was eight per cent. Such a large difference may well be showing that smallholders are unlikely to engage in serious environmental behaviours merely because of their limited size and the lower proportion of smallholders who seriously engage in agricultural production. Indeed, the figures may simply be comparatively lower because 38 per cent of the smallholders appear not to be involved in agricultural production. Perhaps as part-time farmers or growers the smallholders are not extending their interest and expertise into practices that other farmers and growers more commonly engage in. In other words, the lack of environmental practices may well reflect less

need to ameliorate the effect of production activities, because such activities are not as intensively or extensively engaged in by smallholders.

A further impact on the environment from smallholding comes from the prospect of increased tree planting. Most smallholders intended to plant trees which, if realised, would increase the number of trees in rural areas. Further, most smallholders intend to encourage the growth of native bush. Such activities would likely lead to a 'greening' of the landscape with likely ecological benefits.

4.3.4 Rural communities

Smallholders appear to be integrated into some aspects of rural life judging by the fact that almost half the smallholders providing the names of farming or industry related organisations and associations to which they belonged. Such participation is not the same as being closely integrated into the rural community since most selected industry organisations such as Federated Farmers or the Farm Forestry Association. However, rural or country living was generally of importance to all smallholders. Further, there were few negative aspects of living in the country which, if they were present, might indicate some level of lack of integration. Land use conflict and noise or undesirable odours from other farmers were generally rated as not relevant or slightly relevant. There were few negative reactions to the effects of farming. While enjoying the good attributes of rural life smallholders appear not to complain unduly about negative aspects of rural living. It would seem that while not all smallholders are keen on farming, few complaints and an appreciation of positive attributes suggests their integration with rural communities. Our data are one sided since they lack input from others in the rural community.

4.4 Limitations and Implications for Future Research

A major limitation in surveying smallholders is the accurate identification of smallholding properties in New Zealand. Considerable effort was expended to identify accurately and comprehensively the smallholder properties in New Zealand. The listings used were not completely accurate since some questionnaires were returned as gone no address etc. However, this commonly occurs with surveying and it is unreasonable to expect any list to be completely accurate given that there is always movement of people to and from smallholdings.

Another limitation rests with the suitability of the question on land use. As noted earlier, the question was not responded to by all smallholders even though it was designed to cater for all land uses. Further, many smallholders did not report income from their land. This could be due to either no income, that was too difficult to estimate, or because they were unwilling to report income. In future, this question set needs to be modified by asking early on in the question if the smallholder has no production, thereby making it more inclusive. In addition, the question on off-farm income needs to include differentiation into wages or salaries versus investment income.

The survey was conducted using a comprehensive sample and tests were undertaken that showed that the sample was unbiased and therefore was representative of smallholders at the national level. In addition, the 28 per cent return rate, close to the usual response rate of 30 per cent for rural surveys, provides a sound basis to make projections to the smallholder population from the results of the survey. However, it is still possible for non-response bias to have

occurred and therefore it may be the case that the respondents had a predisposition to take part in the survey and that this propensity might be related to some of the questions or issues addressed. However, this effect is minimised by the variety of topics covered: it is unlikely that there was any systematic bias occurring.

The results chapter reported some significant breakdowns by type of smallholder but overall these findings were relatively modest in scope. Differentiation into lifestylers, hobby/smallfarmers and farmer/horticulturalists did not prove to be as useful we expected. Similarly, using the income data and focusing on the relative amounts of off-farm income compared to on-farm income led to some clearly defined groups but, when compared on a wide range of variables, did not yield significant results. The finding of few significant differences for smallholder type or income measures suggests that smallholders of different orientations use their land in similar ways. However, as a cautionary measure further research should give careful consideration to how these measures are derived.

4.5 Conclusion

Smallholders are a distinguishable group in rural New Zealand. Their lifestyles usually involve producing from the land as well as gaining income from other sources. Smallholders are not the same as other farmers and growers, and by nature of the size of their properties some of them are not solely dedicated to production. Perhaps as a consequence, smallholders do not engage in environmentally friendly practices to the same extent as other farmers and growers. They are, however, likely to add significantly to greening of the New Zealand landscape and have preferences for the good things of living in the country suggesting their integration with rural communities.

References

- Baird, Z. (2002). A partridge in a pear tree. *Unlimited*, November, 28-30.
- Cook, A. Fairweather, J. R., Campbell, H. R. (2000). *New Zealand Farmer and Grower Intentions to Use Genetic Engineering Technology and Organic Farming Methods*. AERU Research Report No, 243, Lincoln University.
- Carnachan, H. (2002). Coming home to roost: Why city dwellers are flocking to the countryside. *Investigate: New Zealand's current affairs leader*, June, 56-62.
- Edwards, C. M. (1992). *Urban periphery land use change: The role of hobby farming*. MA thesis, University of Canterbury.
- Elson, A., Chalmers, L. & Morad, M. (1996). Peri-urbanisation and rural roads: A traffic modelling study. *New Zealand Geographer*, 52, 2, 65-69.
- Fairweather, J. R. (1993). *Smallholder perceptions of the rural lifestyle*. AERU Research Report No. 220, Lincoln University.
- Fairweather, J. R. (1996). We don't want to see our neighbours' washing. *New Zealand Geographer*, 52, 2, 76-83.
- Fairweather, J. R., Robertson, N. (2000). *Smallholders in Canterbury: Characteristics, Motivations, Land Use and Intentions to Move*. AERU Research Report No. 245, Lincoln University.
- Hayes, E. (2002). *Lifestyle blocks: the changing face of North Canterbury: effects and responses*. MA thesis, University of Canterbury.
- Mears, A. (1974). *Part-time farming in the Christchurch rural-urban fringe*. MA thesis, University of Canterbury.
- Moran, W. (1997). Farm size change in New Zealand. *New Zealand Geographer*, 53, 1, 3-13.
- Ministry of Agriculture and Forestry (2004a). *A study of Smallholders and their Owners*.
- Ministry of Agriculture and Forestry (2004b). *Off-farm income theory and practice*. <http://www.maf.govt.nz/mafnet/rural-nz/profitability-and-economics/employment/off-farm-income-theory-and-practice/httoc.htm>.
- Paterson, J. (2000). *The ideology, social organisation and environmental impact of alternative agriculture in advanced capitalist countries*. Paper to the Sociological Association of New Zealand, November 2000.
- Peterson, R. (1999). *Environmental impact assessment of small-scale activities*. Centre for Impact Assessment Research and Training, Dept. of Geography, University of Otago: Dunedin, N.Z.

- Sanson, R., Cook, A. & Fairweather, J. R. (2004) *A study of smallholders and their owners*. Research report. Agriquality Ltd.
- Slyuter, P. (2002). Farm prices levelling, lifestyle blocks surge. *Investigate: New Zealand's current affairs leader*, July, 70-73.
- Swaffield, S & Fairweather, J. R. (1998). In search of arcadia: The persistence of the rural idyll in New Zealand rural subdivisions. *Journal of environmental planning and management*, 41, 1, 111-127.
- Taylor, C. N. & McCrostie-Little, H. (1995). *Means of Survival? A Study of Off-farm Employment* Caxton Press, Christchurch
- Wheen, N. (2002). A history of environmental law. In E. Pawson & T Brooking (Eds.) *Environmental histories of New Zealand* (pp. 261-274). Oxford University Press: South Melbourne, Vic.
- Williams, D. A. R. (1997). *Environmental and resource management law in New Zealand*. Wellington: Butterworths.

Appendix 1

The Questionnaire

DEAR SMALLHOLDER OR FARMER

In 2000 I completed a study of smallholders around Christchurch in order to understand what people experience and value about smallholding. Now I would like to survey a New Zealand-wide sample in order to assess the situation more broadly.

A smallholding is defined as any rural land up to 30 hectares used for any purpose. I want to hear from all types of landowners including lifestylers, smallholders, and farmers/horticulturalists. (If your land is used for some other purpose, please send back the questionnaire anyway with a note to us as to what the land is used for).

This questionnaire is one way to make a record of the present smallholding situation. The questions are not complicated. They ask such things as descriptive information, land use, management, employment and some general information. I think you will find the questions interesting. Any adult member of the household may respond.

We are conducting this survey on behalf of Agriquality (an organisation which certifies production quality and collects data about land use in New Zealand) who have received funding from the Ministry of Agriculture and Forestry. I assure you that answers to the questions in the main questionnaire will remain confidential and the published data will not be able to be linked to any individual. Please note that Agriquality invite you to also fill out their Agribase Farm Registration form, which is included in your envelope. They plan to use the results from their form to improve their database. They need this to help enhance New Zealand's agricultural productivity, to manage rural emergencies and to produce agricultural statistics. Please send the form directly to Agriquality.

We appreciate your time given to this study so we are providing prizes for participants. All respondents to the main questionnaire will go in a draw for a prize (chainsaw valued at \$1,000). In addition, all respondents who fill out the Agribase Farm Registration form will go in a draw for another prize (an electric fence energiser, and vouchers for other goods from any Wrightsons store, to the value of \$1,000).

Please fill out the questionnaire at your earliest convenience and post it to me in the envelope provided (free of charge) as soon as possible. It is important to the success of this research that people respond promptly. This way I can provide an accurate account of the general characteristics of smallholdings in New Zealand.

Thank you for your assistance.

Yours sincerely

John Fairweather (Ph.D.)
(Principal Research Sociologist)

NATIONWIDE SMALLHOLDING SURVEY

November 2003

Instructions: For each question, please select one option and put the corresponding number in the box on the right hand side of the page. In some cases, answer directly in the box or write in the space provided.

4.5.1 A. Background

1. What is the approximate size of your smallholding? (hectares)
2. How many years have you lived on your smallholding?
3. Before buying a smallholding did you or another person in your household have previous farming experience or live on a farm? (1) Yes (2) No
4. How long do you intend to stay on your smallholding? Please specify the approximate number of years. If indefinitely, put 99.
5. Which of the following terms best describes you?
- (1) Lifestyler
(2) Hobby farmer
(3) Smallfarmer
(4) Farmer
(5) Horticulturalist/grower
(6) Other, please specify _____
6. Have you noticed an increase in the frequency of occurrence of native birds on your smallholding in recent years? (1) Yes (2) No (3) Unsure

B. Land and Production

1. What was your land used for **last season**? Please indicate the **approximate land area** involved and the **approximate income** for each of the options listed

Livestock	Stock Nos.	Approx. Land Area Ha	Approx. Gross Annual Income, 2002/03	
			\$	Value of production for own use
Dairy				
Grazing - beef				
Grazing - sheep				
<i>Please note area in tussock or danthonia (whether oversown or not)</i>				
Calf rearing				
Deer				
Goat				
Horses				
Poultry				
Pigs				
Other animals (1) (please specify) (2) (3)				

Plants	Approx. Land Area			Approx. Gross Annual Income, 2002/03	
	Ha	OR	M ²	\$	Value of production for own use
Crops (grain, seed and fodder)					
Flowers – open air					
Glasshouse/greenhouse/tunnelhouse					
Market garden/vegetables					
Fruit (pip, berry, kiwifruit, citrus, etc.)					
Vineyards					
Nursery					
Tree crops (1) (list main species)(2) (3)					
Exotic trees for (1) forestry/firewood (2) (list main species)(3)					
Other plants (1) (please specify) (2) (3)					

Other Land Uses	Approx. Land Area	Approx. Gross Annual Income, 2002/03

	Ha	\$
Tourism		
Mature native bush		
Native scrub and regenerating native bush		
Business activity, not farming, horticulture or tourism		
All other land (e.g., houses, domestic gardens, farm buildings, conservation plantings, shelter belts).		

2. Which of the above land uses are organic? _____

3. If you have cattle and/or deer on your property, are you registered with the Animal Health Board for the purposes of bovine Tb surveillance/testing and official animal identification?

(1) Yes (2) No (3) Don't know

4. If you were purchasing cattle or deer, please indicate if you would do **each** of the following.

(1) Yes (2) No

Check the source herd's Tb status	<input type="checkbox"/>
Determine if or when the animals were last Tb tested	<input type="checkbox"/>
Check whether the source herd was subject to herd or area Tb movement control restrictions	<input type="checkbox"/>

5. Does your household consume any meat products from your smallholding?

(1) Yes* (2) No

* **If yes**, what animals? _____

* **Do you kill** the stock?

(1) Yes (2) No*

* **If no**, who kills the stock?

(1) Abattoir (2) Other person

6. Do you have your own stock pens? (1) Yes (2) No*

* If no, do you have access to a neighbour's stock pens?
 (1) Yes (2) No

7. Do you intend to keep or encourage the growth of native bush on your smallholding?
 (1) Yes (2) No (3) I have no native bush

8. Which, if any, of the following tree species do you intend to plant in the next five years
 (1) Yes (2) No

	Willows	<input type="checkbox"/>
	Poplar	<input type="checkbox"/>
	Eucalypts	<input type="checkbox"/>
	Conifers	<input type="checkbox"/>
	Fruit or nut trees for production	<input type="checkbox"/>
	Landscaping/decorative species	<input type="checkbox"/>
	Other - please specify _____	<input type="checkbox"/>

9. Please compare production levels two years ago, and anticipated production in two years, with current levels. Do you estimate production to be higher, lower or about the same?
 (1) Higher (2) Lower (3) About the same

My production now compared to two years ago is...	<input type="checkbox"/>
Compared to now, my production in two years time will be...	<input type="checkbox"/>

10. What capital investment in production have you made in the last year?
 (1) None (4) \$10,000-19,000
 (2) Up to \$4,999 (5) \$20,000-49,999
 (3) \$5,000-9,999 (6) \$50,000 or more

11. Please indicate whether **each** of the following have been undertaken on your smallholding.

(1) Yes (2) No

Received professional instruction on either the use, storage or disposal of chemicals	<input type="checkbox"/>
Monitored the use of chemicals or fertilisers	<input type="checkbox"/>
Monitored the soil for chemical residues	<input type="checkbox"/>
Monitored water for chemical residues	<input type="checkbox"/>
Adopted practices to avoid or reduce the use of insecticides	<input type="checkbox"/>
Adopted practices to avoid or reduce the use of certain herbicides	<input type="checkbox"/>
Applied manufactured fertiliser to improve the soil	<input type="checkbox"/>
Applied manure to improve the soil	<input type="checkbox"/>
Grown legumes to improve the soil	<input type="checkbox"/>
Adopted practices to encourage natural insect predators	<input type="checkbox"/>
Used animals to manage pest and weed problems	<input type="checkbox"/>

C. Disease, pest and weed management

1. Is disease, pest or weed management undertaken on your smallholding?

(1) Yes (2) No

2. Do you monitor your livestock or crops for diseases, pests or weeds?

(1) Yes (2) No

3. How important to you is it to control new exotic diseases, pests or weeds on your smallholding?

- | | |
|--------------------------|-------------------------|
| (1) Not at all important | (4) Very important |
| (2) Slightly important | (5) Extremely important |
| (3) Moderately important | |

4. How likely do you think it would be for a new exotic disease, pest or weed to occur on your smallholding?

- (1) Very unlikely
- (2) Unlikely
- (3) Neither likely nor unlikely
- (4) Likely
- (5) Very likely

5. How important are each of the following as sources of information about new exotic diseases, pests or weeds?

- (1) Not at all important
- (2) Slightly important
- (3) Moderately important
- (4) Very important
- (5) Extremely important

	Other farmers and growers	<input type="checkbox"/>
	A government agency	<input type="checkbox"/>
	Local supplier or retailer	<input type="checkbox"/>
	A vet	<input type="checkbox"/>
	Private consultant	<input type="checkbox"/>
	The internet	<input type="checkbox"/>
	Own experience	<input type="checkbox"/>
	Other - please specify _____	<input type="checkbox"/>

6. Have you ever had reason to suspect that any new exotic disease, pest or weed has occurred on your smallholding?

- (1) Yes
- (2) No

7. If you have seen or suspected that you had a new exotic disease, pest or weed on your smallholding, what did you do about it?

8. If you thought you had found a new exotic disease, pest or weed would you report it to anybody?

- (1) Yes*
- (2) No

* If yes, to whom would you report it? _____

9. An 0800 number is available for reporting a possible new exotic disease, pest weed. To help us check how many people know this number, please write it down if you know it.

D. General Attitudes

1. In terms of the balance between lifestyle and land use (production), which is **most** important to you?

- (1) Lifestyle (2) Land use (3) Both equally important

2. Which community do you identify **most** with?

- (1) Rural (2) Urban (3) Both equally

3. How satisfied or dissatisfied are you with your smallholding lifestyle now?

- (1) Strongly dissatisfied (4) Satisfied
(2) Dissatisfied (5) Strongly satisfied
(3) Neither dissatisfied or satisfied

4. Do you intend to undertake organic production in the next five years?

- (1) Yes (2) No

5. How important is generating full time employment from your smallholding?

- (1) Not at all important (4) Very important
(2) Slightly important (5) Extremely important
(3) Moderately important

7. We are interested in motivation for smallholding. How important to you is **each** of the following reasons for living on your smallholding?

- | | |
|--------------------------|-------------------------|
| (1) Not at all important | (4) Very important |
| (2) Slightly important | (5) Extremely important |
| (3) Moderately important | |

Rural or country living	
Peace and quiet, tranquillity	
Space, privacy, openness, no close neighbours	
Clean air, no smog	
Safe and healthy place to raise children	
Learn about farming	
Can have animals	
Less pressure, relaxing	
Wanted a larger section than you can get in a city or town	
Place to retire	

8. We are interested in the disadvantages of smallholding. How relevant to you is **each** of the following disadvantages?

- | | |
|-------------------------|------------------------|
| (1) Not at all relevant | (4) Very relevant |
| (2) Slightly relevant | (5) Extremely relevant |
| (3) Moderately relevant | |

Animal manure on the roads	
Land use conflict with established farmers and/or their attitudes to newcomers	
Limited number of local clubs, organisations, sport and/or recreation facilities	
Can't subdivide any further	
Unexpected costs and/or problems with local authorities	
Time required for work, chores and/or property maintenance	
Distance to primary and/or secondary schools	
Lack of services (water/sewerage/refuse)	
Noise and/or undesirable odours from established farmers	

9. Sustainability refers to the mutual achievement of the goals of economic efficiency, environmental quality and social responsibility. Please indicate the level of sustainability of your farming system now and in the future.

- (1) Completely unsustainable
- (2) Unsustainable
- (3) Neither unsustainable nor sustainable
- (4) Sustainable
- (5) Completely sustainable

Now	
In five year's time	
In ten year's time	

10. Please name up to two farming or industry related associations or organisations to which you belong

E. Respondent Characteristics

1. Gender: (1) Male (2) Female

2. Please state your age: (Years)

3. How many **hours per week** on average do the following people work on your property doing either paid or unpaid work?

	Paid	Unpaid
You	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>
Your partner	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>
Other family member	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>
Other people, please specify (1) _____	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>
(2) _____	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>
(3) _____	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>
Contracted management	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>

4. What is the **off-farm employment** status of the following people in your household?
 (1) Full-time (2) Part-time (3) Not employed off-farm

You	
Your partner	
Other family member	
Other people, please specify (1) _____	
please specify (2) _____	
please specify (3) _____	

5. We would like to assess how significant your off-farm income is so we can compare it with on-farm income. Please select the appropriate range for **your** off-farm annual income:

- | | | |
|---------------------|-------------------------|--------------------------|
| (1) Under \$20,000 | (5) \$80,000-99,999 | <input type="checkbox"/> |
| (2) \$20,000-39,999 | (6) \$100,000 and above | |
| (3) \$40,000-59,999 | (7) Not applicable | |
| (4) \$60,000-79,999 | | |
| | | |

6. Please select the appropriate range for the total of **your partner's** off-farm annual income:

- | | | |
|---------------------|-------------------------|--------------------------|
| (1) Under \$20,000 | (5) \$80,000-99,999 | <input type="checkbox"/> |
| (2) \$20,000-39,999 | (6) \$100,000 and above | |
| (3) \$40,000-59,999 | (7) Not applicable | |
| (4) \$60,000-79,999 | | |
| | | |

7. Is the income from your smallholding GST registered?

- (1) Yes* (2) No

***If yes**, is this registration solely for income from your smallholding?

- (1) Yes (2) No

THANK YOU FOR RESPONDING TO OUR QUESTIONNAIRE.