ARGOS

AGRICULTURE RESEARCH GROUP ON SUSTAINABILITY

ARGOS Research Report: Number 09/02

ISSN 1177-7796 (Print)
ISSN 1177-8512 (Online)

New Zealand Farmer and Orchardist Attitude and Opinion Survey 2008:

Characteristics of organic, modified conventional (integrated) and organic management, and of the sheep/beef, horticulture and dairy sectors

John Fairweather[1], Lesley Hunt[1]
Jayson Benge[3], Hugh Campbell[2], Glen Greer[1], Dave Lucock[3],
Jon Manhire[3], Sarah Meadows[2], Henrik Moller[2], Chris Rosin[2],
Caroline Saunders[1], and Yuki Fukuda[2]

July, 2009

The AgriBusiness Group™

Lincoln University
Te Whare Wānaka o Aoraki

University of Otago
Te Whare Wānanga o Otāgo

1. The University of Otago PO Box 56 Dunedin www.argos.org.nz	**2.** Lincoln University PO Box 84 Lincoln, Canterbury www.argos.org.nz	**3.** The AgriBusinessGroup PO Box 4354 Christchurch www.argos.org.nz

Contents

List of Figures

List of Tables

Acknowledgements

This work was funded by the Foundation for Research, Science and Technology (Contract Number AGRB0301). ARGOS also acknowledges financial assistance from: ZESPRI Innovation Company, Fonterra, Merino New Zealand Inc., COKA (Certified Organic Kiwifruit Growers Association) and in-kind support from Te Runanga O Ngāi Tahu.

Dr Andrew Cook (Environment Research) provided expert services in checking and preparing the data and producing the basic appendix tables. Helen Evans, Darfield, provided excellent services for data entry.

Summary

This report presents results from the analysis of three random sample surveys of the sheep/beef (n = 145), horticulture (n = 149) and dairy (n = 168) sectors which included conventional management (n = 200), modified conventional management (integrated management) (n = 122) and organic management (n = 140). Full-time and part-time farmers were included in the analysis while smallholders or lifestylers were excluded. While the average response rate was low at 22 per cent a non-response survey indicated that there was no systematic non-response bias and that the sheep/beef sector response rate could be adjusted upwards to 28 per cent. Most of the questions asked used a seven-point rating scale and the mean score and score distributions were examined. A two-way analysis of variance used the two factors of sector and management system to show main effects (overall effect) and simple effects (management system effects within each sector).

Organic farmers gave less emphasis to yields per hectare, to volume of production and to farm tidiness. They emphasised soil and biodiversity, saw benefits from native and introduced birds, and saw benefits from exotic and native trees and shrubs. They reported stronger links between their farm management and its social and environmental effects, and were neutral about the role of farmers' contribution to climate change unlike those in the other management systems, who disagreed.

Conventional farmers were less customer-oriented, more likely to use proven practices, and reported less strong links between their farm management and its social and environmental effects. Farm environment health was less important, and they had less interest in native and exotic trees and shrubs and native and introduced birds.

Modified conventional farmers gave higher ratings than the other two management system farmers to learning new thing by talking to a wide variety of people, and providing cash financial support for community activities. For fourteen questions they were distinctly in the middle of the other two. Modified conventional management farmers had higher agreement, compared to organic only, that introduced birds cause damage to the farm operation, attached more importance to family needs, and to gross income and working expenses. Compared to conventional farmers they attached more importance to the farm or orchard making a contribution to the local community.

Horticulturalists emphasised yields per hectare and volume of production, were less concerned about the presence of a neat and tidy landscape, rated pesticide use more important than those in the other sectors, monitored their plants, animals and insects, and were the most customer oriented. They were not so keen on native or introduced birds, nor on native or exotic trees and shrubs. There was less family involvement in orcharding, they gave less financial support to the community, and they tended to be younger than those in the other sectors.

Sheep/beef farmers were the least concerned about quality and quantity of production, pesticide use, nutrient budgeting and energy use and were more experimental. They placed a greater importance on biodiversity of species including both native and other birds. They were least concerned about their neighbours' approval and were more involved in festivals and shows. They were least satisfied with their level of financial viability.

Dairy farmers placed the most importance on minimising weeds, having a tidy and well-maintained farm, and future generations/succession. They were the most satisfied with their current level of economic viability but at the same time reported the greatest level of debt as a percentage of equity.

Meta-analysis of the results shows that:

- Organic management was the most distinctive, driving most of the management system main effects documented.
- Modified conventional management had few differences from conventional or organic management.
- The horticultural sector was the most distinctive, driving more of the sector effects documented.
- The dairy sector had the least number of differences from the other sectors.
- Management system main effects were driven by the sheep/beef sector but horticulture was also a major driver.
- Sector main effects were driven by conventional management.
- The evidence does not support the hypothesis that management system effects are greatest in the more intensive sectors (dairy and horticulture).

Chapter 1
Introduction: Objectives, Method and Design

1.1 Background

The core of the ARGOS research design is a longitudinal panel study of New Zealand farms (including orchards in the case of the kiwifruit sector). Panels of 12 farms were selected to represent conventional, integrated and organic management for the sheep/beef sector, Kiwigreen, gold and organic green management for the kiwifruit sector, and conventional and organic management for the dairy sector. The research involves gathering data on these farms in order to assess the nature and effects of production from these different management systems from environmental, economic and social points of view. The design rests on testing the null hypothesis that there is no difference in the measurable effects of the different management systems and in the derivative hypothesis that differences due to management systems are greater in the more intensive sectors. Farms in the panels were selected to be generally typical of their sectors in terms of obvious characteristics such as size[1], level of production etc. Farms from a range of geographies and with different levels of intensity of production were chosen in order to achieve results that would be applicable to a broad range of farms.

A survey in 2005 provided the means to examine general farmer attitudes and practices and to assess what differences may occur in the different sectors and for farms under different management systems (Fairweather et al., 2007a). It also provided the means to show that the panels were reasonably representative of the sectors to which they belong (Fairweather et al., 2007b).

The ARGOS research design included a second survey in 2008 in order to test and elaborate on emerging research results. This report is the first presentation of the 2008 results.

1.2 Research Aim and Objectives

The questions asked of farmers were sourced from contributions from the team of ARGOS researchers drawing on results and issues in the literature, and from contemporary farming issues. These sources provided too many questions for one questionnaire. Accordingly, two questionnaires were used, one sent to a simple random sample of all New Zealand farmers and the other sent to separate random samples of each of the main farming sectors, namely sheep/beef, dairy and horticulture.

The two surveys generated a large data set. In order to make the results easier to comprehend we have presented them in two separate outputs, as follows:

1. Analysis of the three main sectors (sheep/beef, dairy and horticulture) and the three main management systems (conventional, integrated and organic) (this report).
2. Analysis of agriculture generally (see companion report).

[1] The size of farms was limited by the need to match non-organic farms with the available organic farms and in some cases organic farms were smaller than the industry average.

The specific research objective addressed in this report was to assess how farmers using the three main management systems available to them (conventional, modified conventional or integrated management, and organic) in the three main sectors responded to a number of important issues emerging from our research to date. Since this survey was designed to compare management systems within and across sectors, it was necessary to include registered organic farmers in the samples.

The questionnaire was structured as follows. Two short and direct questions asked the farmers to identify the management systems they used and their intentions to use different management systems in future. These two questions were also asked of the random sample thus allowing for some comparisons between this sector-based study and the study based on the simple random sample of all New Zealand farmers. Then the questionnaire spanned a number of pertinent issues, including the importance of indicators of financial, production, environmental and social performance, and sought responses on approach to farm management, connections, community participation, farming factors, emissions trading, bird diversity and farm management, and the role of trees and shrubs on farms.

The intent of this report is to provide a preliminary descriptive analysis of the results focusing on sectoral and management systems comparisons. More detailed analysis of the data will follow this report by focusing on subsets of data and subjecting them to more rigorous analysis. However, even with this preliminary focus on sectors and management systems it is possible to address some important more general questions. First, it will be possible to assess the relative importance of the various topics to farmers in New Zealand. Most of the questions asked for a response in terms of importance and the overall results for each question set can be compared to show, for example, the relative importance to farmers of economic, environmental and social indicators. Second, the results from each question set can be compared to see if there are any general patterns. For example, if it is found in one question set that organic farming is distinctive, does this occur in other questions, and, if so, what does this tell us about organic farming? Third, within each question set, if there are complex interaction effects then the results can be examined to identify any patterns that may occur in order to highlight what is accounting for the variations in results. For example, it may be that one sector or one management system has unusual properties in the context of that question and these properties go some way to explain the pattern of results. This can indicate if there are any distinctive properties attached to a sector or a management system. Addressing these last two questions can contribute to the ongoing ARGOS goals of refining our understanding of the nature of sectors and management systems in New Zealand agriculture. One of these broader goals is to advance our knowledge of the level of intensification in the sheep/beef, dairy and horticultural sectors. This is being pursued by way of the hypothesis that as intensity of production increases the management system effects, or the differences between the management systems, will increase.

1.3 Sample design

A simple random sample of farms in each of the sheep/beef, dairy and horticultural sectors was purchased from AsureQuality (formerly AgriQuality). Each separate sample included 666 farms. AsureQuality data on farms in New Zealand has been improving over time and appears to be comprehensive, as indicated in Table 1 which shows AsureQuality data on farm types compared to other available sources. As noted below, the AsureQuality list includes smallholdings with some production and since some of these are unlikely to be registered for GST, we would expect that their total number would be higher than that for Statistics New Zealand which is based on GST-registered farms only.

Table 1: Numbers of farms by farm type for different data sources

Source	AsureQuality	Statistics NZ (GST only)	Statistics NZ (GST only)	Valuation NZ
Year	**2007**	**2007**	**2002**	**2005**
Horticulture	6,952	10,579	12,750	12,082
Dairy	12,188	17,377	14,000	25,975
Sheep/beef	44,240	28,291	34,130	56,931
Total	63,380	56,247	60,880	94,988

AsureQuality classify farms into types as shown in Table 2. The sheep/beef farms comprised a variety of activities, as did the horticultural farms. The arable and specialist livestock, categories were excluded, as were 'other', forestry and smallholders. The total number of sheep/beef, dairy and horticultural farms at 63,380 is 96% of the total number of farms (66,177).

Table 2: Numbers of farms in each of the AsureQuality farm type classifications

Farm Type	Code	Description	Number	Totals
Sheep/beef	GRA	Grazing other peoples stock	4,280	
	SHP	Sheep farming	8,286	
	DRY	Dairy dry stock	1,422	
	SNB	Mixed Sheep and Beef farming	11,878	
	BEF	Beef cattle farming	16,014	
	DEE	Deer farming	2360	44,240
Dairy	DAI	Dairy cattle farming	12,188	12,188
Horticulture	NUR	Plant Nurseries	387	
	FLO	Flowers	388	
	VIT	Viticulture, grape growing and wine	748	
	VEG	Vegetable growing	814	
	FRU	Fruit growing	4,615	6,952
			Subtotal	**63,380**
Arable	ARA	Arable cropping or seed production	1,567	1,567
Specialist Livestock	EMU	Emu bird farming	34	
	OST	Ostrich bird farming	42	
	ALA	Alpaca and/or Llama Breeding	144	
	PIG	Pig farming	272	
	GOA	Goat farming	275	
	POU	Poultry farming	463	1,230
			Subtotal	**2,797**
			Total	**66,177**
Other		Horses, bees, dogs, fish, tourism etc.	6,625	
Forestry	FOR	Forestry	3,737	
Smallholders	LIF	Lifestyle block	28,109	

During pre-testing it became apparent that some of the pastoral farms around Christchurch were about five to ten hectares in size and with minimal production per year, valued at around $2,000. AsureQuality classifies such smallholdings as pastoral farms. Since our objective was to survey full and part-time farmers only, we would need to exclude smallholdings from the responses received. Smallholdings can be distinguished by their responses to a background question on annual gross revenue and to a direct question about the status of their farm.

In addition to the random sample for each sector, questionnaires were sent to all registered organic farmers. For BioGro there were 368 unique farm registrations, and for AsureQuality there were 243 unique registrations.

All ARGOS sheep/beef, dairy and kiwifruit farmers were sent a questionnaire, amounting to an additional 89 cases. In total, 2,683 questionnaires were posted out.

1.4 Questionnaire development and survey procedure

Most of the questions asked respondents to put a number in a box while a few questions asked for a tick in the box. A variety of scales were used but the most frequent ones were level of importance and level of agreement. The other scales were tailored to the particular question, for example, asking for level of satisfaction or for strength of intention.

Questions were asked in a consistent, clear, and concise fashion. The questions were framed to present both extremes of the scale. For example, in asking about level of agreement, the question was worded: How much do you agree or disagree with the topic. For some questions it was necessary to include “not applicable”. For example, for the question asking about the social performance of the farm or orchard when asking if farm/orchard workers are treated well, if there were no employees it would make sense to rate this question as very unimportant but this would not necessarily mean that this was literally the case. Further, in questions with a range of options to rate on a scale, the options were ordered carefully to avoid presenting any pattern in the options, and, where possible, the options were couched in positive and negative terms in order to avoid any consistent patterns of agreement or disagreement. The questionnaire is included in Appendix 2.

Pre-testing occurred early on during the period of questionnaire development by asking AERU researchers with farm connections to go through the questionnaires and by asking some members of their families to comment on it. This resulted in major revisions to the way questions were asked. At the final stage of questionnaire development a more formal process engaged the assistance of two farm couples and five individual farmers, a total of nine people, who either did the questionnaire or read through the questionnaire and then reported on any questions or words that were difficult to understand. While the general structure of the questionnaire stood up to this final pre-testing very well, minor changes were made to the questions to better reflect how these farmers found the questions. One important change was to the wording for integrated management. Few farmers understood this concept so it was reworded as ‘modified conventional’ farming.

Before sending out questionnaires, each random sample list was checked to remove any pre-test farmers and any registered organic farmer. (This was not so easy for the AsureQuality list since it did not use surnames but business names.) The Excel function COUNTIF proved useful for searching for surnames from one list across all the rows of another list. In addition, all ARGOS farmers were removed from the lists of registered organic farmers.

All questionnaires were numbered and printed on different coloured paper according for each sector in order to ease the tracking of replies and collating. The questionnaires were posted out from 25-27 August 2008.

A covering letter was included with all questionnaires along with a freepost return envelope. Also include was a brochure with information about a carbon credit calculator. This simply mentioned a link to a website where farmers could calculate carbon credits. All registered organic farmers received an additional letter from their certifying organisation endorsing the survey. ARGOS farmers received a letter from their field manager.

Each of the three sector samples were divided so that some farmers received a chocolate as an acknowledgement of their time in filling out the questionnaire.

On Tuesday 7 October a reminder post card was posted to all farmers who had not responded at that point in time. The net effect of this was to stimulate responses from an additional three per cent of farmers.

1.5 Response rates and non-respondent survey

The response rates from the farmers are shown in Table 3. The response rates for each of the sectors range from 21 to 24 per cent, giving an average response rate of 22 per cent. This is lower than usual when compared with the 32 per cent averaged response rate obtained in 2005. The response rates from the registered organic farmers were higher than the other farmers at 36 and 40 per cent but were lower than the rates obtained in 2005.

Table 3: Response for each sector and for registered organic farmers

	2008	Average	2005
Pastoral	23.6		
Horticulture	21.1	22	32
Dairy	22.1		
BioGro	39.7		
AsureQuality	36.4	38	53

A significant factor explaining the low response rate was the timing of the questionnaire mail out. Late August is a very busy time for all farmers and horticulturalists. It is likely that the increased workload of farmers at that time meant that, even if they were favourably disposed to filling out the questionnaire, they would not have time to do so. While the questionnaire could have been posted earlier, we delayed posting because the weather conditions in late winter were particularly bad. For a number of weeks a large proportion of farmers in both islands experienced extremes of weather, including serious flooding and its attendant damage to farm infrastructure, particularly fences. The weather was sufficiently bad that there was considerable coverage on national television prime-time news. Sending out a questionnaire when farmers were reacting to severe damage would have been insensitive and would have increased the probability of the questionnaire being ignored. Another factor relating to response rate is long-term trend of declining response rates in general and for farmers in particular. For AERU farms surveys the response rate has declined from over 60 per cent in 1980s to around 30 per cent or lower since 2000, consistent with reports of declining survey response rates (e.g., Connelly, Brown and Decker., 2003; Curtin, Presser and Singer, 2005).

The low response rate means that while the original samples were a good size (666 in each sector) the respondent sample, defined as the number of respondents who actually respond to the questionnaire, was reduced in size. This reduction was exacerbated by inadequacies in the samples provided. Many questionnaires were returned as ‘gone no address’ or ‘incomplete address’. In addition, there were people who received the questionnaire but the questionnaire was not applicable because they were no longer farming. In some cases, the farmer had died and his widow returned the uncompleted questionnaire. The total number of cases where the questionnaire was returned for any one of the reasons noted above was 92 in the pastoral sector, 161 in the horticultural sector and 62 in the dairy sector. All these postal errors were noted and the lists were modified accordingly. These corrected lists were

used for the post card reminder but again there were postal errors. Across all sectors there were an additional 68 gone no addresses identified, plus 19 cases where the farmer was no longer farming and five cases where the farmers said they did not receive the original questionnaire. All these, except the five just mentioned, were removed from the revised list of farmers thereby reducing the original sample size.

The low response rate raises a question about the quality of the respondent sample. The assumption of sampling is that the sample represents the population from which it derives. If the sample is sound then good representation occurs when all people in the sample respond to the questionnaire. Postal surveys do not gain a response from each person sampled. For the respondent sample to adequately represent the population it must have the same characteristics as the whole sample. This means that the respondent sample and the non-respondent sample must have the same characteristics. Non-response bias occurs if the characteristics of the non-respondent sample differ from the respondent sample on the measures of interest. Note that low response rates in themselves do not necessarily mean that a non-response bias occurs

A number of considerations apply to the issue of non-response bias and these show that there are some conditions which have to be met before it can occur. First, what we are looking for in any assessment of non-response bias is a systematic pattern among the non responders in the way they would have answered a question or questions. Such differences must be patterned in order to contribute systematically to non-respondent bias, otherwise the effect of any bias is mitigated and the variety of opinions in the non-respondent sample is as varied as those of the respondent sample. Second, for non-response bias to occur the non respondent has to interpret what the questionnaire is focused on in order to make a decision to not respond. Two issues are relevant here. First, non-response bias is more likely to occur when the questionnaire is a poll about a specific issue. Such issues can be controversial and potential respondents may have strong reasons to participate or not participate. For example, in assessing opinion about environmental management it could be expected that farmers not caring for their environment would be less likely to respond to the questionnaire for fear of showing themselves in a bad light, or at the least, in a mode of thinking that does not fit the common view at that point in time. If this were to occur the characteristics of the respondents on the topic of interest would be different from the non respondents, and the sample would not be properly representing the population. The questionnaire in this survey asked a broad range of questions rather than being focused on a single issue so this process was unlikely to occur. Second, a potential non respondent may decide not to participate if the questions do not allow for their opinion. The questionnaire was designed to allow for wide variety in respondent opinion. In fact, In this regard, some questions designed for diversity were commented upon by some farmers as ‘stupid’ thereby indicating that the questionnaire was broadly framed and well designed for diversity of opinion.

To address whether non-response bias occurred for this survey a supplementary non-respondent survey was conducted. The budget for the non-respondent survey was approximately $1,000 for 100 cases. For this cost, surveying all three sectors would have meant that each sector had 33 cases. However, a Chi-square test of goodness of fit for a variable with three categories would require six cells (three for the respondent sample and three for the non-respondent sample) with at least five cases or 35 cases. Since some cells would have more than five cases, the 33 cases for test validity available with this design would not be sufficient to run the test. To achieve better statistical testing we selected the pastoral sector only and assumed that the non-respondent characteristics of each sector were similar.

A total of 100 randomly-selected non respondents for the pastoral sector were telephoned to ask if they had received the questionnaire and, if they had, why they had not responded. In addition, they were asked one substantive question from the questionnaire that did not have a

seven-point scale (Do you encourage birds?) and some demographic information (gender, education, age, farm status – full time, part time or lifestyle) was recorded. The overall results of the non-respondent survey are shown in Table 4. Forty per cent stated, even after being reminded about the particular characteristics of the survey and, where possible, checking with their spouses, that they did not receive the questionnaire. Assuming that a questionnaire did make it to the farm household, these farmers did not find the questionnaire topic or questions memorable and if this was the case it seems unlikely that they had strong or uncharacteristic views about the questions asked. Against this view is the possibility that this group, distinguished by not recalling the questionnaire, are sufficiently distinctive that they would have different views on the questions asked. We do not know if this is the case, and it seems unlikely that such distinctiveness would translate into a different pattern across the variety of questions asked. Thirty one per cent of no respondents said that they did not complete the questionnaire and this is consistent with our contention that the timing was an important factor in explaining the low response rate. Of the remainder, six per cent of non respondents said that they never respond to surveys. While these people may have distinctive characteristics is seems unlikely that these would be germane to the topics of our questionnaire since their position is to not respond to any questionnaires. A further 16 per cent had good reasons not to respond since they were no longer farming or were away at the time the questionnaire was delivered. Finally, a small proportion stated that they had returned the questionnaire. We have no way of checking whether this is a rationalisation for not having responded or whether in fact the mail system failed to deliver the mail back to Lincoln University.

Table 4: Non-respondent survey results

Response	No. and %
Did not receive questionnaire so no explanation for non-response given	40
Meant to or too busy or too difficult/incomplete	31
Do not respond to surveys, threw it out	6
Not relevant, farm leased	9
Away	7
Returned or may have returned	7
Total	100

The data in the table can be used to make an adjustment to the response rate for the sheep/beef sector. Since there were 16 per cent of non respondents who were no longer farming or were away at the time the questionnaire was delivered, the corresponding number can be deducted from the total number of actual farms and this brings the response rate up to 28 per cent. This adjustment might apply to the other sectors but we do not know if the they have the same characteristics in this regard. We know from the results of the initial mail out that the questionnaire was not returned for similar reasons for the following number of cases: 92 in the pastoral sector, 161 in the horticultural sector and 62 in the dairy sector. It seems reasonable to estimate that a similar level of adjustment to the response rates in the horticulture and dairy sectors could be made. The consideration to these adjustments serves to indicate that the quality of the original list was not ideal. It is always a problem to keep lists up to date. Perhaps the decline in response rate over time is in part a product of declining quality in the list of farm owners. Quality of list would be hard to maintain if the level of turnover in properties is high, and it this would appear to be the case in recent years.

Overall, there is little evidence of non respondents saying that the topics of the questionnaire itself were specifically a factor in the decision not to respond. Amongst the other insights gleaned during the non-respondent interviewing was that the questionnaire was perceived to be difficult to respond to and needed to be presented in a more user friendly and interesting way. Some non respondents noted that they receive a number of questionnaires competing for their time and attention. We can confirm this because during the surveying, we received

two questionnaires from other researchers which respondents had mistakenly put into our return envelope.

Moving on to the other questions asked, the farm status, education and age variables of the non respondents were not significantly different from the respondents as indicated by chi-square tests. There were statistically significant differences for gender and answers to the question about encouraging birds. For the non respondents, 46 per cent were women compared to 16 per cent for the respondents and 78 per cent said that they did encourage birds compared to 57 per cent for the respondents. One possibility for the higher proportion who encourage birds would be that women have a greater tendency to encourage birds.

That there were more women as non respondents can be explained by the fact that the non-respondent survey was by telephone. The probability of reaching the farm woman would be higher than reaching the farm man if we assume that farm men spend more time out on the farm rather than in the house. About one quarter of all non-respondent calls were made in the evening with the rest being made during the day, mainly at mealtimes. Since it is possible that women encourage birds more than men, that this would explain the different response to the birds question, however analysis of the survey data for each sector do not confirm this relationship.

Overall then there is little evidence that there was systematic non-response bias.

The fact that 15 per cent of survey respondents were women, or that 85 per were men, is generally consistent with the characteristics of the address list of the samples. The sample of farmers in each sector included some addresses which included both the farm man and woman, presumably reflecting the preference of the farm couple when they provided their address details to AsureQuality. For the sheep/beef sector there were 23 per cent of all addresses with the initials for the farm man and farm woman together, and for horticulture it was 25 per cent and for dairy it was 35 per cent. If we assume that that the address for just one person is for a man, then the balance of the addresses to men runs at between 65 to 77 per cent. These proportions are close to the actual overall proportion of replies from men at 85 per cent.

1.6 Sample representativeness

In previous AERU farm surveys, we have found that when the sample is compared to known characteristics of the farm population, preferably taken from the same source as the sample, the sample gives a good match on many farm characteristics. In some cases the match is not perfect and where there is some deviation, typically on farm size, it is because more full-time farmers tend to respond to the questionnaire. We accept that a questionnaire seeking details about current farming would not appeal to small-scale or lifestyle farmers who have a greater preoccupation with other activities. Our policy was to remove the lifestyle farmers from the respondent sample in order to focus on commercial farmers, that is, they were included in the post out sample and subsequently removed because until they answered the questionnaire we had no way of determining who were or were not lifestyle farmers. Accordingly, the sample of farmers who responded to the questionnaire is ‘biased’ towards full-time farmers but for good reasons. Table 5 shows the average size of farms in the complete random sample compared to the average for the sample for those who responded. The data show that the farm sizes for the actual sample are much larger than the full sample, consistent with our policy of removing lifestyle farmers.

Table 5: Average farm size (ha) by sector for the complete sample and the respondent sample

Farm type	Total sample	Respondent sample
Sheep/beef	293	532
Dairy	149	208
Horticulture	16	28

1.7 Data checking and adjustments to the samples

The question on farm types was used to check on the classification of farmers as supplied by AsureQuality. In some cases the respondent used a different classification and this is to be expected since farmers can change land uses. A few cases reported that they were specialised livestock and these were removed from the database. Some farmers originally classified as dairy farmers gave a land use description which showed that dairy farming was a small part of their overall pastoral activity and they were moved to the sheep/beef category. Some respondents classified themselves as half in one type and half in another. In such cases, the responses to other questions were used to find clues as to the nature of their operation. If, for example, they had a large dairy herd but also some cropping they were included as dairy farmers. Some large horticultural properties in the North Island classified themselves as cropping and these were included in the horticultural sector.

The last question in the questionnaire asked about the status of the farm in terms of full-time, part-time or lifestyle. The demographic data were analysed in terms of this variable and this analysis showed that the lifestyle farmers had a number of statistically significant differences compared to the full and part-time farmers. For this reason, all lifestyle farmers were removed from the database. This policy further reduced the size of the usable samples but improved the quality of the data.

1.8 Statistical analysis and rating scale

Most of the survey data consists of responses on a seven-point Likert scale. The analysis of such ordinal data is contested and there are competing views about the appropriateness or not of using statistical techniques which typically assume that the data have interval or ratio characteristics. In this section we review the strengths and weaknesses of different approaches and make the case that our chosen method, analysis of variance, while perhaps not ideally suited to the type of data in the survey, is the best method overall in allowing us to efficiently compare sectors and management systems.

With a Likert scale, it cannot be assumed that the distance between two adjacent elements of the scale is the same along the whole scale. In other words, the distance between a neutral response, say ‘4’ on a seven-point scale, and a ‘5’ (almost important), may or may not be the same as the distance between a ‘1’ (not at all important) and a ‘2’ (not very important), etc. Technically then, Likert data are ordinal but not ratio or interval data. However, the most popular method of analysis in the social sciences is to use parametric methods (Liao, 2004: 97) which assume and treat Likert data as interval or ratio measurements. In fact some basic social science research methods texts do not even acknowledge this as an issue (e.g., de Vaus, 1995; Rountree, 2000; Monette et al., 1994) and present only parametric methods for data analysis. Others would disagree with this practice and expect non-parametric methods to be used. In particular, agricultural scientists, used to statistically designed and controlled experiments producing data that applies to some measurable physical attribute, could prefer to use non-parametric methods in this situation.

Three assumptions are made in using parametric methods based on the analysis of variance. These are (1) that the data are drawn from a normally distributed population, (2) the populations have the same variance and (3) at least interval-level data have been used. However, analysis of variance is regarded as robust and presumed to work reasonably well even when these assumptions are not met, particularly for sample sizes of 20 or more (Manly, 2005: 36; Foster, 2006: 214). However, our data produced some particularly skewed distributions and some were bi-modal, so to test the use of parametric methods we also carried out non-parametric tests to check the validity of our results (see next paragraphs). Further, as our results indicate, the application of parametric methods to ordinal data can produce results that work in the sense of leading to interpretations that fit with current understandings of the phenomena in question.

In this survey we have chosen to deploy a seven-point scale, rather than a five-point scale as in previous surveys, as a way of increasing the range of data and hence its greater likelihood of approximating a normal distribution. We have decided on a parametric analysis using a two-way analysis of variance with the two factors 'sector' and 'management system' to get some idea of how the survey responses differ across sectors and across management systems and whether there is an interaction between the two. This analysis also allows for comparisons between management systems within each sector, and between sectors within each management system. Such an analysis has maximum power because it uses all the available data and hence the variance or residual mean square used for the means comparisons has the maximum degrees of freedom[2]. Furthermore, the data are not simplified in any way before the analysis is carried out. Thus when using analysis of variance for each variable or response in the questionnaire, 24 comparisons or differences are explored to see if they are significant at the five percent level. This of course, leads to a very high chance of Type 1 errors – deciding that a result is significant when really it is one of the one in twenty that will have naturally occurred by chance. For this reason we have paid more attention to consistent patterns that we see occurring across the analyses rather than a random significant result that we cannot account for in the same way.

While the use of analysis of variance for ordinal data may not be perfect the alternatives do not provide a ready solution and have their own drawbacks. The other obvious method of comparison/analysis is to use the non-parametric Kruskal-Wallis test which is only available in a one-way form and so could only be used with one factor at a time. Non-parametric methods are 'distribution free' and carry out an ordering or ranking of the whole data set and then an analysis of that ranking, testing the difference in medians rather than means. This would tell us simply that there is a difference between the levels of a factor but not which levels. In order to find which levels are different Mann-Whitney U Tests (equivalent to Kruskal-Wallis tests with only two levels) would need to be performed. This reduces the amount of data used in each analysis. For example, a comparison between the sheep/beef and horticulture sectors would not use the dairy sector data, or a comparison between the management systems within the sheep/beef sector would only use the sheep/beef sector data. This in itself reduces the power of the analysis. Also the data are simplified into rankings before the analysis so data loses some of its meaning as a score and a mean ranking provides a different meaning and cannot be given the same sense as a mean score. Furthermore, because such analysis can only use one factor it cannot measure if there is an interaction between the two factors of interest.

[2] This carries with it the assumption that the variation in the data is similar across sectors and management systems. There is no obvious reason why this should not be so for most parts of the survey except something like farm size, where it would be expected that horticultural properties would be likely to be the smallest, followed by dairy farms followed by the more extensive sheep/beef farms. Hence, an analysis which included all the data would be likely to be dominated by the higher variability of the sheep/beef properties and this would overwhelm the horticultural comparisons. For this reason we have kept these analyses separate to each sector.

Further, these non-parametric tests tend to have less power than parametric tests (Black, 2004) – that is they are less likely to pick up a difference (Type 2 error – accepting a null hypothesis that is false), but that means there is less chance of making a Type 1 error (rejecting a null hypothesis that is true). Further, an important practical disadvantage of using non parametric methods in the analysis of this survey is that it would involve doing 24 separate analyses compared to the one analysis of variance required using parametric methods (and 14 pages of output compared with two).

A final consideration relates to the nature of the data. Some of the distributions of these survey results are bi-modal, reflecting a disagreement in the sampled populations between those who are strongly against something and those who either feel neutral or are strongly 'for' it. Neither parametric nor non parametric approaches are able to take account of such a distribution. By ordering the data, a non-parametric test glosses over the bi-modal nature of the distribution and a parametric test cannot account for it but the analysis results in a greater variability, hence making the picking up of a difference less likely. An alternative in this situation is to do a Chi-squared test on the cross tabulated data. This however, would need to be interpreted a little differently as it shows whether there is a relationship between the two variables not whether there is a difference in the means. It is often limited by cell numbers being too small to produce a valid test.

As discussed earlier, there is a concern that with some of the non-normal ways in which the data was distributed, and with the differing variations within sectors and management systems, the parametric method used for analysis (two-way anova) would not produce accurate, robust results. In order to see it this concern is well founded, a non-parametric method (Kruskal-Wallis) was used to test the main effects by sector and by management system for variables that had unusual distributions. Seventeen variables with bi-modal distributions were analysed and the statistical results compared for both the Kruskal-Wallis and anova overall main effects. There was full agreement between both methods for both sector and management system combined main effects. Eight variables had very skewed distributions and for these there was almost full agreement for both methods across sector and management system comparisons but one had a p-value of 0.014 in the anova for the sector effect and 0.052 in the Kruskal-Wallis Test. There was full agreement between both methods for the three variables with 'ordinary' normal type distributions that were chosen. (Very few variables had this kind of distribution.) Six variables were chosen that had shown up as having a significant interaction between sector and management system, and the main effects for sector comparisons were in agreement with both methods, but one was different for the management system comparisons ($p = 0.105$ in the anova and 0.023 in the Kruskal-Wallis). Therefore, two of the 68 (3%) of the Kruskal-Wallis tests carried out did not agree with the results acquired using the parametric anova. This is well inside the disagreement one could have expected by chance, using a five percent level for comparison. It demonstrates the robustness of the anova method even when data are not normally distributed.

On balance then while the application of analysis of variance to Likert data is not ideal it is the best of the available approaches. It provides an efficient way of testing for the statistical difference in mean scores in the context of examining sector and management system effects.

The analysis of the questionnaire data used analysis of variance with the two factors as sector and management system. To make this clear Table 6 shows the basic layout of data used for the analysis and presented in the appendix tables. The table includes the mean score for each of conventional, modified conventional management and organic management respectively within the sheep/beef, horticulture and dairy sectors respectively. These are the results represented by the letters G to O. At the bottom of the table are overall averages or the main effects for each management system (A, B and C), and at the bottom of each sector are the overall averages or the main effects for the sector (D, E and F).

Analysis of variance includes main effects and simple effects. The main effects relate to the overall effects relating to management system overall and sector overall. The main effects are shown in the locations represented by A to F. The simple effects relate to the specific management system results within each sector and these occur for management system and for sector. The simple effects are shown by the locations represented by G to O. Where the analysis found a statistically significant difference these are shown with a superscript. In the appendix tables all the statistical differences are reported using superscript notation where letters are used for management system effects and numbers are used for sector effects. We have adopted the policy of assigning the first number or letter to the highest mean score.

There can be different patterns of results when the main effects and the simple effects are considered with greater or lesser degree of similarity between them. We have labelled these full effects and partial effects. In addition there are interaction effects.

Table 6: Basic structure of the data analysis

SHEEP/BEEF		
Conventional		G
Modified		H
Organic		I
Sector avg.		**D**
HORTICULTURE		
Conventional		J
Modified		K
Organic		L
Sector avg.		**E**
DAIRY		
Conventional		M
Modified		N
Organic		O
Sector avg.		**F**
CV avg.	**A**	
Mod avg.	**B**	
Org avg.	**C**	

Full effects. These occur when the management system main effects and the simple effects correspond in which case the pattern for A, B and C is repeated across G to I, J to L, and M to O. Similarly, the sector main effects and simple effects can correspond in which case the pattern for D, E and F is repeated across G, J and M, H, K and N, and I, L and O. Where the main effects and simple effects correspond the results are relatively straightforward and strong and we have labelled these as 'full' effects. In a few cases the simple effects almost fully correspond to the main effects but there is one mean that does not have a significant difference but follow the overall pattern. In such cases we have included these as full effects. Full effects were less frequent but they are unquestionably important.

Partial effects. Correspondence between the full and simple effects does not always happen. More likely is a partial result in which the main effects and the simple effects partly correspond. There are two forms of partial effects. First, there can be a main effect which is

partly repeated within the table. For example, it may be that the management system main effect is replicated exactly in one sector and this sector result is contributing mostly to the main effect. Second, there can be a main effect and no simple effects at all, indicating that while the findings were not strong enough to show up with a statistically significant difference within sectors or management systems they did show up in the aggregate analysis as a result of it having greater power.

Interaction effects. These occur when the combined effect of each independent variable (management system or sector) is different from each alone. This combined effect can be additive or synergistic, meaning that they work together to increase the score on the dependent variable (the questionnaire item being measured) in question, or they can be non-additive or moderating meaning that they work together to lessen the score on the dependent variable in question. In the latter case the pattern is the opposite of the main effect and the main effect means are weakened in some cases to the extent that they may not show any statistically significant difference. With interaction effects care is needed to carefully inspect the results to determine what is contributing to the patterns observed.

Conventionally, in the statistical analysis of data structured in the way described above, the focus is on the main effects of the sectors (in this case the overall means for each sector (three means) and each management system (three means)) and the 'simple' effects (the means for each management system within each sector) are ignored unless there is a significant interaction. We have followed this precedent and focus attention on the main effects with the qualifier below. Where an interaction effect occurs we have focused on the simple effects. In cases where there are just simple effects we have given less attention since they are highly particular.

It is necessary to note an important qualification to the analysis of the data in this study. In a strict statistical design for which this type of analysis was intended, the levels of the factors should be consistent across the whole 'experiment'. In this case the levels of the factor 'sector' are sheep/beef, dairy and horticulture, while the levels of the management system are 'conventional', 'modified conventional' and 'organic'. The question is whether we can make the assumption that the organic management system on a sheep/beef farm, a dairy farm or an orchard is the same system in each case. A similar question can be asked about conventional management or modified conventional management. The comparability of conventional management is more of an issue for kiwifruit since all kiwifruit is grown under an audited system and must comply with GlobalGAP requirements which have incorporated KiwiGreen, an integrated management system, along with many other requirements for input supply sources, and environmental and social practices. In order to demonstrate these situations where they occur in the data, in the following tables we report the 'simple' effects, as often these show a different pattern from the main effects, even though there is no significant interaction present. These simple effects often can be seen as indicative of the differences that could be interpreted as exemplifying the difference between these management systems across the sectors. In other words there are effects that do not relate solely to the sector or management system but to the relationship between them.

By presenting the appendix data showing all the statistically significant differences we are not suggesting that these differences are necessarily significant or important. Such distinctions rest on the interpretation of the data. Throughout the following chapter we report the results of the analyses and describe the statistically significant differences found since that is necessary in terms of the analysis of variance approach we have used. In some cases the results show a statistically significant difference but in reality the difference may be small and it would be a mistake to over emphasise such a result. In some cases the importance of the results may rest on the fact that there is no statistically significant difference.

Most questions used a seven-point rating scale asking about the importance of the topic. In the questionnaire the negative end of the scale was anchored by ‘very unimportant’ and the positive end was anchored by ‘very important’ while the other points were implied to range between the extremes. In interpreting the results it is necessary to label the intermediate steps in the range. The following scale definitions were used.

1	2	3	4	5	6	7
Very unimportant	Unimportant	Somewhat unimportant	Neutral	Somewhat important	Important	Very important

We acknowledge that since the questionnaire did not use these intermediate labels we cannot state with complete confidence that these labels correspond exactly to what the individual respondents thought. However they do represent commonsense labels which can be taken to reasonably represent the group of people who used that number on the scale.

Chapter 2
Results

2.1 Introduction

This chapter presents a combined analysis of the similarities and differences for each of the sectors studied (sheep/beef, dairy and horticulture), and for the effects, if any, of the management system (conventional, integrated or modified conventional management and organic). Note that the presentation of the farm sector data includes the organic farmers and this means that for each sector the samples include relatively more organic farmers than would otherwise be included in a random sample (recall that the whole list of registered organic farmers was surveyed). Accordingly, the data presented here do not purport to indicate what is happening for agriculture in New Zealand as a whole. Each table in the text below summarises the results for each particular question and reports overall means in order to assess the relative importance of each item before going further into the data and examining sector or management system effects. This overall mean does not give a reasonable indication of what farmers, overall, in New Zealand would give as a mean for a response to the question. Readers interested in such extrapolations need to pay attention to the means for each management system within each sector, bearing in mind that the organic samples are smaller but contain a larger proportion of the population.

The order of presentation broadly reflects the order of questions asked in the questionnaire. The farm and demographic data presented in the next section are the exception since they were in the last section of the questionnaire.

In order to simplify the tables presented in the text, and at the same time provide a full account of the results, there is a comprehensive appendix which reports the actual data for each question involving an attitude scale. For each of these questions, the results are presented to show the frequency for each point on the seven-point scale, an average score for that scale, the number of cases and the standard deviation. In addition, the appendix tables also show the statistically significant differences. The other questions in the questionnaire, the demographic questions which did not use a rating scale, are also included in the appendix.

2.2 Farm or orchard management system and corresponding farmer characteristics

The first question in the questionnaire simply asked what management system the farmer used. The following definitions of each management system, as written in the questionnaire, were used.

Conventional management (Does not use modifications to conventional practice, nor is certified as organic, but can still aspire to best practice).

Modified conventional management (Integrated Management)
(Accepts some constraints on inputs in order to improve environmental outcomes and to better meet market demand. These systems are also called Environmental Management Systems, usually have their own name, e.g., KiwiGreen, and are not necessarily called integrated management. We do not mean integrating your farm production practices or types of land use.)

Organic management (Registered or certified as officially organic or in transition to organic.)

Responses to this question allowed us to classify all farmers by management system. However, 35 farmers did not respond to the question, and in 15 cases they selected the 'other' category. (Some of these other cases included farmers who used organic methods but were not registered as organic or who used both conventional and organic methods.) These cases were excluded from the analysis. The final sample sizes are shown in Table 7.

Table 7: Sample sizes for each sector and for each management system

	Conventional		Modified Conventional		Organic		Total
	No.		No.		No.		
Sheep/beef	71	49%	27	19%	47	32%	145
Horticulture	33	22%	63	42%	53	36%	149
Dairy	96	57%	32	19%	40	24%	168
Total	200		122		140		462

The modified conventional management farmers were a significant group in each sector comprising 19 per cent of pastoral farmers and 42 per cent of horticulturalists. It is important to note that this grouping is based on a self classification. A better understanding of this group can be obtained by referring to the results of the companion report for the survey based on a random sample of farmers. That survey used the same self-classification question but in addition asked for more details about actual management systems used by the farmer. This combination of questions allowed for a comparison of the self classification with a strict classification, one that was based on management systems used which we accepted as genuinely meeting the definition provided, that is, the system used accepts some constraints on inputs in order to improve environmental outcomes and to better meet market demand. The comparison showed that many farmers using GROWSAFE considered that this qualified as modified conventional management whereas it is more accurately seen as a system that is part of conventional management since it does not constrain the types of chemicals used but focuses on responsible application of any chemical.

The results for the self-classification question in the random survey were different from the results in the sector surveys although some caution is needed in making this comparison since the total number of responding dairy farmers was 13 and the total number of responding horticulturalists was eight (Table 8) in the random survey. In the random survey the proportions of farmers who stated that they used modified conventional management were 28 per cent for sheep/beef, 75 per cent for horticulture and 38 per cent for dairy. With the strict definition, the proportions were five per cent, 62 per cent and 21 per cent. Generally then, the self classification led to larger proportions of modified conventional management farmers, and in both cases horticulture had the highest proportion. In the random survey there were almost twice as many self classified modified conventional management farmers as in the sector surveys. It is likely that the combination of questions in the random survey influenced the way farmers responded to the classification question and encouraged them to choose the modified conventional management option. The results for the strict classification show that the largest reduction in numbers occurs for sheep/beef farmers. Although, strictly speaking, there are no audited modified conventional management systems in dairy farming that did not stop some dairy farmers from stating that they practiced modified conventional management. Therefore, the self classification approach has meant that some farmers may be placed in a management system category even if they do not use a certified system. Accordingly, the numbers are larger than if a strict definition was used. This is certainly the case for modified conventional management.

Table 8: Comparison of sector surveys and random survey results for modified conventional management by sector

	Sector surveys		Random survey			
	Self classification		Self classification		Strict classification	
	No.	%	No.	%	No.	%
Sheep/beef	27	19	21	28	4	5
Horticulture	63	42	6	75	5	62
Dairy	32	19	5	38	3	21

Demographic and farm data were used to characterise the farms and the farmers who were using each management system. For total hectares, effective hectares, and gross income data the wide variance in the data made it unwise to test for statistically significant differences for management system effects.[3] Table 9 shows the main results for the farm and demographic data.

Table 9: Farm and demographic data – means and summary of effects

Farm or demographic variable	Overall mean	Sector effects	Mgmt system Effects
Total hectares	275	NA	NA
Effective hectares	236	NA	NA
Annual gross income 06-07	$586,042	NA	NA
Annual gross income 07-08	$730,322	NA	NA
Level of debt (1=over 80% of equity, 6=debt free)	4.7	F	P
Satisfaction with current level of economic activity	4.3	F	P
Years managed, owned or been associated	21.3	(F)	(F)
Number of years farming	29.8	(F)	P
Number of years farmers expect to be in farming	13.6	(F)	P
Age	54.5	P	P

Note: F = full effect, main effects and simple effects correspond
P = partial effect, main effects and simple effects partly correspond
I = interaction effects
Brackets indicate no significant differences among the main effects.

For total hectares, conventional farms were 212 hectares, modified conventional management farms were 435 hectares and organic farms were 199 hectares. Within each sector, while the range in sizes was more reasonable, there were no statistically significant differences found for the different management systems. On average, sheep/beef farms were 550 hectares, dairy farms were 200 hectares and horticulture units were 28 ha. The results for effective hectares were similar.

For annual gross income 2006-2007, conventional farmers reported $447,916, modified conventional management farmers reported $725,395 and organic farmers reported

[3] As sheep/beef farms tend to be several times larger than dairy farms and dairy farms tend to be nine or ten times larger than horticultural units, the variability of the sheep/beef farms swamps that of the smaller properties in any analysis (see Tables J1a and J1b in the Appendix). Hence, the overall means given in Table 9 are rather meaningless.

$371,349. Sheep/beef farmers reported $231,047, horticulturalists reported $582,203 and dairy farmers reported $674,481.[4]

For annual gross income 2007-2008, conventional farmers reported $538,851, modified conventional management farmers reported $921,505 and organic farmers reported $427,550. Sheep/beef farmers reported $226,127, horticulturalists reported $633,271 and dairy farmers reported $931,969.

Level of debt was measured on a six point scale where 1 represented debt of over 80 per cent of equity and 6 represented debt free. For level of debt there were full sector effects and partial management system effects. Overall, conventional farmers reported a lower score (more debt) of 4.8 (about 24 per cent) compared to organic farmers at 4.5 (about 30 per cent). This main effect was replicated by sheep/beef farmers only. In terms of sector effects, sheep/beef farmers and horticulturalists reported less debt than dairy farmers. This main effect was replicated for each management system within each sector.

For satisfaction with current level of economic activity there were full sector effects and partial management system effects. Overall, conventional farmers rated their satisfaction at 4.6 ahead of modified conventional management farmers at 4.0 (neutral). This main effect was replicated only for horticulturalists. In terms of sector effects, dairy farmers rated their satisfaction at 5.2 ahead of horticulturalists at 4.1 ahead of sheep/beef farmers at 3.6. This main effect was replicated for each management system within each sector.

For years managed, owned or been associated with current farm or orchard there were no sector or management system effects. The typical number of years reported was 20.

For the number of years farming there were partial sector effects and partial management system effects. Overall, conventional farmers and modified conventional management farmers had farmed for 30 years while organic farmers had farmed for 23 years. This main effect was replicated for sheep/beef and horticulturalists but not dairy farmers. In terms of sector effects, sheep/beef and dairy farmers had farmed for 30 years while horticulturalists had farmed for 25 years.

For the number of years farmers expect to be in farming there were no sector effects but partial management system effects. Overall, conventional farmers expected to be farming for 13 years compared to organic farmers at 16 years. This result is related to their age, see below.

In answer to the question ‘In ten years time do you think you will be living in your present community?’ Chi-square tests showed that in the dairy sector conventional and organic farmers were more likely to answer in the positive.

Over 88 per cent of the respondents classified themselves as the farmer rather than the spouse or partner of the farmer. There were no differences in this proportion across management systems or sectors.

For age there were partial sector effects and partial management system effects. Overall, conventional farmers were 56 years old, similar to modified conventional management farmers at 54 years old, and older than organic farmers at 50 years old. In terms of sector effects, horticulturalists were older than sheep/beef or dairy farmers.

[4] Similarly, the annual gross revenue is highly variable and masks any differences that might be present between sectors and management systems (see Tables J5a and J5b in the Appendix)..

Over 70 per cent of farmers reported that the highest level of education completed was attendance at secondary school. There were no differences in this proportion across management systems or sectors.

For the full- or part-time status of the farm, 69 per cent of sheep/beef farms were full time, 67 per cent of horticultural units were full time and 99 per cent of dairy farms were full time. Within the sheep/beef sector, conventional farmers were more likely to be part time.

In summary[5], in terms of management system effects, conventional and modified conventional management farmers had been farming longest and were oldest. In terms of sector effects, dairy farmers had the highest level of debt and highest level of satisfaction with current level of economic activity. Horticulturalists were the oldest.

2.3 Intentions to use different management systems

The second question in the questionnaire asked about intention, within the next ten years, to use four different management systems and about the option of using genetically modified plants or animals, if they become available (Appendix – A2a). The overall means ranged in strength of intention from neutral to somewhat negative. Overall there were partial sector effects only for the conventional management option, and full management system effects for all management systems, as shown in Table 10.

Table 10: Intention to use management systems – means and summary of effects

Strength of intention to use:	Overall mean	Sector effects	Mgmt system effects
Conventional management	4.1	P	F
Modified conventional management	4.3	(P)	F
Organic management (registered)	3.8	(P)	F
Organic methods (not registered)	3.2	(F)	F
Genetically modified plants or animals, if they become available	2.3	(P)	F

Note: F = full effect, main effects and simple effects correspond
P = partial effect, main effects and simple effects partly correspond
I = interaction effects
Brackets indicate no significant differences among the main effects.

Regarding the intention to use conventional management there were partial sector effects and full management system effects. Overall, organic farmers rated their intention at 1.3 (strong intention not to use conventional management), much lower than modified conventional management farmers at 4.0 (neutral intention) who were lower than conventional farmers at 5.6 (intention to use conventional methods). This main effect was replicated within each sector. In terms of sector effects, All sectors reported a neutral intention to use conventional management (sheep/beef and dairy respondents averaged 4.2, horticulture respondents 3.8) to use conventional management. Earlier research has shown that the horticultural sector has been more progressive in using organic management, and other alternatives, and since a greater proportion of these farmers are using organic methods there is less commitment to conventional farming. These results show, generally, that farmers using each management system intend to persist with their current system and that they do not intend to change in the near future. However, the table in the appendix also shows that for each sector there are a few farmers who have a strong intention not to use their current management system in future. For example, among the sheep/beef farmers there were three

[5] In order to simplify the section summaries we focus on main effects that occur for all three management systems and/or all three sectors.

conventional farmers who reported a strong intention (a rating of 1 or 2) not to use conventional management in future. Also, there was one organic sheep/beef farmer with a very strong intention to use conventional management in future. Similarly, in the horticulture and dairy sectors there were a few farmers (three and two respectively) who reported an intention not to use conventional methods. This result also occurred for modified conventional management.

Regarding the intention to use modified conventional management there were no overall sector effects but full management system effects. Overall, conventional farmers rated their intention at 4.7 (some intention), modified conventional farmers at 5.9 (strong intention), and organic farmers at 1.6 (strong intention not to use modified conventional management). This main effect was replicated within each sector. Very few modified conventional management farmers intended not to use modified conventional management in the future with only the sheep/beef sector showing two such cases. Also, there were two organic sheep/beef farmers with a very strong intention to use modified conventional management in future.

Regarding the intention to use organic management (registered) there were no overall sector effects but full management system effects. Overall, organic farmers rated their intention at 6.8 (very strong intention), modified conventional farmers at 2.6 (intend not to use), and conventional farmers at 1.8 (strong intention not to use). Very few organic farmers intended not to use organic management in the future (only one such farmer, in the sheep/beef sector). This main effect was almost exactly replicated within each sector. The spread of scores shows some interesting results. For sheep/beef farmers, there were three (six per cent) conventional farmers and four (20 per cent) modified conventional management farmers with a strong intention to use registered organic management in future; for horticulture there were four (nine per cent) modified conventional management horticulturalists with a strong intention to use organic management; and for dairy farmers there were two (three percent) conventional farmers and one (four per cent) modified conventional management farmer with a strong intention to use organic management.

Regarding the intention to use unregistered organic management there were no overall sector effects and full management system effects. Overall, organic farmers at 4.0 (neutral) were similar to modified conventional farmers at 3.5 (slightly less than neutral), and both were different from conventional farmers at 2.4 (strong intention not to use). Overall, these results are on the side of intention not to use unregistered organic management but with conventional farmers more negative. The main effect was partly reflected in the sectors with horticulture following the above pattern. The spread of scores shows a bimodal pattern with large numbers at each end of the scoring scale. While many farmers across sectors and management systems have a strong intention not to use this system, there are also farmers who have a strong intention to use it. For example, in each sector the responses of organic farmers and modified conventional management farmers are concentrated at the two extreme points on the scale. For conventional farmers there are fewer with a strong intention to use unregistered organic management and for horticulture there were no farmers who selected the six or seven score.

Regarding the intention to use genetically modified plants or animals, there were no overall sector effects and full management system effects and generally farmers in each sector reported a strong intention not use these methods. Overall, organic farmers rated their intention to use genetically modified plants or animals at 1.0 (very strong intention not to use) and this was stronger than modified conventional management farmers at 2.7 and conventional farmers at 2.9 (intention not to use). This main effect was replicated within each sector. While many farmers across sectors and management systems have a strong intention not to use genetically modified plants or animals, there were some farmers who had a strong intention to use them. For example, three (six per cent) of conventional sheep/beef farmers had a strong intention, and five (24 per cent) of modified conventional management farmers

had a strong intention. This pattern was repeated for the horticulture sector and more strongly in the dairy sector. Amongst organic farmers there was only one across all sectors who intended to use genetically modified plants or animals.

In summary, in terms of management system effects, there was a pattern of endorsement of each management system by its proponents. For conventional management, while overall it was rated with a neutral intention, conventional farmers reported a strong intention to use it (5.6). For modified conventional management, while overall it was rated with a neutral intention, modified conventional management farmers reported a strong intention to use it. For organic management, while overall it was rated with a neutral intention, organic farmers reported a very strong intention to use it (6.7). For unregistered organic management, while overall it was rated as intention not to use, organic farmers were neutral about it. Finally, for genetically modified plants or animals, while overall there was a strong intention not to use them, organic farmers reported a very strong intention not to use them.

In terms of sector effects, only for intention to use conventional management was there a statistically significant result. While it was rated at neutral overall, horticulturalists reported a stronger intention not to use it. This result confirms the idea that horticulture has been most progressive in adopting alternative management systems to conventional management.

2.4 Indicators

To ensure that benchmarks used in the indicators of various aspects of farm performance are of most use to farmers it is necessary to know which benchmarks are of widest applicability. Further, results of this inquiry would be useful to tailor ARGOS farm and benchmark reports to the needs of participating farmers in ways that are familiar and meaningful. Questions 1 and 2 in this section were supplied by members of the economic team. The purpose here was to get an understanding of which financial and production data farmers use to assess the financial performance of their properties. Question 3 was based on environmental indicators suggested by the environment team. Question 4 was supplied by the social team and derived from an understanding of the ‘good farmer’, farmers’ sense of place and the importance of the different social consequences of farming.

This set of four indicator questions used consistent wording about the performance of the farm or orchard. The wording of the question as it applied to social indicators followed the style of the other questions to avoid drawing attention to the question for the wrong reason, such as a change in wording (to ‘How important to you is each of the following social indicators?’). We are not advocating that social indicators should be seen as performance indicators but that being involved in a dimension of social activity does entail a ‘performance’ of some sort.

Annual financial performance indicators

As shown in Table 11 there was a range of responses to the annual financial indicators. Among the important ones were gross income, working expenses, cash surplus/deficit, net profit/loss and money available to cover cash needs. Somewhat unimportant was not monitoring financial performance. There were sector effects for return on capital and for not monitoring financial performance, and management system effects for gross income, working expenses and not monitoring financial performance.

For gross income there were no sectors effect but partial management system effects. Overall, modified conventional management farmers rated the importance of gross income at 6.0 (important) ahead of organic farmers rated at 5.4 (somewhat important). This main effect was replicated only in the dairy sector. The spread of scores shows that where the management system average within each sector was highest there were no farmers who reported that gross income was very unimportant but for the other two management systems

there were a few farmers who did report this. Thus, while a majority of farmers agreed that gross income was important, and more so for conventional management farmers, there were a few who rejected this indicator. It could be expected that the farmers who would reject this indicator might be those who rated as important the last indicator – 'I don't monitor financial performance because it just follows on from physical management'. However, while 26 farmers rated the latter at 7, 16 of these also rated gross income at 7. It appears financial performance does not matter to these farmers perhaps because while they just do their physical job they still look to gross income. A similar pattern occurs for all the financial performance indicators: farmers who rated the last indicator highly also rated the others highly.

Table 11: Annual financial performance indicators – means and summary of effects

Level of importance	Overall mean	Sector effects	Mgmt system effects
Gross income	5.8	(F)	P
Working expenses	6.0	(P)	P
Change in bank balance over the year	4.9	(F)	(F)
Actual income versus budget income	4.7	(F)	(P)
Cash surplus/deficit (income minus all cash expenses; the cash available for tax, drawings and reinvestment)	6.0	(F)	(F)
Net profit/loss (income minus all cash expenses and depreciation; the taxable component of income)	5.9	(F)	(F)
Changes in equity	4.9	(F)	(F)
The ratio of working expenses to gross income	5.2	(P)	(F)
Return on capital	4.4	P	(F)
Money is available to cover cash needs	5.7	(F)	(F)
I don't monitor financial performance because it just follows on from physical management	3.2	P	(P)

Note: F = full effect, main effects and simple effects correspond
P = partial effect, main effects and simple effects partly correspond
I = interaction effects
Brackets indicate no significant differences among the main effects.

For working expenses there were no sector effects but partial management system effects. Overall, organic farmers at 5.8 gave less emphasis to this compared to modified conventional farmers at 6.2. This main effect was reflected in the horticultural and dairy sectors only. As above, there were a few farmers who reported that working expenses were unimportant.

For change in bank balance the results show no difference across sector or across management systems. Generally, all farmers gave an average rating close to five which means somewhat important. The data show a more even spread across the scale compared to the indicators already reported.

For actual income versus budget income the results show no difference across sectors or across management systems. Generally, all farmers gave an average rating close to five which means somewhat important. The data show an even spread across the scale.

For cash surplus/deficit the results show no difference across sectors or across management systems. Generally, all farmers gave an average rating close to six which means important. A few farmers rated this indicator as very unimportant. Dairy conventional farmers gave a

higher rating compared to sheep/beef conventional farmers, and within the sheep/beef sector, organic farmers gave a higher rating compared to conventional farmers.

For net profit/loss the results show no difference across sectors or across management systems. Generally, all farmers gave an average rating close to six which means moderately important (four being neutral). A few farmers rated this indicator as very unimportant.

For change in equity the results show no difference across sectors or across management systems. Generally, all farmers gave an average rating close to five which means somewhat important. Dairy conventional farmers gave a higher rating compared to sheep/beef conventional farmers.

For the ratio of working expenses to gross income the results show no differences across sectors or management system. Generally, all farmers gave an average rating close to five which means somewhat important. A few farmers rated this indicator as very unimportant.

For return on capital the results show no difference across management systems. There was a partial sector effect: dairy farmers rated it at 4.7 or somewhat important compared to 4.2 or neutral for sheep/beef farmers and this was replicated in those with conventional management across these two sectors.

For money available to cover cash needs, the results show no difference across sectors or across management systems. Generally, all farmers gave an average rating close to six or important.

For the importance of not monitoring financial performance because it just follows from physical management, the results show partial sector effects and no management systems effects. Overall, sheep/beef farmers gave a higher but still negative average rating compared to dairy farmers. This main effect consistently occurred for conventional and modified conventional management systems only. There was an interaction effect: the modified conventional management horticulturalists gave a lower rating compared to conventional horticulturalists whereas in other sectors the ratings were similar. Generally, farmers rated the importance of not monitoring financial performance as somewhat unimportant and dairy farmers more so. However, the results were spread across the scale and there were some who rated this indicator as very important in all sectors (44 per cent of organic farmers in sheep/beef, 44 per cent of modified conventional management farmers in horticulture and 46 per cent of modified conventional management and 43 per cent of conventional management farmers in dairy.

In summary, in terms of management system effects, there were few statistically significant results and they show that gross income and working expenses, while generally rated as important, were less important to organic farmers compared to modified conventional management farmers only. Thus amongst the most important indicators, those that received a score of around six (important), there is agreement among farmers using all three management system that cash surplus/deficit, net profit/loss and money available to cover cash needs are important.

As indicated by a distance analysis[6] (see Figure 1), modified conventional management was more distant or the most dissimilar from the other management systems for the financial indicators. There were no sector effects which included all three sectors. However, a distance analysis based on the combined analysis of all 11 questions showed differences across the sectors and that all sectors were almost equidistant (see Figure 2).

Figure 1: Distances between management systems for financial indicators (11 variables)

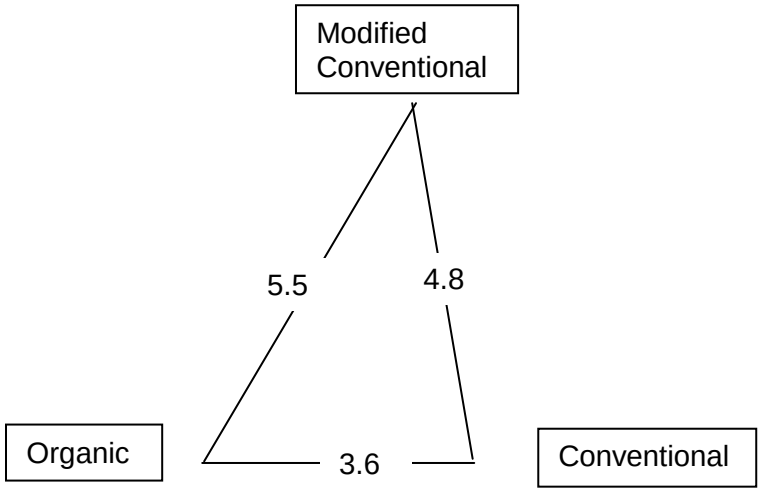
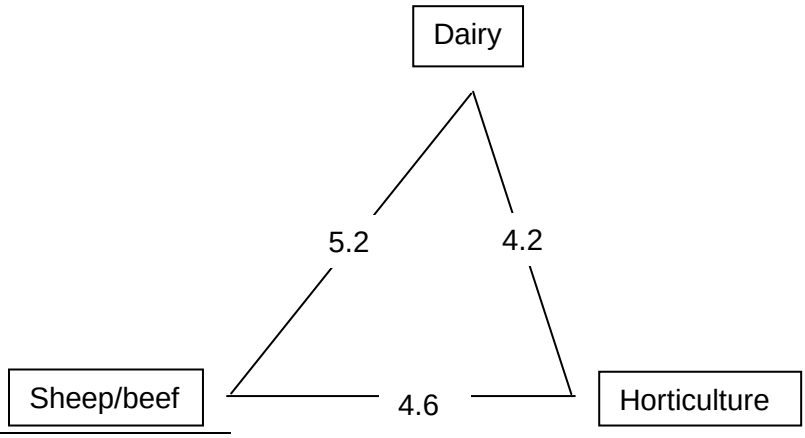


Figure 2: Distances between sectors for financial indicators (over 11 variables)



[6] A multivariate distance analysis can be used to measure the distance between groups of variables (Manly, 2005). In this case the means of each of the financial indicators were calculated for each of the management systems and a distance analysis was carried out using the SPSS statistical programme which standardises the variables so that like is compared with like and calculates the Euclidean distances between the management systems over all the variables. (There are many ways of calculating these differences dependent on the type of data used and the arguments one agrees with.) The figures show accurately the length in centimetres for each side of a triangle and this is an indicator of the relationship between the labelled points of the triangle. The distances calculated can only be usefully compared with other distances over the same number of variables, in this case, items in the questionnaire for the particular section being considered. Distance analyses are especially useful in providing a simple conceptual way of demonstrating how close and alike, or distant and dissimilar one group is to another. To date we have not found a way of testing the differences in these distances for statistical significance.

Production performance indicators

As shown in Table 12 there were a range of responses to the production performance indicators. Among the important ones were the health of stock and plants and quality of production. Somewhat unimportant was reducing carbon emissions. Overall there were sector effects and management system effects for most of the questions asked about production performance.

For the health of stock and/or plants there were partial sector effects only. Overall, sheep/beef farmers rated this indicator at 6.9, equivalent to very important, while horticulturalists rated it slightly lower at 6.4 and this pattern was also reflected in organic management. Looking at the distribution of all the scores shows that while most farmers chose positive ratings there were three who chose very unimportant - all of whom were organic farmers. These results indicated that farmers, regardless of management system, rated stock and plant health highly and this was most strongly indicated by sheep/beef farmers.

Table 12: Production performance indicators – means and summary of effects

Level of importance	Overall mean	Sector effects	Mgmt system effects
The health of stock and/or plants	6.8	P	(F)
Yields per hectare compared to other similar farmers/orchardists	4.7	P	P
The presence of a neat and tidy landscape	5.2	P	P
Minimum weeds	5.1	P	F
Volume of production is at a maximum	5.1	P	P
Quality of production is at a maximum	6.3	P	P
The farm/orchard has a good mixture of productive uses/activities	4.9	(P)	(P)
No potentially productive land is going to waste	5.1	P	P
Reducing carbon emissions	3.9	(F)	P

Note: F = full effect, main effects and simple effects correspond
P = partial effect, main effects and simple effects partly correspond
I = interaction effects
Brackets indicate no significant differences among the main effects.

For yields per hectare compared to other similar farmers/orchardists there were partial sector effects and partial management system effects. Overall, conventional farmers (4.9) and modified conventional management farmers (5.1) rated it as somewhat important and these were higher than organic farmers (4.3) who rate this indicator as neutral. This main effect was only replicated in the dairy sector. In terms of sector effects, horticulturalists rated this factor at 5.4 or somewhat important ahead of 4.6 for dairy, ahead of 4.2 for sheep/beef. This main effect is fully replicated across management systems in sheep/beef and horticulture. The spread of scores shows that the sheep/beef modes have a different pattern from other sectors, most frequently selecting a neutral score.

For the presence of a neat and tidy landscape there were partial sector effects and partial management system effects. Overall, conventional farmers (5.4) and modified conventional management farmers (5.4) rated it as somewhat important and these ratings were higher

than for organic farmers (4.8). This main effect was repeated for horticulture only. Organic farmers often see weeds and varied plants and animals as a positive thing and redefine 'tidiness' accordingly. In terms of sector effects, sheep/beef and dairy farmers rated this as more important than horticulturalists (5.3 and 5.5 cf. 4.8). The spread of scores shows that the sheep/beef and dairy modes have a different pattern with farmers in all management systems most frequently selecting a rating of 6.

For minimum weeds there were partial sector effects and full management system effects. Overall, conventional farmers (5.5) and modified conventional management farmers (5.4) rated minimum weeds as somewhat important and these are higher than organic farmers (4.5). This main effect is almost fully replicated in each sector. These results support the contention that organic farmers are less inclined to emphasise minimising weeds because they often encourage a diversity of plants in order to gain synergies for pest and weed management. In terms of sector effects, dairy farmers rated this factor at 5.6, ahead of sheep/beef at 5.2 ahead of horticulture at 4.7. This main effect was partially replicated in the modified conventional and organic management systems.

For volume of production is at a maximum there were partial sector effects and partial management system effects. Overall, conventional farmers (5.4) and modified conventional management farmers (5.2) rated volume of production as somewhat important ahead of organic farmers (4.6). This main effect was replicated for the dairy sector and partially in sheep/beef. These results are consistent with the lower importance organic farmers gave to yields per hectare. In terms of sector effects, horticulturalists rated this factor at 5.5 ahead of dairy at 5.1 and sheep/beef at 4.7. This main effect was partly replicated for organic and modified conventional management farmers.

For quality of production is at a maximum there were partial sector effects and partial management system effects. Overall, organic farmers (6.4) rated quality of production as more important than conventional farmers (6.1). This main effect was replicated in the sheep/beef sector only. In terms of sector effects, horticulturalists rated this factor at 6.4 and dairy farmers rated this factor at 6.3, and these scores were higher than the score of 6.0 for sheep/beef farmers. However, there is an interaction effect shown by the uniformity of the horticulture and dairy results compared to sheep/beef indicating that quality is important to all management systems in the horticulture and dairy sectors.

For the mixture of productive uses and activities there were no sector effects and no management system effects. However, within sectors some difference across management system were found and these were characterised by interaction effects that were buffering or working against each other rather than acting synergistically. Sheep/beef and dairy farmers reported lower scores for conventional farming but this was balanced by horticulturalists who reported higher scores. Across sectors sheep/beef and dairy farmers reported higher scores for modified conventional management.

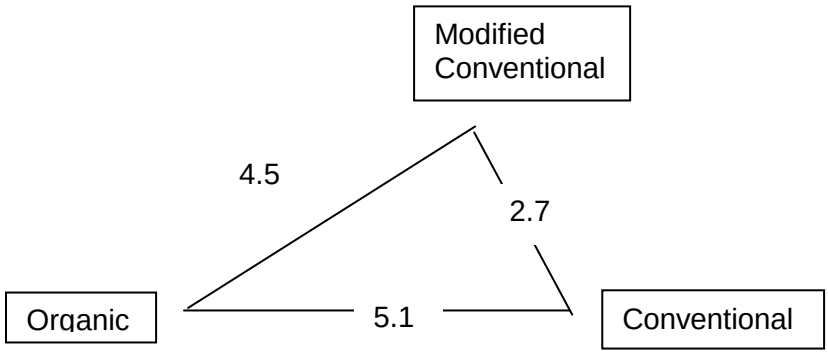
For the importance of 'no production land going to waste' there were partial sector effects and partial management system effects. Overall, organic farmers (4.7) rated no production land going to waste as less important than conventional farmers (5.4) and modified conventional management farmers (5.3). This main effect was partially replicated in sheep/beef and horticulture. Again these results are consistent with earlier results characterising organic farmers as less oriented to volume of production, tidiness, weediness and more oriented to quality of production. In terms of sector effects, dairy farmers rated this factor at 5.3 ahead of sheep/beef farmers at 4.9. This main effect was replicated only for sheep/beef and dairy organic farmers.

For reducing carbon emissions there were no sector effects and no partial management system effects. Overall, organic farmers (4.7) rated this indicator as more important than

conventional farmers (3.5) and modified conventional management farmers (3.8). This main effect was replicated in the sheep/beef sector and partially in horticulture and dairy. There was an interaction effect: the sector main effect was cancelled by the unexpectedly high rating by modified conventional management farmers in the dairy sector.

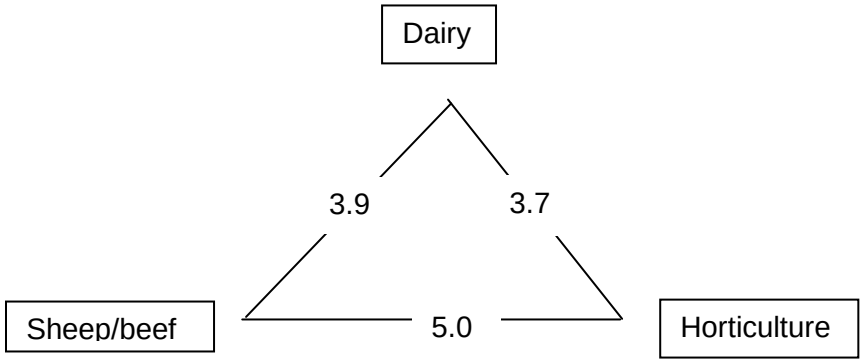
In summary, these results show that in terms of management systems the following indicators were less important to organic farmers compared to conventional and modified conventional management farmers: yields per hectare, neat and tidy landscape, minimum weeds, volume of production, and no productive land going to waste. Decreasing carbon emissions was more important to organic farmers. These results are consistent with current understandings of organic farmers in which emphasis is given to quality over quantity, tidiness is redefined and the farm may have some land that appears to be unproductive. The distances between management systems are shown in Figure 3 which indicates that overall for these indictors organic was more different from the other two.

Figure 3: Distances between management systems for production performance indicators (9 variables)



In terms of sectors, the distinctive findings were that horticulturalists compared to sheep/beef and dairy farmers gave more emphasis to yields per hectare and volume of production, and gave less importance to having a neat and tidy farm. Perhaps these results are indicative of the greater intensity of production in horticulture. Sheep/beef farmers compared to horticulturalists and dairy farmers gave less emphasis to quality of production. Dairy farmers compared to sheep/beef farmers and horticulturalists gave more emphasis to minimum weeds. The distance analysis (Figure 4) indicates that overall the sheep/beef and horticulture sectors were the most different but dairy was almost equidistant from both of these sectors.

Figure 4: Distances between sectors for production performance indicators (9 variables)



Environmental performance indicators

As shown in Table 13 there were a range of responses to the environmental performance indicators. Among the important ones were soil fertility levels, soil biological activity, soil health, the health of livestock and/or plants, and water quality. The least important was the amount of carbon stored (sequestered) which was rated at 3.6 just above somewhat unimportant. Overall there were sector effects and management system effects for most of the questions asked about environmental performance. There was no instance of a full sector effect and five instances of a full management system effect.

Table 13: Environment performance indicators: means and summary of effects

Level of importance	Overall means	Sector effects	Mgmt system effects
Soil fertility levels	6.1	P	P
Soil biological activity	6.0	(F)	F
Soil health	6.3	(F)	F
The health of livestock and/or plants	6.7	P	P
The level of biodiversity (the number and type of productive and unproductive species) on my farm/orchard	4.8	P	F
The number of native bird species	4.7	P	P
The number of all bird species, native and other	4.7	I	I
The number of native plant or tree species	4.5	P	P
The number of plant or tree species, native and other	4.8	P	P
Water quality in nearby streams and waterways	6.0	P	P
The presence of both productive and non-productive species flourishing on the farm/orchard	4.8	(F)	F
Water budgeting	4.0	P	I
Nutrient budgeting	5.0	P	I
Pesticide use	4.1	P	F
Energy use	4.7	P	(P)
The amount of carbon stored (sequestered)	3.6	(P)	P
A tidy, well maintained farm/orchard	5.5	P	P

Note: F = full effect, main effects and simple effects correspond
P = partial effect, main effects and simple effects partly correspond
I = interaction effects
Brackets indicate no significant differences among the main effects.

For soil fertility levels there were partial sector effects and partial management system effects. Overall, organic farmers (6.3) rated soil fertility levels as more important than conventional farmers (6.1) and this is driven by the results in the sheep/beef sector while in the other sectors soil fertility is of similar importance. In terms of sectors, horticulturalists and dairy farmers rated this at 6.3 which was higher than the score of 6.0 for sheep/beef farmers, this pattern holding for conventional management and modified conventional management but not for organic management.

For soil biological activity there were no sector effects but full management system effects. Overall, organic farmers rated it 6.7 ahead of modified conventional management farmers at 6.0 ahead of conventional farmers at 5.8. This main effect was similar across sectors (but with the mean scores for conventional and modified conventional management similar for

horticulture and dairy). Thus while all farmers attach importance to soil biological activity, most organic farmers rated it as very important rather than important.

For soil health there were no sector effects but full management system effects. Overall, organic farmers rated it 6.8 compared to modified conventional management farmers who rated it 6.3 and conventional farmers who rated it 6.1. This main effect was similar across sectors with organic farmers rating it more highly than modified conventional management farmers in sheep/beef and horticulture, and more highly then conventional farmers in the dairy sector.

For the health of livestock and plants there were partial sector effects and partial management system effects. Overall, organic farmers rated it 6.8 ahead of conventional farmers at 6.7. This main effect only occurred for the sheep/beef sector. The spread of scores shows that most farmers chose it as very important. In terms of sector effects, dairy farmers rated it 6.8 ahead of horticulturalists at 6.6.

For level of biodiversity there were partial sector effects and full management system effects. Overall, organic farmers rated it 5.9 ahead of modified conventional management farmers at 4.9 ahead of conventional farmers at 4.4. This main effect was replicated across sectors but only in sheep/beef was conventional significantly lower than modified conventional management. In terms of sector effects, sheep/beef farmers rated level of biodiversity higher than horticulturalists and this difference was driven by the different scores of modified conventional management farmers.

For the number of native bird species there were partial sector effects and partial management system effects. Overall, organic farmers rated it higher at 5.4 compared to modified conventional management farmers at 4.9 and conventional farmers at 4.8. This main effect was only partly replicated within the sectors because there was an interaction, Organic management was highest in sheep/beef and horticulture but not in the dairy sector where modified conventional management was highest. In terms of sectors, sheep/beef farmers rated the number of native bird species highest at 5.4 compared to dairy at 4.9 and horticulture at 4.7.

For the number of bird species native and other there were partial sector effects and no management system effects. While there were no management system effects overall, there was an interaction: organic management was highest in sheep/beef and horticulture but not in the dairy sector where modified conventional management was highest. In terms of sectors, sheep/beef farmers rated the number of bird species native and other highest at 5.1 compared to horticulturalists at 4.6 (but this was only replicated in conventional management).

For the number of native plant and tree species there were partial sector effects and partial management system effects. Overall, organic farmers rated it 5.1 ahead of conventional farmers at 4.6. This main effect was not reflected in the results within each sector. The spread of scores have modes in different places with modified conventional management and organic sheep/beef farmers typically choosing 7. In terms of sector effects, sheep/beef farmers rated it 5.3 ahead of dairy farmers at 4.7 and horticulturalists at 4.5. This main effect was partly replicated across the sectors.

For the number of plant and tree species native or other there were partial sector effects and partial management system effects. Overall, organic farmers rated it 5.4 ahead of modified conventional farmers at 5.0 and conventional farmers at 4.8. This main effect was partially replicated in the results within the sheep/beef sector. The spread of scores have modes in different places with modified conventional management and organic sheep/beef farmers typically choosing 7. In terms of sector effects, sheep/beef farmers rated it 5.4 ahead of

horticulturalists and dairy farmers at 4.9. This main effect was partly replicated across the sectors in conventional and modified conventional management.

For water quality there were partial sector effects and partial management system effects. Overall, organic farmers rated it 6.3 and conventional farmers rated it 6.0. In terms of sector effects, dairy farmers rated it 6.3 and sheep/beef farmers rated it 6.0. It was rated very highly by all farmers.

For the presence of both productive and non productive species flourishing on the farm/orchard there was no sector effect and a partial management system effect. Overall, organic farmers rated it at 5.6 ahead of modified conventional management farmers at 5.0 and conventional farmers at 4.7. This main effect was replicated across sectors (although modified conventional management dairy farmers gave a higher rating).

For water budgeting there were partial sector effects and no management system effects. While overall there were no differences in the rating by conventional, modified conventional management and organic farmers, there was an interaction: modified conventional management farmers gave different ratings in different sectors. They gave the highest rating among dairy farmers, a medium rating among horticulturalist and the lowest rating among sheep/beef farmers. In terms of sector effects, horticulturalist at 5.1 gave a higher rating compared to dairy farmers at 4.5 and sheep/beef farmers at 4.3. For this question some farmers, particularly sheep/beef farmers, chose the not applicable option.

For the importance of the presence of both productive and non-productive species flourishing on the farm/orchard there were no sector effects but full management system effects. Overall, organic farmers rated this more highly (5.6) compared to conventional farmers (4.7) and modified conventional management farmers (5.0). These results were fully replicated in sheep/beef and horticulture sectors with a slight variation in the dairy sector where the modified conventional management farmers rated this similar to organic farmers.

For nutrient budgeting there were partial sector effects and no management system effects. Conventional and modified conventional management farmers gave different scores in the sheep/beef sector (4.6, 4.7) compared to the dairy sector (5.6, 6.1) but the horticultural sector, though registering a similar overall score to dairy, did not follow this pattern.

For pesticide use there were partial sector effects and full management system effects. Overall, conventional farmers rated it 5.1 similar to modified conventional management farmers at 5.5 ahead of organic farmers at 3.2. This main effect was replicated within each sector. The spread of scores shows a bimodal pattern among the sheep/beef and horticultural organic farmers with greatest numbers at the end of the scale. Many organic farmers chose to indicate that pesticide use was not applicable. In terms of sector effects, horticulturalists rated pesticide use at 5.5 ahead of dairy farmers at 4.7 ahead of sheep/beef farmers at 4.2. This main effect was almost replicated for each management system. There was an interaction effect: being organic in the dairy sector made for a greater difference than would be expected compared to the other results.

For energy use there were partial sector effects and no management system effects. Overall, horticultural (5.1) and dairy farmers (5.3) rated it higher than sheep/beef farmers (4.6). This main effect was fully replicated for conventional management only and partially for modified conventional management.

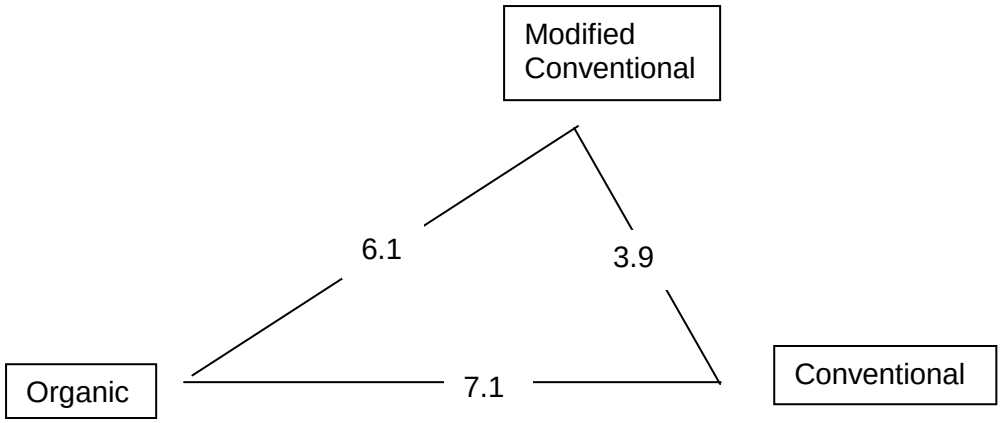
For the amount of carbon stored (sequestered) there were no sector effects but partial management system effects. Overall, organic farmers rated it 4.9 ahead of modified conventional management farmers at 4.0 and conventional farmers at 3.5. This main effect was almost replicated in the dairy sector and partly in the sheep/beef sector. The spread of

scores was different across sectors and management systems: some distributions are bipolar, especially for organic sheep/beef farmers. Organic dairy farmers more uniformly rated this as important.

For a tidy, well maintained farm/orchard there were partial sector effects and partial management system effects. Overall, conventional and modified conventional management farmers rated it 5.7 ahead of organic farmers at 5.3. This main effect was only replicated for horticulturalists and there was no distinction by management system within the sheep/beef sector. In terms of sector effects, dairy farmers rated it 5.9 ahead of sheep/beef farmers at 5.6 and horticulturalists at 5.3 but there was an interaction. This pattern only held for conventional farmers and was contradicted by organic farmers.

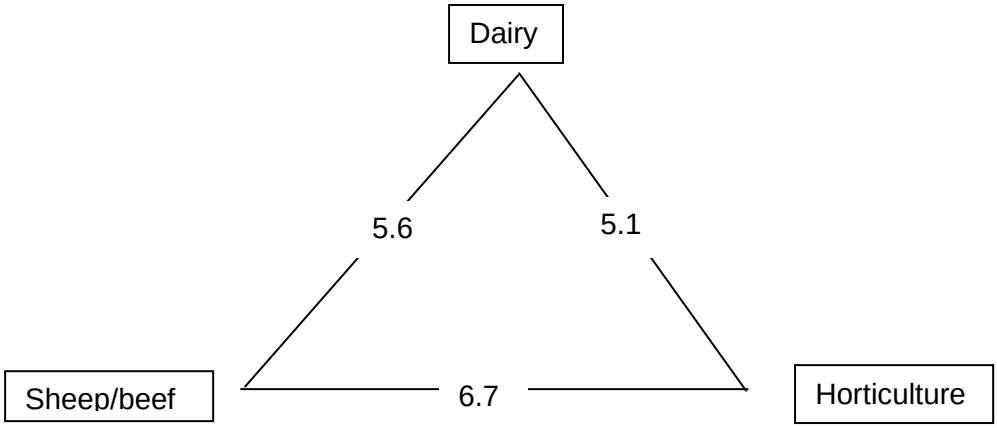
In summary, in terms of management system effects there were four indicators rated higher by organic farmers in all sectors. These include soil biological activity, soil health, biodiversity, and presence of productive and non-productive species. They placed least emphasis on pesticide use in all sectors. In other words they placed greater importance on the environmental health of soil and water, and biodiversity including native plants and trees whether or not this was associated with productivity. In addition, organic farmers gave a higher rating to: the number of native bird species, the number of plant and tree species, native and other, and the amount of carbon sequestered. They gave a lower rating to tidy, well maintained farm/orchard. The overall distance analysis (Figure 5) indicates how the environmental performance indicators were much closer together for modified and conventional management.

Figure 5: Distances between management systems for environmental performance indicators (17 variables)



In terms of sector effects, sheep/beef farmers across all management systems rated number of bird species, number of native plants and trees, and any plants or trees more highly than those in other sectors. They rated soil fertility, nutrient budgeting and energy use lower than farmers in both the horticulture and dairy sectors. Horticulturalists across all management systems rated pesticide use more highly than pastoral farmers. These results suggest that sheep/beef farmers rate as more important some non-production environmental indicators including those that include native species. Horticulturalists and dairy farmers rated as more important some production-related indicators. The distance analysis shows the sectors almost equidistant apart (Figure 6).

Figure 6: Distances between sectors for environmental performance indicators (17 variables)



A meta-analysis of the partial effects among the environment performance indicator questions can identify patterns and indicate what is contributing to the results. Among the partial effects there were four out of six management system effects in which the dairy sector was involved. Of these, there were two instances (number of native birds, number of birds) where the management system results showed dairy modified conventional management to have high scores, against the overall trend. In addition, there were two instances (number of native plant or tree species, number of any plant or tree species) where the management system results showed dairy organic management to have low scores, against the overall trend. Clearly, the nature of the modified conventional management category and the organic management category are key factors in the character of partial results.

Among the partial effects there were five sector results in which dairy modified conventional management was consistently different from the other patterns. There were two sector results stemming from horticulture modified conventional management. Thus the modified conventional management category is implicated in the pattern of results and is having varied effects perhaps because it is seen in different ways or has different expression in different sectors.

Social performance indicators

As shown in Table 14 there was a range of responses to the social performance indicators. Among the important ones were ‘enough time to devote to friends and family’ and ‘creating an attractive place to live’. Somewhat unimportant was ‘contributing to local traditions, festival or customs’. Overall there were six sector effects and four management system effects. Several statements showed no statistically significant differences in importance across sector or management system. Others showing only simple effects will not be commented on.

Table 14: Social performance indicators: means and summary of effects

Level of importance	Overall mean	Sector effects	Mgmt system effects
The children are involved in the farm or orchard	3.7	P	(F)
I have enough time to participate in community activities	4.7	P	(F)
I have enough time to devote to family and friends	5.9	(F)	(F)
I have enough time to participate in activities and recreation off farm	5.5	(F)	(F)
My farming/orcharding helps me to develop a connection to the place where it is located	4.9	(F)	P
Members of my farm/orchard family will be able to find employment in this area	3.6	(P)	(F)
My farming/orcharding is able to contribute to local traditions, festivals or customs	3.3	(F)	(F)
My farm or orchard is contributing to the local community	4.4	(P)	P
My neighbours approve of my farming/orcharding practices	4.4	P	P
My farming/orcharding helps to create an attractive place to live	5.7	(P)	(P)
My neighbours consider me to be a good farmer/orchardist	4.7	P	(F)
My family has a good reputation in the local community	5.3	(P)	(P)
Farm/orchard workers are treated well	5.5	P	P
There is scope for farm succession	4.4	P	(P)

Note: F = full effect, main effects and simple effects correspond
P = partial effect, main effects and simple effects partly correspond
I = interaction effects
Brackets indicate no significant differences among the main effects.

For 'the children are involved in the farm or orchard' there were partial sector effects and no management system effects. Overall, sheep/beef and dairy farmers rated it higher than horticulturalists, a result which corresponds to findings in qualitative interviews with ARGOS farmers (Hunt et al., 2005; 2006). This main effect was replicated only by modified conventional management and organic management.

For 'I have enough time to participate in community activities' there were partial sector effects and no management system effects. Overall, dairy farmers rated it more important than horticulturalists. This main effect was driven by modified conventional management farmers.

For 'my farming/orcharding helps me to develop a connection to the place where it is located' there was a partial management system effect. Overall, while all farmers agreed with this statement, organic farmers rated this at 5.4, ahead of conventional farmers at 4.9. This main effect was driven by sheep/beef farmers.

For 'my farm or orchard is contributing to the local community' there was a partial management system effect. Overall, modified conventional management farmers rated it 5.0 ahead of conventional farmers at 4.5. This main effect was driven by the sheep/beef farmers and in this sector organic farmers were similar to modified conventional management farmers.

For 'my neighbours approve of my farming/orcharding practices' there were partial sector effects and partial management system effects. Overall, conventional farmers rated it 4.9 ahead of organic farmers at 4.4. This main effect was replicated only in the horticultural

sector. The spread of scores shows that there were some farmers who rated this as very unimportant, particularly among sheep/beef farmers. In terms of sector effects, horticulturalists (5.0) and dairy farmers (4.7) rated this more highly than sheep/beef farmers (4.2) but this was only replicated across the conventional management system in sheep/beef and horticulture.

For 'my farming/orcharding helps to create an attractive place to live' there was such a strong interaction that no main effects occurred. Modified conventional management farmers in the sheep/beef and dairy sectors placed greater importance on this than those in the horticulture sector. Modified conventional management farmers in sheep/beef placed more importance on this than conventional farmers, while modified conventional management horticulturalists placed less importance than conventional or organic horticulturalists.

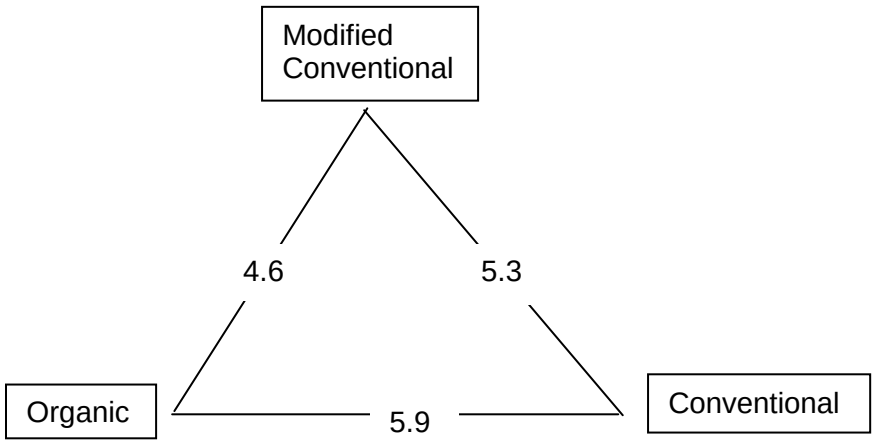
For 'my neighbours consider me to be a good farmer/orchardist' there were partial sector effects. Overall, horticulturalists (5.2) and dairy farmers (5.2) rated it more highly than sheep/beef farmers (4.5) but this effect was only replicated in the conventional management system.

For 'farm/orchard workers are treated well' there were partial sector effects and partial management system effects. Overall, organic and modified conventional management farmers rated it 6.4 ahead of conventional farmers at 6.2. This main effect was partly replicated in the sheep/beef sector only. In terms of sector effects, overall dairy farmers rated it 6.4 ahead of sheep/beef farmers at 6.2. This main effect was driven by conventional management farmers.

For 'There is scope for farm succession' there were partial sector effects. Overall, sheep/beef (5.4) and dairy farmers (5.5) rated it ahead of horticulturalists (4.7). This main effect was replicated for modified conventional management and organic management systems.

In summary, in terms of management system effects treating workers well was rated important and slightly more so by organic farmers and modified conventional management farmers compared to conventional farmers. As indicated by the distance analysis the management systems were almost equally dissimilar (Figure 7).

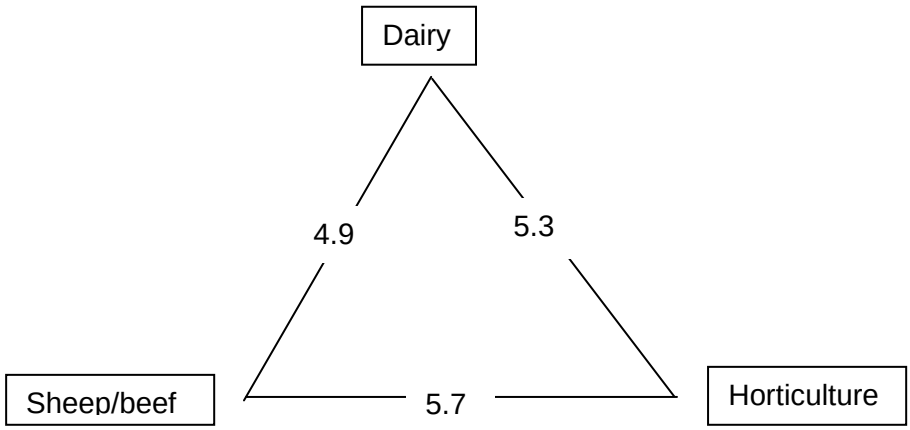
Figure 7: Distances between management systems for social indicators (14 variables)



In terms of sector effects, having children involved and scope for farm succession were rated more positively by sheep/beef and dairy farmers compared to horticulturalists. Neighbours' approval was rated more positively by horticulturalists and dairy farmers compared to

sheep/beef farmers. The distance analysis similarly shows that the sectors were almost equally distant or different from each other (Figure 8).

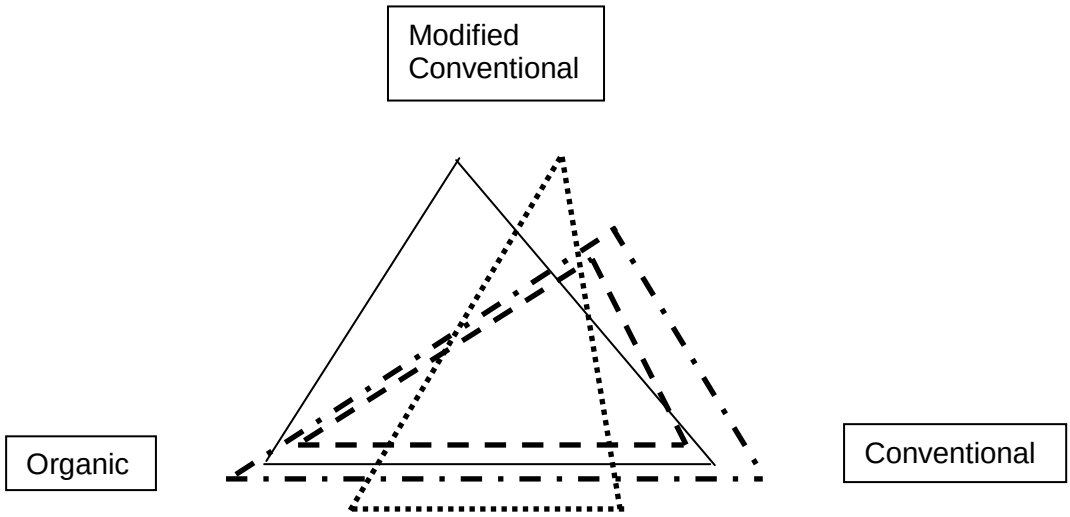
Figure 8: Distances between sectors for social indicators (14 variables)



Comparing all indicators across management systems and sectors

When the distance analyses are conducted the distance between the different management systems and sectors are dependent on the number of variables used in the analysis and so it is difficult to compare distances across sets of items in the questionnaire since each of the indicator sections contained a different number of items in the questionnaire. In Figure 9 below each of the previous comparisons across management systems are superimposed to more easily compare the relative distances between management systems for each of the indicators. Keep in mind that the purpose is just to see whether for each set of indicators the management systems are positioned in similar ways relative to the others. It can be seen that particularly for the production and environmental indicators, and slightly for the financial indicators, modified conventional management is closer to conventional management than to organic management. However, for the social indicators modified conventional management is closer to organic management. Organic management is closer to conventional management for the financial indicators whereas it is more distant for all the others. This indicates that it is organic management that tends to be most different from the others except for the comparison over financial indicators where modified conventional management stands out on its own.

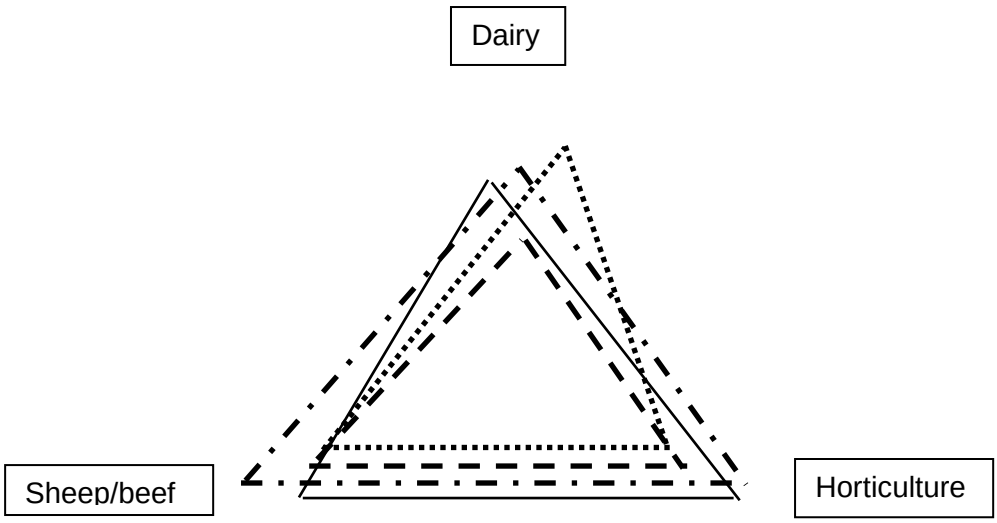
Figure 9: Distance analyses across management systems for each of the indicator themes – financial, production, environmental and social



Key:
Financial indicators (11 variables)
Production indicators (9 variables)
Environmental indicators (17 variables)
Social indicators (14 variables)

When the distance figures are superimposed for the comparisons between sectors for the sets of indicators (Figure 10) it can be seen that basically each indicator set is showing the same pattern of difference between the sectors and that is that they are more or less equidistant. What is interesting here is that because there were 17 environmental indicators we could expect that this would have produced a greater distance between the sectors and this does not appear to be significantly so, therefore the indicator set for production with only 9 indicators is probably showing a greater differentiation between the sectors as the others.

Figure 10: Distance analyses across sectors for each of the indicator themes – financial, production, environmental and social



Key:
Financial indicators (11 variables)
Production indicators (9 variables)
Environmental indicators (17 variables)
Social indicators (14 variables)

2.5 Approach to management

Strategies
This question provides an assessment of the degree to which farmers vary on a number of strategies that we believe may be related to resilience. The question was framed around the dimensions of learning, monitoring, diversity, redundancy, social networking, flexibility and experimentation/openness. The question set provides eight aspects of resilience assessed in terms of frequency that they were considered or implemented. The second question seeks to measure how change-oriented farmers are.

We believe this question measures surrogates of resilience rather than directly measuring resilience. We have yet to establish the validity of these as measures of resilience and it would take longitudinal data to see if in fact farmers who score highly on these variables are still farming in the future.

It is possible that farmers do not vary in their responses to these questions. Further, it may be that some farmers are resilient in one context but not another. For example, some may be better able to respond to environmental changes rather than financial changes. If this is found to be true then we have a 'weak' type of resilience. If some farmers are 'all rounders' and are resilient to all kinds of shocks then this would be a 'strong' type of resilience.

The main things to examine are: (1) do farmers discriminate on these questions, (2) within the data of the question, do the patterns make sense and meet our expectations, and (3) do the patterns fit responses to other questions?

We hypothesise these proxy measures of resilience will be linked to the intensity of the sector. The more intensive sectors are more likely to have farmers locked into the efficiency trap. We also expect that resilience will be related to length of time in farming.

In addition to the analysis of response to individual questions, we will conduct a test to see if we can combine the variables to get a combined measure and use this to correlate to other variables. Note that we have expressed the items in positive form and negative form so for interpretation we would have to reverse some questions.

As shown in Table 15 there were a range of responses to approach to management strategies. Those rated as more important were 'paying close attention to changes in plants/animals/insects on the farm', 'paying close attention to money in the bank' and 'good financial returns from each part of my business', 'paying close attention to what is happening in New Zealand and in the world', and 'learning new things by talking with a wide variety of people'. None of the strategies was rated as low or as somewhat unimportant and only 'seldom deviating from established farm plans' was near to neutral. Overall there were sector effects and management system effects for most of the questions asked about these farming strategies.

Table 15: Approach to management: means and summary of effects

Frequency (never – always)	Overall mean	Sector effects	Mgmt system effects
I adopt proven practices rather than do my own experiments	4.7	F	F
I pay close attention to changes in plants/animals/insects on my farm	5.8	P	P
I pay close attention to money in the bank and good financial returns from each part of my business	5.7	P	P
I pay close attention to what is going on in NZ and in the world	5.8	(P)	(P)
I focus on a limited number of income sources	5.1	(P)	(P)
I keep unused resources (e.g., buildings, machines) in case they are needed in the future	4.5	(F)	(F)
I seldom deviate from established farm plans	4.2	(P)	F
I learn new things by talking with a wide variety of people	5.7	(P)	P

Note: F = full effect, main effects and simple effects correspond
P = partial effect, main effects and simple effects partly correspond
I = interaction effects
Brackets indicate no significant differences among the main effects.

For 'I adopt proven practices rather than do my own experiments' there were full sector effects and full management system effects. Overall, conventional farmers rate it 5.1 ahead of modified conventional management farmers at 4.8 ahead of organic farmers at 4.0. This main effect was closely but not perfectly replicated within each sector. In terms of sector effects, overall, dairy farmers rated it 4.9 and horticulturalists rated it 4.7 ahead of sheep/beef farmers at 4.4. This main effect was almost replicated exactly for each management system.

For 'I pay close attention to changes in plants/animals/insects on my farm' there were partial sector effects and partial management system effects. Overall, organic farmers and modified conventional management farmers rated it 6.0 ahead of conventional farmers at 5.7. This

main effect was driven by sheep/beef farmers. In terms of sector effect, horticulturalists rated it higher at 6.1 ahead of sheep/beef farmers at 5.8 and dairy farmers at 5.7. These main effects were driven by conventional farmers.

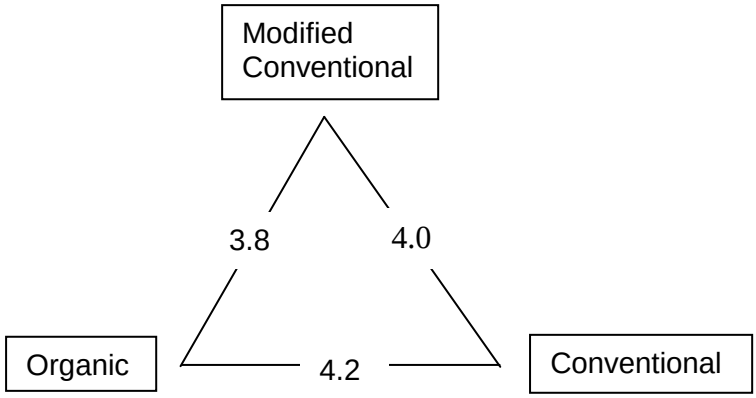
For 'I pay close attention to money in the bank and good financial returns from each part of my business' there were partial sector effects and partial management system effects. Overall, modified conventional management farmers (5.8) and conventional farmers (5.7) rated it higher than organic farmers at 5.4. This main effect was driven by horticulturalists. In terms of sector effects, dairy farmers rated it 5.8 ahead of sheep/beef farmers at 5.5 and this main effect was driven by conventional farmers.

For 'I seldom deviate from established farm plans' there were no sector effects but full management system effects. Overall, conventional farmers rated it 4.6 ahead of modified conventional management farmers and organic farmers at 3.9. This main effect was almost replicated in each sector.

For 'I learn new things by talking with a wide variety of people' there were no sector effects but partial management system effects. Overall, modified conventional management farmers rated it 6.1 ahead of organic farmers at 5.7 ahead of conventional farmers at 5.4. This main effect was replicated in the sheep/beef sector and partially replicated in the horticulture sector.

In summary, in terms of management system effects, adopting proven practices rather than experiment and seldom deviating from established farm plans were more frequently considered or adopted by conventional farmers. Paying close attention to changes in plants, animals or insects and learning new things by talking were rated as more frequently considered or adopted by modified conventional management farmers and organic farmers. Paying close attention to money in the bank and good returns from each part of the business was rated as more frequently considered or adopted by conventional and modified conventional management farmers. The distance analysis showed that overall the managements systems were equally dissimilar (Figure 11).

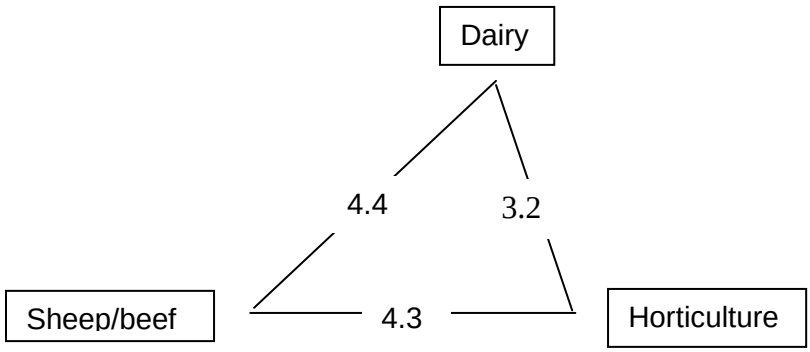
Figure 11: Distances between management systems for approach to management (8 variables)



In terms of sector effects, adopting proven practices rather than experiment was more frequently considered or implemented by dairy farmers and horticulturalists compared to sheep/beef farmers. Paying close attention to changes in plants, animals or insects was more frequently considered or implemented by horticulturalists compared to sheep/beef and dairy farmers. The distance analysis demonstrated that the horticulture and dairy sectors were

closer together in their approach to management over all their responses to the statements in this section (
Figure 12).

Figure 12: Distances between sectors for approach to management (8 variables)



Differences over time
Question 2 under approach to management asked how different will the farm or orchard be in ten years from now compared to the present time. For this question the average scoring was (approximately) 5 or slightly above the neutral point of the seven-point scale ranging from exactly the same to very different. There were no sector or management system main effects. In each sector there was a different management system which had the highest score. In sheep/beef, organic farmers rated this question at 5.4, in horticulture, conventional farmers rated it 5.4 and in dairy, modified conventional management farmers rated it 5.2. In addition, sheep/beef organic farmers rated it higher than horticultural organic farmers and dairy organic farmers.

2.6 Connections

This question tests results from the social objective Qualitative 1 and 2 interview results and enables us to test core theories about sustainable agriculture. We have found that in ARGOS farmers' visions for the future and discussion of environmental and personal wellbeing, that organic farmers demonstrated the broadest perspective on nature and society, placing themselves and their farms within a larger landscape and less localised community. We hypothesised that farmers with higher scores on these measures would have better environmental outcomes and may show different results on other measures. We cannot assess environmental outcomes in the questionnaire but if ARGOS research shows this relationship is well-founded then we can use our survey results to estimate the proportion of the population who appear to have this attribute. Even knowing at this stage how many farmers, and in which sectors, appear to have these attributes is important. If it is around 20 per cent then the future may be different compared to if we found that 80 per cent had these attributes. We expect differences by sector and management system.

Scale of management effect on wellbeing
As shown in Table 16 there were a range of responses to these questions on the scale of the effect of farm/orchard management on wellbeing. The relationship rated most important at 6.1 was the farm/orchard's relationship to the wellbeing of the farmer and the farmer's family. Clearly, farmers see management effect on wellbeing mainly in personal terms with a slight

effect on the local community or beyond. Overall there was one sector effect and three management system effects.

For effect on myself and my family, there were no sector effects but partial management system effects. Overall, organic farmers rated it 6.4 ahead of modified conventional management farmers at 6.1 ahead of conventional farmers at 5.9. This main effect was partly replicated in each sector with stronger agreement by organic farmers compared to conventional farmers. The range of scores shows that a few farmers (up to seven per cent) did not agree that their farm or orchard management was closely related to the wellbeing of themselves and their family.

Table 16: Scale of management affect on wellbeing: means and summary of effects

Level of agreement	Overall mean	Sector effects	Mgmt system effects
My farm/orchard and my management of it are closely related to the wellbeing of **myself and my family**	6.1	(F)	P
My farm/orchard and my management of it are closely related to the wellbeing of **the local community**	4.6	(P)	P
My farm/orchard and my management of it are closely related to the wellbeing of **the nation and the world**	4.7	P	F

Note: F = full effect, main effects and simple effects correspond
P = partial effect, main effects and simple effects partly correspond
I = interaction effects
Brackets indicate no significant differences among the main effects.

For effect on the local community, there were no sector effects but partial management system effects. Overall, organic farmers rated it 5.1 ahead of modified conventional management farmers at 4.7 ahead of conventional farmers at 4.3. This main effect was partly replicated in the sheep/beef and horticultural sectors with stronger agreement by organic farmers compared to conventional farmers. The spread of scores shows that a larger number of farmers disagreed that their farm or orchard management was closely related to the wellbeing of the local community. In terms of sector effects, only simple effects occurred in which conventional dairy farmers had higher agreement compared to conventional sheep/beef farmers.

For effect on the nation and the world, there were partial sector effects and full management system effects. Overall, organic farmers rated it 5.4 ahead of modified conventional management farmers at 4.7 ahead of conventional farmers at 4.3. This main effect was fully replicated in all sectors with stronger agreement by organic farmers compared to conventional farmers. The spread of scores shows that a larger number of farmers disagreed that their farm or orchard management was closely related to the wellbeing of the nation or the world especially in conventional sheep/beef. In terms of sector effects, dairy farmers had higher agreement (4.9) compared to sheep/beef farmers (4.5).

In summary, in terms of management system effects on relationships, generally, there was agreement with each relationship but more so for the effect on self and family, and there was stronger agreement by organic farmers ahead of modified conventional management farmers ahead of conventional farmers. In terms of sector effects, only for effect on wellbeing of the nation and the world was there a sector effect and this only distinguished between dairy and

sheep/beef farmers (while farmers overall somewhat agreed with this relationship, there was stronger agreement by dairy farmers compared to sheep/beef farmers only). The distance analysis results are presented after the next section.

Scale of environmental effect

As shown in Table 17 there were a range of responses to these questions on the scale of the effect of farm/orchard management on the environment. The relationship rated most important was management primarily affecting the productive areas of the property. The responses to this question were similar to those in the previous question except that the first item received a higher score and the last item, relating to global scale, received a lower score at 3.5 (less than neutral) whereas in the previous question it was 4.7 (more than neutral). This comparison is indicating that farmers acknowledge that farming has an effect on themselves and their family more than the environment within the productive areas of the property. This lower rating of the effects of management on the environment is made clear with the rating of management effect on the environment at a global scale. Overall there were management system effects for each of the questions asked.

Table 17: Scale of environmental affect: means and summary of effects

Level of agreement	Overall mean	Sector effects	Mgmt system effects
My farm/orchard management affects the environment **primarily within the productive areas of the property**	5.3	(P)	P
My farm/orchard management affects the environment **in the region where my property is located**	4.7	(F)	F
My farm/orchard management affects the environment **on a global scale**	3.5	(F)	F

Note: F = full effect, main effects and simple effects correspond
P = partial effect, main effects and simple effects partly correspond
I = interaction effects
Brackets indicate no significant differences among the main effects.

For effect of farm or orchard management on the environment primarily within the productive areas of the property, there were no sector effects but partial management system effects. Overall, organic farmers rated it 5.6 ahead of modified conventional management farmers at 5.2 and conventional farmers at 5.1. This main effect was replicated in part only in the horticultural sector. The range of scores shows that some farmers did not agree that their farm or orchard management has an effect on the environment primarily within the productive areas of the property.

For effect of farm or orchard management on the environment in the region where the property is located, there were no sector effects but full management system effects. Overall, organic farmers rated it 5.3 ahead of modified conventional management farmers at 4.7 and conventional farmers at 4.4. This main effect was almost fully replicated in each sector. The range of scores shows that many farmers did not agree that their farm or orchard management has an effect on the environment in the region where the property is located.

For effect of farm or orchard management on the environment on a global scale, there were no sector effects but full management system effects. Overall, organic farmers rated it 4.4 ahead of modified conventional management farmers at 3.5 ahead of conventional farmers at 2.9. This main effect was fully replicated in each sector. The range of scores shows that most

farmers, except for organic farmers, did not agree that their farm or orchard management affects the environment on a global scale.

In summary, in terms of management system effects on the environment, generally there was a lower level of agreement with each level of the scale of effect from local to global to disagreement with the effect of management on a global scale. However, for each scale of environmental effect there was stronger agreement by organic farmers but it too decreased from local to global. In terms of sector effects, there were no results that included all three sectors.

Over all six questions on connections, the distance analysis shows that those practicing organic management were the most different in their views on the impact of their management on wellbeing and the environment (Figure 13). The results for connections through a distance analysis showed the sectors were almost equidistant (Figure 14).

Figure 13: Distances between management systems for connections (6 variables)

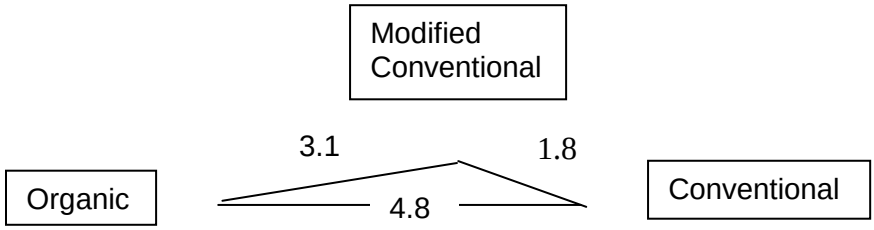
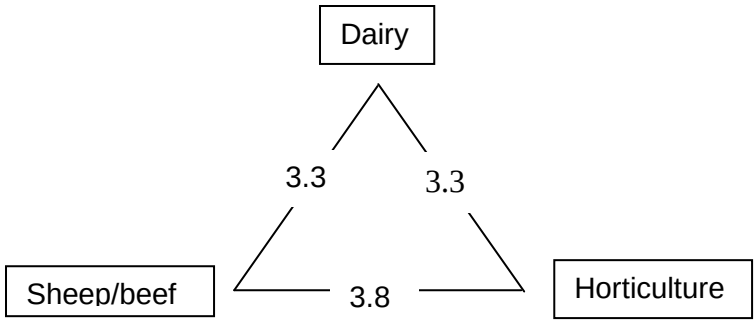


Figure 14: Distances between sectors for connections (6 variables)



2.7 Community Participation

Level of involvement

We wish to test whether farmers with higher social capital, i.e., more community linkages or networks, have a higher breadth of view as indicated in the connections questions, and have better economic performance. Performance will be assessed by stock units (SU) per hectare and gross returns per SU and per hectare. A simple question asked for a rating of level of attachment towards the area where the farmers lived. This question did not seek to qualify the nature of type of attachment nor its rationale. Research by Shamai and Ilatov (2005) demonstrate that such a simple approach can be more effective than attempting to provide a qualification of the nature of attachment.

As shown in Table 18 there were a range of responses to the community participation indicators. Among the ones rated at or near to 6 on the seven-point scale for involvement were 'voting in national elections' and 'voting in local body elections'. Rated near to 2 (where 1 meant little or no involvement) were 'involvement in civic organisations' and 'fire service, ambulance and search and rescue'. In all, there were seven items for which the rating was less than 3.4 meaning somewhat not involved, and two rated at about four or neutral. Thus, most farmers have low levels of involvement in these activities except for voting which is not particularly onerous. These results are consistent with the observation that farmers are very busy with their farm work. Overall there were three sector effects and four management system effects for the questions asked about community participation.

Table 18: Community participation: means and summary of effects

Level of involvement (little – heavily)	Overall mean	Sector effects	Mgmt system effects
Voting in national elections	5.9	(F)	P
Voting in local body elections	5.5	(F)	P
Submitting comments on local government plans and policy	3.2	(F)	(F)
School or educational groups e.g., PTA, school committees	3.4	P	P
Church groups and/or care agencies	2.7	(F)	(F)
Sports/athletic/recreational groups	4.1	(P)	(F)
Civic organisations (e.g., Rotary, Lions)	2.0	(F)	(F)
Festivals, shows (e.g., A&P)	2.6	P	(F)
Fire service, ambulance, search and rescue	2.3	(F)	(F)
Providing cash financial support to community activities	4.0	P	P
Hospital/medical organisations/trusts	2.6	(F)	(F)

Note: F = full effect, main effects and simple effects correspond
P = partial effect, main effects and simple effects partly correspond
I = interaction effects
Brackets indicate no significant differences among the main effects.

For voting in national elections there were no sector effects but partial management system effects. Overall, conventional farmers rated it 6.1 ahead of organic farmers at 5.6. This main effect was replicated only in the horticulture sector. The spread of scores shows some farmers rated voting in national elections at 1 or little or no involvement.

For voting in local body elections there were no sector effects but partial management system effects. Overall, conventional farmers rated it 5.8 ahead of organic farmers at 5.3. This main effect was replicated only in the horticulture sector. The spread of scores shows some farmers rated voting in local body elections at 1 or little or no involvement.

For involvement in school or educational groups there were partial sector effects and partial management system effects. Overall, organic farmers rated it 3.7 ahead of conventional farmers at 3.0. This main effect was replicated only in the sheep/beef sector. The spread of scores shows some farmers rated participation in school or educational groups at 7 or heavily involved. In terms of sector effects, dairy farmers (3.8) rated it higher than horticulturalists (2.9).

For involvement in festivals or shows there were sector effects and no management system effects. Overall, sheep/beef farmers rated it 3.0 ahead of horticulturalists at 2.5 and dairy

farmers at 2.3. This main effect was replicated only for conventional farmers in the sheep/beef and dairy sectors. We would expect that conventional sheep/beef farmers have more interest in shows as they are more common in this sector.

For the provision of cash financial support to community activities there were partial sector effects and partial management system effects. Overall, modified conventional management farmers rated it at 4.5 ahead of conventional farmers at 4.0 and organic farmers at 3.8. This main effect was replicated only in the sheep/beef sector. In terms of sector effects, sheep/beef (4.2) and dairy farmers (4.3) rated it higher than horticulturalists (3.7).

In summary, in terms of management system effects modified conventional management farmers gave a higher rating to providing cash financial support to community activities. Organic management was equidistant from conventional and modified conventional management in the distance analysis (Figure 15). In terms of sector effects, sheep/beef farmers reported higher levels of involvement in festivals or shows, and sheep/beef and dairy farmers reported higher levels of involvement in providing cash financial support to community activities. Overall the distance analysis shows that the dairy and sheep/beef sectors were the most different in terms of their community participation (Figure 16).

Figure 15: Distances between management systems for community participation (11 variables)

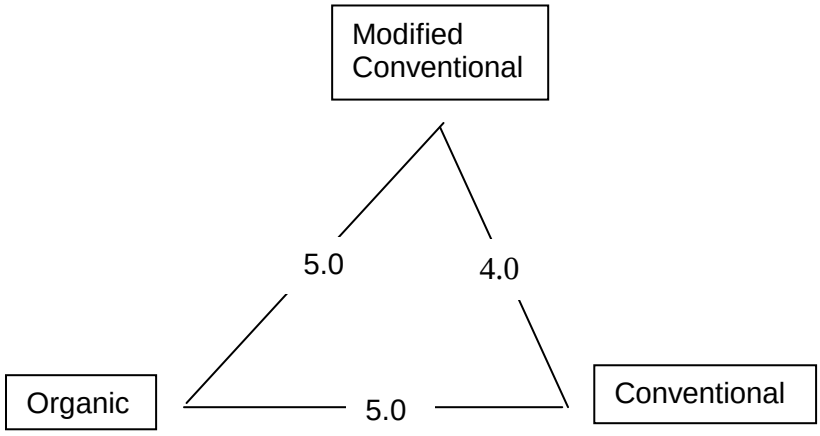
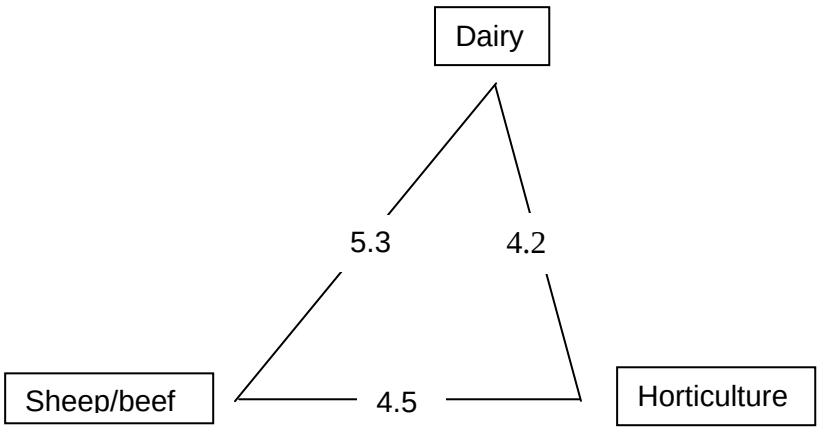


Figure 16: Distances between sectors for community participation (11 variables)



Level of attachment

The second question in this section of the questionnaire asked about level of attachment toward the area where the farmer lives. The results showed that this question was rated near to six on the seven-point scale ranging from very negative connection to very positive connection. The most frequent scores were five and six. Thus farmers have indicated that they believe themselves to be attached to the area where they live, even though the previous question indicated that they were not heavily involved in the community activities listed. However, some farmers reported scores of three and four which indicate a modest level of attachment, and in a few cases there was a score of 1 meaning very negative connection. There were no sector or management system effects.

2.8 Farming factors

The sheep/beef and dairy results from the causal mapping identified factors for which statistically significantly different centrality scores were found across panels and across Q-sort types (Types 1-4 and Type A and B). This question has now been reduced to just the causal map factors that sort into Type A and Type B. These questions also have the potential to represent economic and environmental breadth of view. Note that the centrality scores are derived from map connections while the Q-sort types derived from rankings of importance, so the importance data may not work in the same way. They do, however, match the way the Q-sort was done.

As shown in Table 19 there was a limited range of responses to the farming factors questions with most of them receiving a high score of six (important) or above. Future generations/succession was rated as somewhat important. Generally, farmers have indicated that marketing, family and satisfaction, and environmental factors were important. Overall there were five partial sector effects and four partial management system effects.

For customer requirements there was a partial sector effect and a partial management system effect. Overall organic farmers and modified conventional management farmers rated it 6.4 and conventional farmers rated it 6.0. However, there was an interaction effect and this pattern only occurred for the sheep/beef and dairy sectors whereas organic horticulturalists did not give it a higher score as scores were higher across all management systems in the horticulture sector. Across the sectors horticulturalists rated customer requirements at 6.5 which was higher than sheep/beef farmers at 6.0 and dairy farmers at 6.1. This difference was only replicated in conventional management.

For customer satisfaction there were similar results with a partial sector effect and a partial management system effect. Overall organic farmers rated it at 6.4 and modified conventional management farmers rated it at 6.5 higher than conventional farmers at 6.1. This pattern only occurred for the sheep/beef and dairy sectors. Across sectors horticulturalists rated customer requirements at 6.5 which is higher than sheep/beef farmers and dairy farmers at 6.2.

Table 19: Farming factors: means and summary of effects

Level of importance	Overall mean	Sector effects	Mgmt system effects
Customer requirements	6.2	P	P
Customer satisfaction	6.3	P	P
Family needs	6.4	(F)	P
Farm environment as a place to live	6.4	(P)	(P)
Farm environmental health	6.3	P	(P)
Future generations/succession	5.1	P	P
Off-farm product quality	6.0	P	(P)
Personal satisfaction	6.5	(F)	(F)
Stream health	6.2	(F)	(P)

Note: F = full effect, main effects and simple effects correspond
P = partial effect, main effects and simple effects partly correspond
I = interaction effects
Brackets indicate no significant differences among the main effects.

The pattern of results in the above two questions shows that organic and modified conventional management farmers attach more importance to customers compared to conventional farmers. However, this finding is moderated by the other result which is that horticulturalists attach more importance to customers, to the extent that conventional horticulturalists rated these two customer questions as highly as organic pastoral farmers. The higher scores for horticulture may be due to the nature of their product being more likely to be directly consumed and to the greater awareness of their markets due to the wide use of audit systems.

For family needs there were no sector effects but partial management system effects. Overall modified conventional management farmers rated it 6.6 while conventional farmers rated it 6.3 and this pattern was strong for sheep/beef farmers.

For farm environment as a place to live there were no sector or management system main effects possibly because there was an interaction effect. However, there were simple management system effects in that within sheep/beef and horticulture organic farmers gave it a higher score. There were simple sector effects in that modified conventional management horticulturalists gave it a lower score

For farm environmental health there were no sector effects but partial management system effects, again, because of a significant interaction effect. Overall organic farmers (6.6) and modified conventional management farmers (6.5) rated it higher than conventional farmers (6.2). This pattern was reflected in the sheep/beef and dairy sectors but did not occur in horticulture where it was rated uniformly and moderately high. In terms of the distribution of scores there were a few farmers in each sector who rated this factor as very unimportant. There was a simple sector effect in that conventional sheep/beef farmers rated farm environmental health with a lower score than their counterparts in the horticulture and dairy sectors.

For future generations/succession there were partial sector effects and partial management system effects. Overall organic farmers rated it at 5.5 compared to conventional farmers at

4.9 but this pattern was not reflected in all the sectors. In terms of sector effects dairy farmers rated it at 5.6, sheep/beef farmers at 5.1 and horticulturalists at 4.6.

For off-farm product quality there were partial sector effects and no management system effects. Horticulturalists rated it at 6.3 while dairy farmers rated at 6.0 and sheep/beef farmers at 5.9. This pattern was reflected in conventional farmers only.

For personal satisfaction and stream health there were no sector or management system effects.

The questionnaire asked if the farmer did not have streams and Table 20 reports these results.

Table 20: Proportions of farmers reporting that their farm/orchard does not have a stream

	CV		MCV		Org		Totals	
S/B	12/67	18%	1/27	49%	13/39	33%	26/133	20%
Hort.	17/28	61%	27/54	50%	18/42	43%	62/124	50%
Dairy	14/92	15%	5/32	16%	7/35	20%	26/199	16%
Totals	43/187	23%	33/113	29%	38116	33%	114/416	27%

In summary, in terms of management system effects organic farmers and modified conventional management farmers rated customer requirements, customer satisfaction and farm environmental health higher than did conventional farmers. Conventional management was the most different of the management systems overall as shown by the distance analysis (Figure 17). In terms of sector effects, both customer requirements and customer satisfaction were rated more important by horticulturalists. Future generations/succession was more important for dairy farmers. Overall the horticulture sector was the most different (Figure 18).

Figure 17: Distances between management systems for farming factors (9 variables)

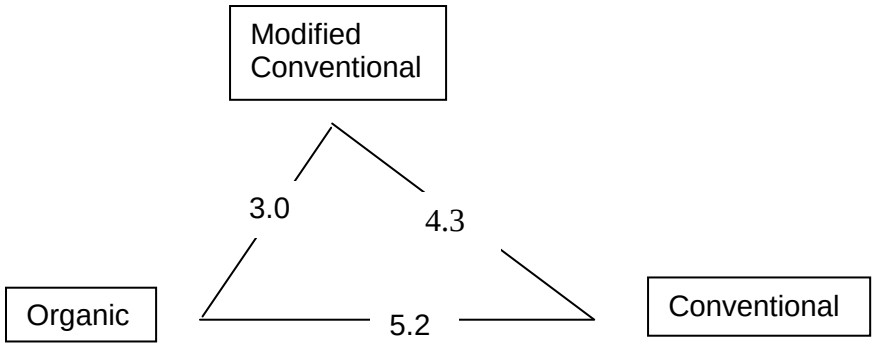
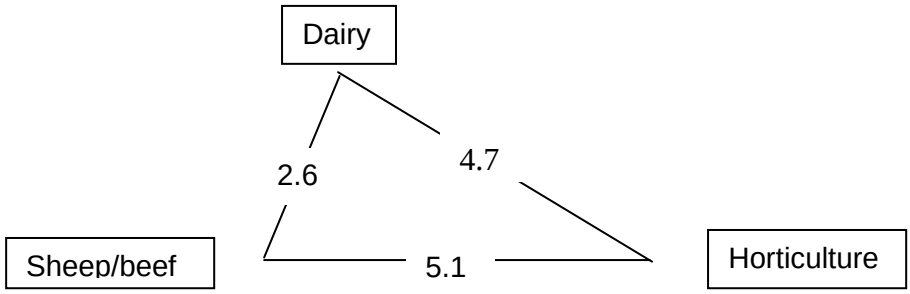


Figure 18: Distances between sectors for farming factors (9 variables)



2.9 Emissions trading

The issue of carbon emissions mitigation is of high topical interest to the farming community. Current proposals for meeting New Zealand's Kyoto obligations need to account for the agricultural sector's nearly 50 per cent contribution to New Zealand's greenhouse gas emissions. Farmers, however, often contest the extent to which they are held responsible for the cost of carbon credits to compensate for the methane and nitrous oxide associated with their management practices. This question is also pertinent to the objectives of the survey in that it seeks to differentiate farmers in regard to their willingness to acknowledge the impact of their practices on an environmental problem that occurs at the global scale and is generally not perceived at the local level. It offers the further advantage of generating farmer interest in the questionnaire since we know from other research that this topic is of great concern to farmers. The question was designed to include a range of popular views about emissions trading.

As shown in Table 21 there was a range of responses to the emissions trading questions. Among those with which the respondents agreed (with a score of 6 out of 7) was the third item referring to farmers taking more than their share of responsibilities for emissions. Farmers registered somewhat disagree (between 3 and 4) for the first and last items. Farmers were saying that they should not take responsibility for reducing emissions, nor were they sanguine about higher market returns balancing the costs of reduction efforts. The fact that are largely unwilling to assume responsibility for reducing emissions contributes to their perception that farmers are being shouldered with excessive responsibility for the cost and mitigation of emissions. Overall, there were sector effects and management system effects for the questions asked about climate change and greenhouse gas emissions.

Table 21: Emission trading: means and summary of effects

Level of agreement	Overall mean	Sector effects	Mgmt system effects
New Zealand farmers contribute to climate change and should take responsibility for reducing emissions	3.5	(P)	P
New Zealand farmers should take responsibility only to the same extent as farmers elsewhere	5.0	(F)	P
Within New Zealand, farmers are being asked to assume more than their fair share of responsibility for emissions	5.7	(P)	(P)
Technological solutions are needed to decrease agricultural greenhouse gas emissions	5.0	P	F
Higher market returns will balance the costs of reduction efforts	3.4	(F)	(F)

Note: F = full effect, main effects and simple effects correspond
P = partial effect, main effects and simple effects partly correspond
I = interaction effects
Brackets indicate no significant differences among the main effects.

For the first item (New Zealand farmers contribute to climate change and should take responsibility for reducing emissions) there were no sectors effects but partial management system effects. Overall organic farmers rated it 4.1, higher than modified conventional management farmers at 3.4 and conventional farmers at 3.2 and this pattern is reflected only in the dairy sector. The distribution of scores shows a wide range with some farmers making a definite point by choosing very strongly disagree and by those who are neutral or who agree with the statement. The frequency distributions of the results are bimodal across all sectors and management systems demonstrating the uncertainty within the sector.

For the second item (New Zealand farmers should take responsibility only to the same extent as farmers elsewhere) there were no sector effects but partial management system effects. Overall conventional farmers rated it 5.4 ahead of organic and modified conventional management farmers was rated it at 4.6. This pattern was partially reflected in all sectors where conventional farmers consistently rated it highest. The distribution of scores shows a bimodal pattern in some cases.

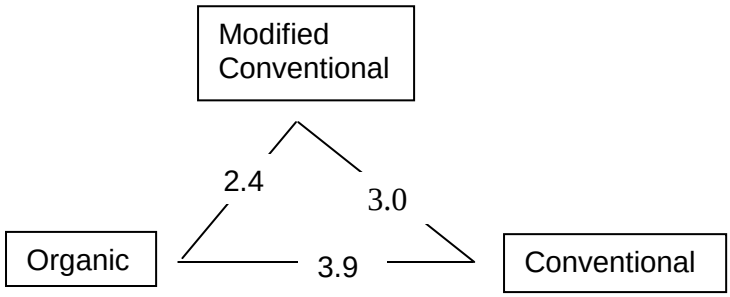
For the third item (within New Zealand, farmers are being asked to assume more than their fair share of responsibility for emissions) there were no sector effects and no management system effects.

For the fourth item (technological solutions are needed to decrease agricultural greenhouse gas emissions) there were partial sector effects and full management system effects. Overall, conventional farmers (5.3) and modified conventional management farmers (5.3) rated it higher than organic farmers (4.3). The lower response of the latter group may reflect an assumption that such solutions were likely to involve purchased technological inputs or genetic modification. This pattern was reflected in each sector (although the score for modified conventional management sheep/beef farmers was not statistically significantly different). Bimodal patterns occur across all score distributions for organic. In terms of sector effects dairy farmers rated this item at 5.2 while sheep/beef farmers rated it 4.5. This pattern was reflected in the scores for modified conventional management.

For the fifth item (higher market returns will balance the costs of reduction efforts) there were no sectors effects and no management system effects.

In summary, in terms of management system effects while farmers overall somewhat disagreed that farmers contribute to climate change and that that they should take responsibility, conventional and modified conventional management farmers disagreed more and organic farmers were neutral. Conventional farmers only agreed more that farmers should take responsibility only to the same extent as farmers elsewhere. This is consistent with their thinking that since they are not the cause and yet they are being asked, unfairly, to find solutions and pay the costs of carbon credits, this penalty should be applied in a similar way to farmers elsewhere. Conventional and modified conventional management farmers agreed more with finding technological solutions. In the distance analysis organic management was most different from conventional management (Figure 19).

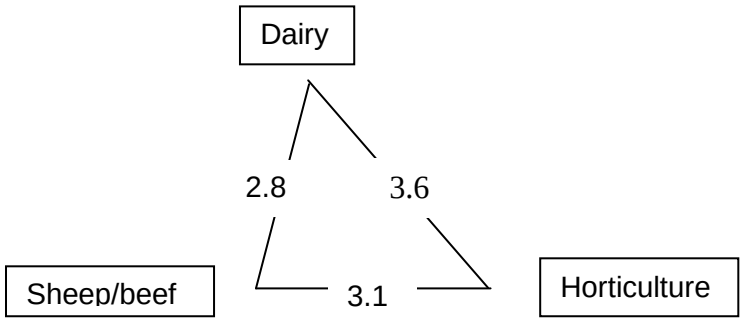
Figure 19: Distances between management systems for emissions trading (5 variables)



In terms of sector effects, there were no items for which differences across all sectors occurred. This latter finding is somewhat surprising as the horticulture sector is subject to much lower costs of mitigation, not having the responsibility for methane emissions to which the pastoral sectors are subject. This would suggest that the current response to questions of responsibility is driven by understandings of unfairness relative to government regulation more generally as opposed to impacts on individual farmers or orchardists. Overall, however,

the distance analysis demonstrated that the horticulture sector was the most different from the dairy sector (Figure 20).

Figure 20: Distances between sectors for emissions trading (5 variables)



2.10 Bird diversity and management

Birds can play an important role in biodiversity management so this section assessed attitudes towards both native and exotic birds, whether birds were seen to damage the farm operation, and if farmers are encouraging birds (diversity and abundance).

Birds are highly visible and many species are readily recognisable by farmers and regularly encountered on the farm. As bird diversity is often reflective of wider system biodiversity, birds are an excellent surrogate to gauge the following: farmers' recognition of biodiversity in performing ecosystem services and hence an essential component of farm resilience; farmers' perceived role as stewards supporting biodiversity; farmers' consideration of biodiversity when making land management decisions; or farmers' willingness to participate in market accreditation schemes that reflect "bird friendly" (biodiversity friendly) practices.

A second aim of these questions was to attempt to identify whether or not there was a dichotomy between how farmers value native and introduced bird species and the relative contribution of each in informing management decisions. These data will later be compared to those from a public survey to identify areas of overlap or disconnection between the perceived ecological and aesthetic roles of native and introduced birds in the eyes of farmers and the public.

Native birds

As shown in Table 22 there was a modest range of responses to the native bird diversity and management questions. None were rated with a high score, most ranging between somewhat unimportant or neutral. Overall there were sector effects and management system effects for most of the questions asked about native birds.

For the view of 'not liking more native birds on my farm' there were no sector effects and no management system effects. Note that the distribution of scores shows an acute bimodal pattern with large numbers choosing very strongly agree and very strongly disagree although less so for dairy farmers. This pattern is a feature of the responses to many of the questions in this set. This has led to the larger score differences in the means in many of the comparisons, and greater variability as measured by the standard deviations.

For the claim that farms with more native birds are also more likely to cope with drought and climate stresses there were no sector effects but full management system effects. Overall

organic farmers rated it 4.0, significantly different from modified conventional farmers who rated it 3.0 and conventional farmers who rated it 2.9. This pattern was matched within sectors for all but modified conventional management sheep/beef farmers. The distribution of scores is bimodal with 1 and 4 being the most frequently chosen.

For the claim that 'native birds provide important services on my farm' (pollination, pest control, or nutrient cycling) there were partial sector effects and full management system effects. Overall organic farmers rated it 5.3, higher than modified conventional management farmers at 4.0 and conventional farmers at 3.7. This pattern is matched within sectors for all but modified conventional management dairy farmers. In terms of sector effects, sheep/beef (4.6) and dairy farmers (4.5) rated it higher than horticulturalists (3.7).

For the idea that 'it is not the responsibility of the landowner to encourage native birds on my farm' there were partial sector effects and partial management system effects. Overall, organic farmers rated this 2.6, lower than modified conventional management farmers at 3.2 and conventional farmers at 3.0. This pattern was only partly reflected across sectors where it shows up exactly in the sheep/beef sector, partly in dairy and not at all in horticulture. In terms of sector effects, sheep/beef farmers gave a lower score than horticulturalists and it is only for organic farmers that this pattern occurs.

For level of interest in participating in a market accreditation scheme in the form of a "bird tick" that certifies my production as native bird-friendly there were no sector effects but full management system effects. Overall, organic farmers rated this 4.7, higher than modified conventional management farmers at 3.6, higher than conventional farmers at 2.8. This pattern is matched for each management system within each sector although it differs slightly in horticulture and dairy but organic farmers were always highest. The distribution of the scores is different for each management system but for conventional management the mode is always one.

Table 22: Native bird diversity and management: means and summary of effects

Level of agreement	Overall mean	Sector effects	Mgmt system effects
I would not like more birds on my farm	3.5	(F)	(F)
Farms that have more birds are also more likely to cope with drought and climate stresses	3.2	(F)	F
Birds provide important services on my farm (pollination, pest control, or nutrient cycling)	4.2	P	F
It is not my responsibility as a landowner to encourage birds on my farm	3.0	P	P
I would be interested in participating in a market accreditation scheme in the form of a "bird tick" that certifies my production as bird friendly	3.5	(P)	F
Some birds cause damage to my farm operation	3.6	F	(F)

Note: F = full effect, main effects and simple effects correspond
P = partial effect, main effects and simple effects partly correspond
I = interaction effects
Brackets indicate no significant differences among the main effects.

For the claim that 'some native birds cause damage to my farm operation' there were full sector effects and no management system effects. Overall, horticulturalists rated this at 4.2,

different from dairy farmers at 3.5, different from sheep/beef farmers at 3.0. This pattern was almost replicated for all management systems.

In summary, in terms of management system effects, overall there was a rating of somewhat disagree for the claim that farms that have more native birds are also more likely to cope with drought and climate stresses and more so for conventional and modified conventional management while for organic farmers it was rated as neutral. There was a neutral rating (4.2) for the claim that native birds provide important services on my farm (pollination, pest control, or nutrient cycling) but conventional and modified conventional management farmers were more negative about this while organic farmers somewhat agreed with it. There was a rating of somewhat disagree for the idea that it is not the responsibility of the landowner to encourage native birds on my farm but less so for conventional and modified conventional management farmers and more so for organic farmers. There was a rating of somewhat disagree (3.5) for level of interest in participating in a market accreditation scheme in the form of a “bird tick” that certifies production as native bird friendly but conventional farmers and modified conventional management farmers disagreed while organic farmers somewhat agreed. In all these comparisons there is a contrast in the positions of both conventional and modified conventional management farmers compared to organic farmers. The latter were more positive about native birds and believed that native birds helped the farm cope with stress, provided services, and that it was the farmers’ responsibility to encourage native birds. They had more interest in a native bird market accreditation programme. (The distance analyses are provided at the end of the section on introduced birds).

In terms of sector effects, there was a rating of neutral (4.2) for the claim that native birds provide important services on my farm (pollination, pest control, or nutrient cycling) but this was slightly more positive for sheep/beef and dairy farmers. For the claim that some native birds cause damage to my farm operation overall there was slight disagreement (3.6) and more so for sheep/beef, ahead of dairy and then horticulturalists who were neutral. For these two results, horticulturalists were always more negative about native birds.

Introduced birds

As shown in Table 23 there were a range of responses to the introduced birds diversity and management questions. The first five were rated between somewhat unimportant and neutral. The last item was rated as somewhat important whereas the same question for native birds was rated at 3.6. Accordingly, most farmers see introduced birds as causing damage to their farm operation but not native birds. Overall there were sector effects and management system effects for most of the questions asked about introduced birds.

Table 23: Introduced bird diversity and management: means and summary of effects

Level of agreement	Overall mean	Sector effects	Mgmt system effects
I would not like more birds on my farm	3.9	P	(F)
Farms that have more birds are also more likely to cope with drought and climate stresses	3.0	(F)	F
Birds provide important services on my farm (pollination, pest control, or nutrient cycling)	3.9	P	F
It is not my responsibility as a landowner to encourage birds on my farm	3.2	(P)	P
I would be interested in participating in a market accreditation scheme in the form of a "bird tick" that certifies my production as bird friendly	3.1	P	F
Some birds cause damage to my farm operation	5.1	P	P

Note: F = full effect, main effects and simple effects correspond
P = partial effect, main effects and simple effects partly correspond
I = interaction effects
Brackets indicate no significant differences among the main effects.

For the view of 'not liking more introduced birds on my farm' there were partial sector effects and no management system effects. Note that, as before, the distribution of scores shows an acute bimodal pattern with large numbers choosing very strongly agree and very strongly disagree although less so for dairy farmers. This pattern is a feature of the responses to many of the questions in this set. This has led to the larger score differences in the means in many of the comparisons. Sheep/beef farmers rated this item higher at 4.1 compared to dairy farmers rated it 3.5 but this pattern was not repeated across management systems.

For the claim that farms that have more introduced birds are also more likely to cope with drought and climate stresses there were no sector effects but full management system effects. Overall organic farmers rated it 4.0, significantly higher than modified conventional management farmers at 2.6 and conventional farmers at 2.7. This pattern was matched exactly across all management systems within sectors. The distribution of scores is bimodal with 1 and 4 being most frequently chosen.

For the claim that 'introduced birds provide important services on my farm (pollination, pest control, or nutrient cycling)' there were partial sector effects and full management system effects. Overall organic farmers rated it 5.0, significantly more than modified conventional management farmers at 3.6 and conventional farmers at 3.4. This pattern is matched exactly across all management systems within sectors. In terms of sector effects, sheep/beef and dairy farmers (4.1) rated it higher than horticulturalists (3.4).

For the statement that 'it is not the responsibility of the landowner to encourage introduced birds on my farm' there were no sector effects but partial management system effects. Overall, organic farmers rated this 2.7, significantly less than modified conventional management farmers at 3.4 and conventional farmers at 3.3. This pattern was only partly reflected across management systems within sectors where it shows up exactly in the sheep/beef sector, partly in dairy and not at all in horticulture.

For level of interest in participating in a 'market accreditation scheme in the form of a "bird tick" that certifies my production as introduced bird friendly' there were partial sector effects and full management system effects. Overall, organic farmers rated this 4.3, significantly

more than modified conventional management farmers at 2.9 and conventional farmers at 2.5. This pattern is matched for each management system within each sector although it differs slightly in dairy but organic farmers were always highest. The distribution of the scores is different for each management system but for conventional management and modified conventional management the mode is always 1, the scores are not as skewed for organic farmers.

For the claim that 'some introduced birds cause damage to my farm operation' there were partial sector effects and partial management system effects. Overall, modified conventional management farmers rated this item 5.4 ahead of organic farmers at 4.8, a pattern that is only replicated in horticulture. In terms of sector effects, horticulturalists rated this item at 5.6 ahead of sheep/beef farmers at 4.9 and dairy farmers at 4.8.

In summary, in terms of management system effects, there was a rating of somewhat disagree for the claim that 'farms that have more introduced birds are also more likely to cope with drought and climate stresses' and more so for conventional and modified conventional management while for organic farmers it was rated at neutral. There was a neutral assessment of the claim that 'introduced birds provide important services on my farm (pollination, pest control, or nutrient cycling)' but less so for conventional and modified conventional management farmers and more so for organic farmers who somewhat agreed with it. There was a rating of somewhat disagree for the idea that 'it is not the responsibility of the landowner to encourage introduced birds on my farm' but less so for conventional and modified conventional management farmers and more so for organic farmers. There was a rating of somewhat disagree for level of interest in 'participating in a market accreditation scheme in the form of a "bird tick" that certifies production as introduced bird friendly' but more so for conventional and modified conventional management farmers and less so for organic farmers who are almost neutral (4.3). In all these comparisons there is a contrast in the positions of both conventional and modified conventional management farmers compared to organic farmers. The latter were more positive about introduced birds and believed that introduced birds helped the farm cope with stress, provided services, and that it was the farmers' responsibility to encourage introduced birds. They had more interest in an introduced bird market accreditation programme and were less likely to agree that introduced birds caused damage.

In terms of sector effects, for the claim that 'introduced birds provide important services on my farm (pollination, pest control, or nutrient cycling)' the overall rating was neutral but horticulturalists slightly disagreed while sheep/beef and dairy farmers were neutral. For the claim that 'some native birds cause damage to my farm operation' overall this was rated as somewhat agree but more so for horticulturalists compared to sheep/beef and dairy farmers.

Comparisons between the responses to native birds and introduced birds

The mean scores for each management system and sector for native and introduced birds were compared and the scores with significant differences are reported in Table 24. Generally, the different scores were in favour of native birds. For the first two items there was only one management system within one sector where there was a different score and this was modified conventional management. For the next two items there were two management systems and sectors involved, and for the second last item there were two sectors and two management system involved. All scores were higher for the introduced birds on the last item. Many of the different scores involved modified conventional management and organic management.

Table 24: Comparisons of responses for native and introduced birds

Level of agreement	Native	Introduced	Particular mean with higher score
I would not like more birds on my farm	3.28	4.37	Hort-MCV
Farms that have more birds are also more likely to cope with drought and climate stresses	3.33	2.68	S/B-MCV
Birds provide important services on my farm (pollination, pest control, or nutrient cycling)	4.14	3.73	S/B-Org
	4.53	3.81	Dairy-MCV
It is not my responsibility as a landowner to encourage birds on my farm	3.02	3.56	S/B-CV
	2.96	3.83	S/B-MCV
I would be interested in participating in a market accreditation scheme in the form of a "bird tick" that certifies my production as bird friendly	3.92	3.12	S/B-MCV
	5.08	4.54	S/B-Org
	2.80	2.29	Hort-MCV
	4.71	4.11	Hort-Org
Some birds cause damage to my farm operation		higher	All

Overall, the differences between the scores were statistically significantly different and favoured native birds.

As the distance analyses for both native and exotic birds demonstrated similar distances and shaped triangles for both management systems and sectors we only present analyses here for birds overall. Organic management demonstrated the greatest difference from the other management systems as far as attitudes to birds were concerned (Figure 21). In this instance modified conventional management was even more distant than conventional management. All sectors were placed at similar distances from each other but the sheep/beef and horticulture sectors were the most distant (Figure 22).

Figure 21: Distances between management systems for bird diversity and farm management (12 variables)

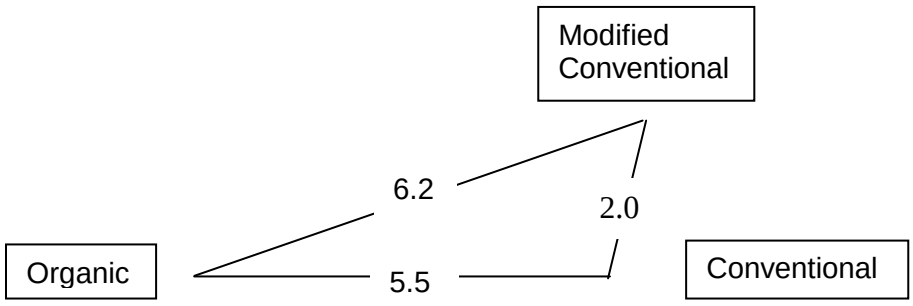
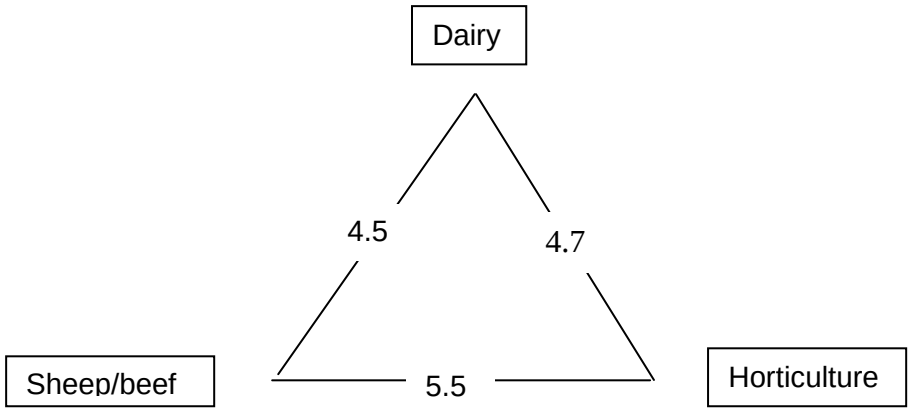


Figure 22: Distances between sectors for bird diversity and farm management (12 variables)



The questions on birds were supplemented by asking how birds caused damage. The tables below present the results for each of the three sectors (

Table 25, Table 26 and Table 27). The open ended responses were coded into general categories which reflected the variety of responses. In some cases farmers referred to more than one description of damage and the tables list all the different combinations reported. The most frequent causes for all sectors were damage to foliage or fruit (which may have included references to eating, picking, or damage to leaves or shoots or fruits or seeds), and contamination (which may have included references to hygiene, faeces etc).

Table 25: How birds are causing damage (sheep/beef)

	Frequency	Per cent
Damage foliage/fruit	34	38
Contamination	14	16
Nesting	5	6
Predators	7	8
Birds eg magpies/gulls chasing/killing birds	4	5
Damage foliage/fruit/contamination	6	7
Damage foliage/fruit/nesting	1	1
Damage foliage/fruit/predators	3	3
Contamination/nesting	1	1
Damage foliage/fruit/predators/contamination	4	5
Damage foliage/fruit/contamination/nesting	1	1
Contamination/predators	4	5
Contamination/nesting/predators	2	2
Damage foliage/fruit/predators/birds chasing killing	1	1
Contamination/birds chasing killing birds	2	2
Total (n)	89	100

Table 26: How birds are causing damage (horticulture)

	Frequency	Per cent
Damage foliage/fruit	97	84
Contamination	5	4
Nesting	1	1
Birds e.g., magpies/gulls chasing/killing birds	1	1
Damage foliage/fruit/contamination	5	4
Damage foliage/fruit/nesting	3	3
Damage foliage/fruit/contamination/nesting	2	2
Damage foliage/fruit/Birds e.g., magpies/gulls	1	1
Total (n)	115	100

Table 27 How birds are causing damage (dairy)

	Frequency	Per cent
Damage foliage/fruit	27	28
Contamination	19	20
Nesting	8	8
Predators	1	1
Birds e.g., magpies/gulls chasing/killing birds	1	1
Damage foliage/fruit/contamination	24	25
Damage foliage/fruit/nesting	2	2
Contamination/nesting	5	5
Damage foliage/fruit/contamination/nesting	3	3
Contamination/predators	1	1
Damage foliage/fruit/birds e.g., magpies/gulls	2	2
Damage foliage/fruit/contamination/birds chasing	2	2
Birds e.g., magpies/gulls chasing/killing	1	1
Total (n)	96	100

Active encouragement of birds

Another question asked if respondents actively encouraged birds. The question used yes/no/unsure options. Chi square analysis of the frequency of responses showed no differences across sectors. Across management systems there was a higher frequency of organic farmers who indicated the 'yes' option. This result occurred consistently in each sector.

Table 28, Table 29 and Table 30 show the responses to the question on how the farmers encouraged birds. The most common techniques were planting natives or planting trees and shrubs for the purposes of providing food or shelter or habitat.

Table 28: How birds are encouraged (sheep/beef)

	Frequency	Per cent
Plant trees/shrubs	22	26
Plant natives	19	22
Fence off reserves etc.	4	5
Feed them	4	5
Provide nesting sites - boxes	3	4
Plant trees/no minimum use of chemicals	3	4
Control pests	2	2
Plant natives/feed them	2	2
Provide nesting sites - boxes/plant trees etc	2	2
Plant trees/fence off	2	2
Control pests/non min use of chemicals	2	2
Control pests/feed	2	2
No shooting	1	1
No/minimum use of chemicals	1	1
Kill exotic birds	1	1
Encourage hawks	1	1
Encourage some, kill other birds	1	1
Plant natives/fence off	1	1
Plant/feed	1	1
Plant/control pests/provide nesting	1	1
Plant trees/fence/control pests	1	1
Fence/control pests/feed	1	1
Plant trees/fence/no shooting/no/min use of	1	1
Plant natives/plant trees	1	1
Encourage some kill others/plant trees	1	1
Provide nesting/plant trees/fence	1	1
Fence/plant trees/look after blocks	1	1
Plant natives/kill exotic birds	1	1
Look after bush blocks/plant trees	1	1
Fence/control pests	1	1
Plant trees/no shooting/control pests	1	1
Total (n)	86	100

Table 29: How birds are encouraged (horticulture)

	Frequency	Per cent
Plant natives	27	37
Plant trees/shrubs	19	26
Feed them	5	7
No minimum use of chemicals	3	4
Control pests	2	3
Control pests/non min use of chemicals	2	3
Fence off reserves etc.	1	1
Provide nesting sites - boxes	1	1
No shooting	1	1
Encourage hawks	1	1
Look after bush blocks	1	1
Provide nesting sites - boxes/plant trees etc	1	1
Plant natives/fence off	1	1
Plant/feed	1	1
Plant/no shooting	1	1
Control pests/feed	1	1
Provide nesting/plant trees/control pests	1	1
Farm organically/plant trees	1	1
Plant natives/plant trees	1	1
Encourage some kill others/plant trees	1	1
Control pests/provide nesting	1	1
Total	73	100

Table 30: How birds are encouraged (dairy)

	Frequency	Per cent
Plant trees/shrubs	17	24
Plant natives	16	22
Plant trees/fence off	6	8
Fence off reserves etc.	4	6
Provide nesting sites - boxes/plant trees etc	4	6
Control pests	2	3
Feed them	2	3
No shooting	2	3
Plant natives/fence off	2	3
Whistle	1	1
No/minimum use of chemicals	1	1
Look after bush blocks	1	1
Look after young	1	1
Plant/feed	1	1
Control pests/no/minimum use of chemicals	1	1
Plant/fence/control pests	1	1
Plant trees/fence/control pests	1	1
Control pests/feed	1	1
Plant trees/feed	1	1
Provide nesting/control pests/no shooting	1	1
Look after bush blocks/plant trees/no shooting	1	1
Look after bush blocks/fence	1	1
Provide nesting sites/no shooting	1	1
Provide nesting/plant trees/fence	1	1
Kill exotic birds/plant trees	1	1
Total	71	100

2.11 Trees and shrubs

Growing native and exotic trees and shrubs is important for encouraging ecological diversity. This question is also important in terms of issues relating to carbon credits. This question covered a range of possible benefits of planting native trees and shrubs and exotic trees and shrubs on the farm (not the garden). It also asked how many such trees/shrubs had been planted or removed.

Native trees and shrubs

As shown in Table 31 there was a range of responses to the native trees and shrubs questions. Among the somewhat important ones were planting native trees and shrubs to increase native bird diversity and abundance, enhancing stream health by planting riparian zones, enhancing shelter for stock or fruit, and making my farm/orchard look attractive. Somewhat unimportant were providing fodder for stock and providing logs/timber. Overall there were sector effects and management system effects for most of the questions asked about planting native trees and shrubs.

Table 31: Planting native trees and shrubs: means and summary of effects

Importance of benefit from:	Overall mean	Sector effects	Mgmt system effects
Generating carbon credits	3.6	P	P
Increasing native bird diversity and abundance	5.1	P	P
Increasing insect diversity and abundance	4.7	P	P
Enhancing stream health by planting along riparian zones	5.1	F	P
Enhancing shelter for stock or fruit	5.4	F	P
Managing erosion	4.7	F	P
Making my farm/orchard look attractive	5.3	P	(P)
Providing fodder for stock	2.8	P	F
Providing logs/timber	2.7	F	P

Note: F = full effect, main effects and simple effects correspond
P = partial effect, main effects and simple effects partly correspond
I = interaction effects
Brackets indicate no significant differences among the main effects.

For generating carbon credits there were partial sector effects and partial management system effects. Overall, organic farmers rated it close to neutral (4.2) but higher than conventional farmers at 3.2. The main effect was reflected only in the dairy sector. In terms of sector effects, dairy farmers gave a neutral rating while horticulturalists rated it somewhat unimportant. The spread of scores is very wide extending from the mode of 1 (for all except modified conventional management dairy farmers and organic dairy farmers) to 7 as indicated by the high standard deviations which in many cases are above two.

For increasing native bird diversity and abundance there were partial sector effects and partial management system effects. Overall, organic farmers rated it 5.7 ahead of modified conventional management farmers at 5.1 and conventional farmers at 4.7. This main effect was reflected in the comparisons between conventional and organic farmers in the horticulture and dairy sectors only. In terms of sector effects, sheep/beef farmers rated this benefit at 5.6 ahead of dairy farmers at 5.2 ahead of horticulturalists at 4.6. This pattern is only partially replicated by conventional and modified conventional management farmers. The spread of scores ranges across the scale and while the mode most frequently is 7 there were some farmers who chose 1 and this happened most in horticulture.

For increasing insect diversity and abundance there were partial sector effects and partial management system effects. Overall, organic farmers rated it 5.7 ahead of modified conventional management farmers at 4.8 ahead of conventional farmers at 4.0. This main effect was almost repeated within each sector. In terms of sector effects, sheep/beef farmers (5.1) and dairy farmers (4.9) were ahead of horticulturalists (4.2) this pattern being repeated for conventional and modified conventional management farmers within each sector. Organic farmers were consistent across sectors giving a uniformly higher score. The spread of scores was wide.

For enhancing stream health by planting along riparian zones there were full sector effects and partial management system effects. Overall, organic farmers rated it 5.5 similar to modified conventional management farmers at 5.2 but ahead of conventional farmers at 4.6. This main effect was repeated for sheep/beef farmers only and partially for horticulture. In terms of sector effects, sheep/beef and dairy farmers rated it 5.4 ahead of horticulturalists at 4.2 and this main effect is repeated across all management systems (except modified

conventional management dairy farmers). The spread of scores is wide and horticulture is distinctive in that the pattern is bimodal.

For enhancing shelter for stock or fruit there were full sector effects and partial management system effects. Overall, organic farmers rated it 6.0 ahead of modified conventional management farmers at 5.6 ahead of conventional farmers at 4.9. This main effect was repeated for conventional compared to organic farmers in each sector. In terms of sector effects, sheep/beef farmers (5.9) and dairy farmers (5.7) were ahead of horticulturalists (4.5). This main effect was repeated across all management systems. The spread of scores was wide and horticulture was distinctive in that the pattern is bimodal.

For managing erosion there were full sector effects and partial management system effects. Overall, organic farmers and modified conventional management farmers rated it at 5.1 ahead of conventional farmers at 4.3. This main effect was replicated for the sheep/beef sector only and partly for horticulture. In terms of sector effect, sheep/beef farmers rated it 5.2 similar to dairy farmers at 5.0 but ahead of horticulturalists at 4.0. This main effect was replicated within management systems except for dairy organic farmers. The spread of scores was wide and horticulture is distinctive in that the pattern is bimodal.

For making my farm/orchard look attractive there were partial sector effects and no management system effects. Overall, sheep/beef and dairy farmers rated it 5.6 ahead of horticulturalists at 4.7. This main effect was replicated for conventional and modified conventional management farmers only. The spread of scores was wide and horticulture was distinctive in that the pattern was bimodal.

For providing fodder for stock there were partial sector effects and full management system effects. Overall, organic farmers rated it 3.6 similar to modified conventional management farmers at 3.1 ahead of conventional farmers at 2.4. This main effect was replicated in the sheep/beef and dairy sectors but modified horticulturalists were lower (they are less likely to have stock) whereas in the other sectors they were higher. This inverse result is indicated by a significant interaction effect. In terms of sectors, sheep/beef (3.2) and dairy (3.3) were higher than horticulture (2.2). This main effect holds for modified conventional management and organic farmers only.

For providing logs/timber there were full sector effects and partial management system effects. Overall, organic farmers and modified conventional management farmers rated it 3.1 ahead of conventional farmers at 2.2. This main effect was replicated in the dairy sector and partially in horticulture. In terms of sectors, sheep/beef farmers rated it 3.1 similar to dairy farmers at 3.0 ahead of horticulture at 2.0. This main effect was replicated across management systems except for conventional dairy farmers.

In summary, in terms of management system effects, there was a consistent pattern for many of the findings. Conventional farmers gave a lower score to using native trees and shrubs for enhancing stream health by planting along riparian zones, managing erosion, providing fodder for stock and providing logs or timber. Organic farmers gave a higher rating using native trees and shrubs for increasing native bird diversity and abundance, to increasing insect diversity and abundance and to enhancing shelter for stock or fruit.

In terms of sector effects, there was a consistent pattern for most questions in this set. For all questions, except the importance of generating carbon credits, whatever the overall rating of importance, sheep/beef and dairy farmers gave a higher score (although some scores were negative). This pattern suggests that the planting native trees and shrubs, not surprisingly, was more relevant to and possible for pastoral farmers compared to horticulturalists who tend to have much smaller property sizes.

Exotic trees and shrubs

As shown in Table 32 there were a range of responses to the exotic trees/shrubs questions. Among the somewhat important ones were 'enhancing shelter for stock or fruit' and 'making my farm/orchard look attractive'. Somewhat unimportant were providing fodder for stock, generating carbon credits, and providing logs/trees. Overall there were sector effects and management system effects for most of the questions asked about planting exotic trees and shrubs.

Table 32: Planting exotic trees and shrubs: means and summary of effects

Importance of benefit from:	Overall mean	Sector effects	Mgmt system effects
Generating carbon credits	3.6	P	P
Increasing native bird diversity and abundance	4.5	P	P
Increasing insect diversity and abundance	4.4	P	P
Enhancing stream health by planting along riparian zones	4.6	P	P
Enhancing shelter for stock or fruit	5.5	F	P
Managing erosion	4.6	P	P
Making my farm/orchard look attractive	5.0	P	(P)
Providing fodder for stock	3.0	F	P
Providing logs/timber	3.4	P	P

Note: F = full effect, main effects and simple effects correspond
P = partial effect, main effects and simple effects partly correspond
I = interaction effects
Brackets indicate no significant differences among the main effects.

For generating carbon credits there were partial sector effects and partial management system effects. Overall, organic farmers rated it as neutral (4.1) similar to modified conventional farmers (3.8) and ahead of conventional farmers (3.2). This main effect was reflected only in the dairy sector. In terms of sector effects, dairy farmers gave a neutral rating (3.9) while horticulturalists rated it somewhat unimportant (3.2). The spread of scores was wide and most of the distributions were bimodal.

For increasing native bird diversity and abundance there were partial sector effects and partial management system effects. Overall, organic farmers rated it at 5.2 ahead of modified conventional management farmers at 4.4 and conventional farmers at 4.0. This main effect was replicated in horticulture only but in the other sectors conventional and organic management were also different. In terms of sector effects, sheep/beef (4.9) and dairy (4.7) were ahead of horticulture (3.8). This main effect was repeated for conventional and modified conventional management farmers. The spread of scores varies and horticulture was positively skewed[7] while dairy was negatively skewed.

For increasing insect diversity and abundance there were partial sector effects and partial management system effects. Overall, organic farmers rated it 5.4 ahead of modified conventional management farmers at 4.4 ahead of conventional farmers at 3.6. This main effect was almost repeated within each sector. In terms of sector effects, sheep/beef farmers (4.6) and dairy farmers (4.5) were ahead of horticulturalists (4.0). This main effect was repeated for modified conventional management farmers within each sector. Organic farmers

[7] The skewness of a distribution refers to the tail of the distribution not to the bulk of the distribution.

were consistent across sectors giving a uniformly higher score. The spread of scores was wide.

For enhancing stream health by planting along riparian zones there were partial sector effects and partial management system effects. Overall, organic farmers rated it 4.9 ahead of conventional farmers at 4.2. This main effect was repeated for sheep/beef farmers only. In terms of sector effects, sheep/beef farmers rated it 4.7 and dairy farmers rated it 4.9 ahead of horticulturalists at 3.8 and this main effect is repeated for conventional farmers and organic farmers. The spread of scores was wide and horticulture was distinctive in that the pattern was bimodal.

For enhancing shelter for stock or fruit there were full sector effects and partial management system effects. Overall, organic farmers rated it 6.0 ahead of modified conventional management farmers at 5.5 and conventional farmers at 5.2. This main effect was repeated for conventional compared to organic farmers in each sector. In terms of sector effects, sheep/beef farmers (6.0) and dairy farmers (5.6) were ahead of horticulturalists (5.1). This main effect was repeated in sheep/beef and horticulture. The spread of scores was wide and horticulture was distinctive in that the pattern was bimodal.

For managing erosion there were partial sector effects and partial management system effects. Overall, organic farmers rated it at 5.0 similar to modified conventional management farmers at 4.9 ahead of conventional farmers at 4.3 and this was partially reflected in the sheep/beef sector. In terms of sector effect, sheep/beef farmers rated it 5.2 similar to dairy farmers at 4.7 but ahead of horticulturalists at 4.0. The spread of scores was wide and horticulture was distinctive in that the pattern was bimodal.

For making my farm/orchard look attractive there were partial sector effects and no management system effects. Overall, sheep/beef farmers rated it 5.2 similar to dairy farmers at 5.3 ahead of horticulturalists at 4.5. The spread of scores was wide and horticulture was distinctive in that the pattern was bimodal.

For providing fodder for stock there were full sector effects and partial management system effects. Overall, organic farmers rated it 3.9 ahead of modified conventional management farmers at 3.2 ahead of conventional farmers at 2.4. This main effect was replicated in the dairy sector only since there was a significant interaction effect. Modified conventional management sheep/beef farmers gave a high rating (4.4) compared to modified conventional management horticulturalists (3.6) who gave a lower rating. In terms of sectors, sheep/beef (3.6) and dairy (3.4) were higher than horticulture (2.1). This main effect was replicated almost fully in the sectors.

For providing logs/timber there were partial sector effects and partial management system effects. Overall, organic farmers rated it 4.3 ahead of modified conventional management farmers at 3.7 ahead of conventional farmers at 2.9. This main effect was replicated in all sectors (but not for conventional horticulturalists). In terms of sectors, sheep/beef farmers rated it 4.1 similar to dairy farmers at 3.5 ahead of horticulture at 2.9.

In summary, the results were broadly similar to those for the importance of benefits from planting native trees. In terms of management system effects, organic farmers gave a higher rating to the importance of exotic trees and shrubs for increasing native bird diversity and abundance, increasing insect diversity and abundance, increasing shelter for stock and fruit, providing fodder and providing trees and logs. Together with modified conventional management farmers, organic farmers gave a higher rating to the importance of exotic trees and shrubs for generating carbon credits and for managing erosion. Aside from these results, all of the benefits of trees were seen in neutral or positive terms while generating carbon credits, provision of fodder and provision of logs/timber were seen in negative terms.

In terms of sector effects, the common pattern, occurring seven times, was for sheep/beef and dairy farmers to give higher scores. They gave a higher rating to the importance of exotic trees and shrubs for increasing native bird diversity and abundance, enhancing stream health by planting along riparian zones, increasing shelter for stock and fruit, managing erosion, providing fodder and providing trees and logs.

Comparisons between native trees and introduced trees

The mean scores for each management system and sector for native and introduced trees were compared and the scores with significant differences are reported in Table 33. Generally, there was a range of different scores but overall most of the differences were in favour of native trees. Many of the different scores involved modified conventional management.

Table 33: Comparisons of responses for native and introduced trees

Importance of benefit from:	Native	Introduced	General assessment
Generating carbon credits	3.6	3.6	No differences
Increasing native bird diversity and abundance	5.1	4.5	Most more +ve Not S/B Org Dairy MCV & Org
Increasing insect diversity and abundance	4.7	4.4	Some more +ve S/B org., all Hort, Dairy MCV
Enhancing stream health by planting along riparian zones	5.1	4.6	All more +ve Not S/B CV Hort CV & MCV
Enhancing shelter for stock or fruit	5.4	5.5	S/B MCV only +ve Hort MCV & CV -ve
Managing erosion	4.7	4.6	No differences
Making my farm/orchard look attractive	5.3	5.0	Only S/B MCV and Dairy CV more +ve
Providing fodder for stock	2.8	3.0	Only S/B CV & MCV and Dairy org more -ve
Providing logs/timber	2.7	3.4	Most -ve

Just as for the bird diversity section, the distances analyses for attitudes to native and exotic trees and shrubs were very similar so only the distance analyses for both native and exotic trees are presented here. Modified conventional and conventional management system farmers demonstrated very similar attitudes to trees and shrubs compared to organic management farmers (Figure 23), while dairy and sheep/beef farmers also demonstrated similar attitudes compared to horticultural orchardists (Figure 24).

Figure 23: Distances between management systems for trees and shrubs (18 variables)

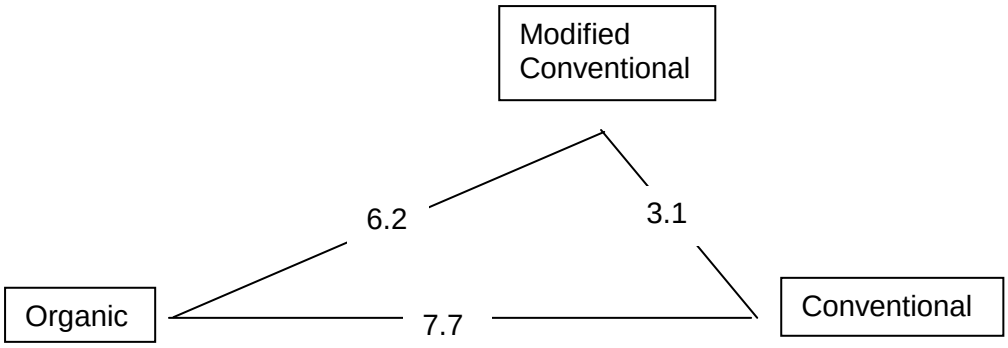
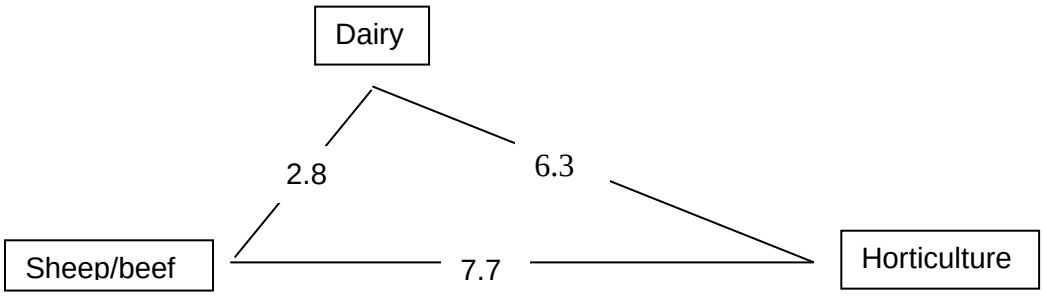


Figure 24: Distances between sectors for trees and shrubs (18 variables)



Trees and shrubs planted

The appendix tables provide an account of the numbers of trees planted, the number removed, and the number which replaced those removed in the last five years. These were defined to exclude garden planting. Not all farmers planted trees. Between 50-70 farmers in each sector were more active in planting natives and exotics (below three metres and above three metres). In addition, farmers in all three sectors had removed exotic trees over three metres.

Chapter 3
Discussion and Conclusion: General Patterns in the Results

3.1 Introduction

The objective of the survey research reported here was to make sector and management systems comparisons of New Zealand farmers on a number of topics that have emerged from recent ARGOS research. The body of this report contains those results which have been subject to detailed description and preliminary interpretation. There remains more work to be done in analysing and interpreting further these core results. In the meantime, this conclusion focuses on general patterns in the results and illustrating these by drawing together a summary of results.

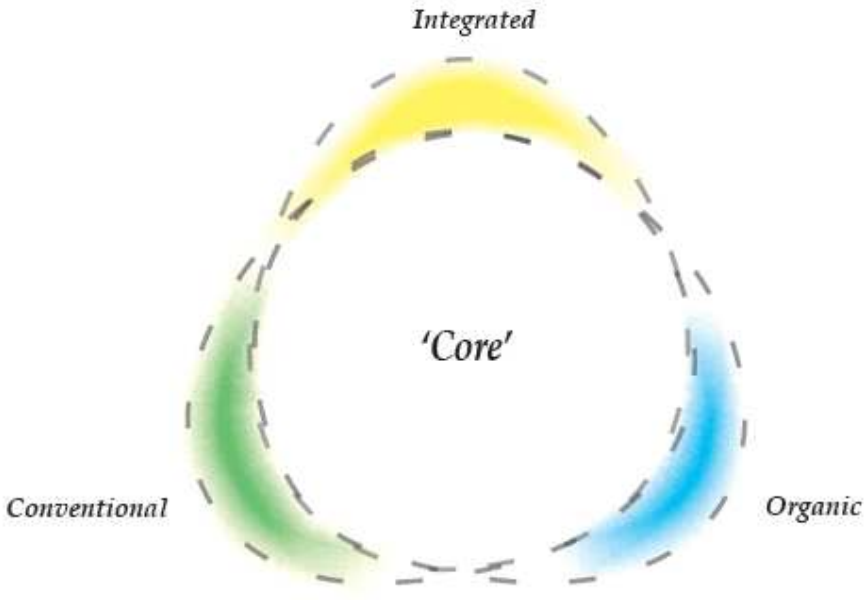
It is now possible to collate overall results and look for patterns across all the variables for both management systems and sectors. In the tables that follow the patterns for each set of questions in the questionnaire are collated in summary tables. The purpose here is to test hypotheses about the nature of management systems and the nature of the sectors. Regarding the former, earlier ARGOS research (Hunt et al., 2006) has found that while there is a core of shared farm and farmer attributes, each management system has some distinctive features. Each management system can be seen as a type of approach to farming, or an 'ideal type' and the three management systems can be seen as an 'ovoid ideal type' in which there is a set of shared or core attributes supplemented by a distinct set of characteristics (see Figure 25). One question relating to the relationship among management system types is their degree of similarity. In particular, where does modified conventional management (integrated management) sit in relation to conventional and organic management and what is its relative distance from the other two systems? Furthermore, in terms of sectors, earlier ARGOS research has observed that the horticulture and dairy sectors are the most intensive. What effect, if any, does intensity have on management system effects? Our hypothesis is that management system effects, or the differences between systems, are accentuated in the more intensive sectors.

The following sections focus on patterns in the data and their meaning by summarising the substantive results and drawing them into an overall characterisation of management systems and sectors. The penultimate section considers additional patterns relating to management system and sector effects considered together. The last section concludes by assessing the evidence relating to the above general research question and hypothesis.

Before proceeding with these final analyses we comment on the reliability and potential for inference from the data, and on the method of analysis of the Likert scale data. The respondent samples were smaller than expected because the response rate was low. In our earlier discussion of this we argued that there were good reasons for the low response rate rather than it being a rejection by farmers of the survey and the topics contained within it. Further, we showed from an analysis of data from non respondents that the reasons for non response seemed benign and they suggested that many farmers did not in fact receive a questionnaire. The non-respondent data also allowed an upward adjustment to the response rate for the sheep/beef sector, bringing it to 28 per cent. Thus while the samples are smaller than usual they are not necessarily inadequate for making inferences to the population. They do, however, mean that the precision of any population estimates is lower than usual. Concerning the Likert scale data, we showed that the two-way analysis of variance method produced robust results. A cross check on some of the data using Kruskall-Wallis tests

produced results remarkably similar and showing that, if anything, the analysis of variance was a more conservative approach. In general, we take the results for the effects of both management system and sectors to be robust, but some caution is needed in placing too much emphasis on an individual result, but rather it needs to be placed in context with other results.

Figure 25: Ovoid ideal types



3.2 Management system patterns – main effects

Table 34 shows the results for management system main effects for each set of questions used in the questionnaire. These results were derived from observing and counting the patterns for the overall management system means displayed at the bottom of each table in the Appendix. There are eight logically possible combinations of management system main effects. The table starts in the first column with a comparison of results for which each management system was different from the other. The next three columns show comparisons for which all three management systems were involved and one was statistically different from the other two. The next three columns show comparisons where only two management systems were involved. The last column of comparisons includes all cases where there were no statistically significant results for any management system. The table also includes the total number of variables in each question set, and the percentage of these for which there were statistically significant main effects. The asterisks indicate which management system had a different result but note that it does not indicate which one had the highest or lowest score for a particular variable.

The table shows that out of the total of 133 questions asked for which we could do a statistical analysis comparing management and sector effects, there were 49 for which there was no statistically significant relationship. Overall there was a relationship for the remaining 84 (63 per cent) of the questions. For each set of questions the proportion of statistically significant relationships varies: in the case of management intentions and connections it was 100 per cent, and in the case of level of attachment and difference to the farm in ten years it was zero per cent. The annual financial indicators, the social performance indicators and the community participation variables had less than 50 per cent with a statistically significant

difference. The annual production indicators and most of the environment variables had over three quarters with a statistically significant difference.

Table 34: Patterns of management system main effects across all variables

	CV* MCV** Org***	CV* MCV* Org**	CV* MCV** Org**	CV* MCV** Org*	CV* MCV Org**	CV MCV* Org**	CV* MCV** Org	CV MCV Org	Total	% Sign.
Intentions to use management systems	3	1	1						5	100
Annual financial indicators						2		9	11	22
Annual production indicators		6			1			2	9	78
Environmental performance indicators	2	7			4			4	17	76
Social performance indicators			1		2		1	10	14	40
Approach to management	2		3					3	8	63
Difference in ten years								1	1	0
Connections	4	2							6	100
Community participation				1	3			7	11	36
Level of attachment								1	1	0
Farming factors			3		1		1	4	9	56
Emission trading		2	1					2	5	60
Native bird diversity and management	1	3						2	6	67
Introduced bird diversity and management		4				1		1	6	83
Native trees and shrubs	2	1	4		1			1	9	89
Exotic trees and shrubs	3	2	2		1			1	9	89
Background information		2			2		1	1	6	83
Total	17	30	15	1	15	3	3	49	133	63

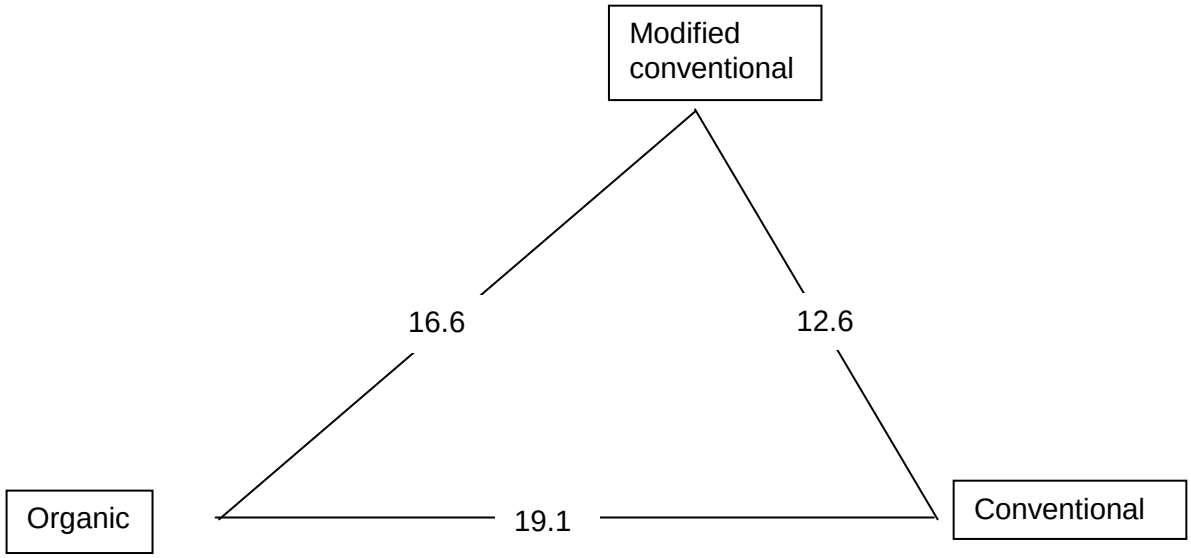
The most commonly occurring difference occurs in the second column of results and shows that there were 30 cases of organic management being different from both conventional and modified conventional management. These differences tend to be strongly influenced by environmental and production issues and also connections and management indicators to a lesser extent. In addition, column one shows that there were 17 cases where each management system was different from the others. These management system results are

summarised in Table 35 which shows the total number of statistically significant differences for each management system compared to the others, and for each management system compared to just one other system. (Note that all counts are repeated in other parts of the table at least once.) The table shows that organic compared with conventional management responses had a total of 77 distinctive comparisons, and 51 when compared with modified conventional management, while conventional and modified conventional management differed on 36 occasions. The main result is that using the items in this survey, organic management farmers demonstrated by their responses that they were most different from conventional farmers and less different from modified conventional farmers. Modified conventional farmers' responses were more often closer to those of conventional farmers, than organic farmers. This is in agreement with and summarised by the distance analysis (see Figure 26) which was performed over all variables in the survey that had a Likert Scale or rational level response except for farm size and revenue, where it was not appropriate to compare results over sectors or management systems.[8] In other words, management system effects were most likely to be driven by a difference from organic management. It is possible that this result is due to the environmental orientation of some of the questions in the questionnaire.

Table 35 Summary of management system main effects

Conventional compared to Organic	cf. other two – each different cf. other two like MCV but cf. Org cf. Org only	17 15 30 15
	Total	77
Conventional compared to Modified Conventional	cf. other two – each different cf. other two like Org but cf. MCV cf. MCV only	17 15 1 3
	Total	36
Modified Conventional compared to Organic	cf. other two – each different cf. other two like Con but cf. Org cf. Org only	17 1 30 3
	Total	51

Figure 26: Distances between management systems (for 133 variables)



[8] The distances in all the following figures are scaled by half compared to the previous figures.

It is possible to count the number of significant differences among the management systems results and compare these to the number which would occur by chance for a five per cent level of significance (five in 100). The statistically significant differences which involve management systems are shown at the bottom of each column in Table 34. However, where the differences include comparisons between each management system that were found to be statistically significant different (the first column) there were in fact three tests made. Therefore the column total has to be multiplied by three. The totals for the next three columns need to be multiplied by two and the next three columns count as they are. The sum of these adjusted totals is 164. The overall total is 399 (133 multiplied by three). The 164 statistically significant differences found are 41 per cent of the overall total, much more that the 20 expected by chance.

Having demonstrated that there are differences across management systems it is appropriate to illustrate these differences by summarising the substantive results presented earlier. In these summaries attention is given only to comparisons which include all three management systems. This policy makes for an easier assessment of the main characteristics of the results. We are not suggesting that more restricted comparisons are not important. However, in order to make the results manageable some limitations are needed. Note that management system differences reported across all sectors, and sector differences reported across all management systems, are stronger results in that the main effect is replicated by all the simple effects. Note also that a statistically different score on a variable does not necessarily mean that the lower or higher rating of the questionnaire item is particularly important. Also, a lower score does not always mean a negative rating of the questionnaire item.

In line with the results above, most of the differences in management systems relate to a difference from organic management. However, the results for annual financial performance show that there was agreement among farmers using all three management systems about what were important indicators. They all emphasised that cash surplus/deficit, net profit/loss and money available to cover cash needs were important.

Organic management

Production, finance and appearance

Organic farmers gave a lower rating of importance to yields per hectare, a neat and tidy landscape, having a tidy, well maintained farm/orchard, minimum weeds, volume of production, and no productive land going to waste, and a higher rating to the importance of reducing carbon emissions. They reported that they less frequently considered or implemented paying close attention to money in the bank and good returns from each part of the business and to the adoption of proven practices rather than doing their own experiments. Alongside modified conventional farmers they reported that they more frequently considered or implemented paying close attention to changes in plants/animals/insects on their farms and deviating from their established farm plans. Also, with modified conventional farmers, they gave a higher rating to the importance of customer requirements and satisfaction, and farm environmental health.

Environment

Organic farmers gave a higher rating of importance to soil biological activity, soil health, biodiversity, and presence of productive and non-productive species, and a lower rating to pesticide use. In addition, organic farmers gave a higher rating to the number of native bird species, the number of plant and tree species, native and other, and the amount of carbon sequestered.

Organic farmers rated as neutral the claim that farms that have more native birds are also more likely to cope with drought and climate stresses while conventional and modified conventional management somewhat disagreed. They somewhat agreed (while conventional and modified conventional management farmers tended to disagree) with the claim that

native birds provide important services on the farm (pollination, pest control, or nutrient cycling) and were more interested in participating in a market accreditation scheme in the form of a “bird tick” that certifies production as native bird friendly. Organic farmers reported less agreement with the view that it is not the farmer’s responsibility to encourage birds on the farm.

Organic farmers were more positive about introduced birds and believed that introduced birds helped the farm cope with stress, provided services, and that it was the farmers’ responsibility to encourage introduced birds. They had more interest in an introduced bird market accreditation programme.

Organic farmers gave a higher rating to the importance of exotic trees and shrubs for increasing native bird diversity and abundance, increasing insect diversity and abundance, increasing shelter for stock and fruit, providing fodder and providing logs/timber. Together with modified conventional management farmers, organic farmers gave a higher rating to the importance of exotic trees and shrubs for generating carbon credits and for managing erosion.

Organic farmers gave a higher rating to using native trees or shrubs for increasing native bird diversity and abundance, to increasing insect diversity and abundance, to enhancing shelter for stock or fruit and for managing erosion. Alongside modified conventional farmers they placed more importance on planting native trees and shrubs to enhance stream health by planting along riparian zones, to provide fodder and logs/timber.

Social

Organic farmers reported stronger agreement with each relationship between the management of their farm/orchard to their family, their community and the world. They reported stronger agreement with each of the effects of the management of their farm/orchard on the environment on a property, regional and global scale. They, with modified conventional farmers, felt it was more important that farm/orchard workers are treated well.

Organic farmers had spent fewer years farming and were younger than conventional and modified conventional farmers.

Organic farmers were neutral regarding the claim that farmers contribute to climate change and that that they should take responsibility for decreasing emissions while conventional and modified conventional management farmers disagreed. They agreed less (alongside modified conventional farmers) that farmers should take responsibility only to the same extent as farmers elsewhere. Organic farmers agreed less (close to neutral) that technology solutions are needed to decrease emissions.

In summary, organic farmers give less emphasis to the rate and volume of production, and to farm tidiness. They emphasised soil and biodiversity, saw benefits from native and introduced birds, and benefits from exotic and native trees and shrubs. They reported stronger links between their farm management and its social and environmental effects, and were neutral about the role of farmers’ contribution to climate change unlike those in the other management systems, who disagreed.

Conventional management

Production, financial and appearance

Conventional farmers, along with modified conventional farmers, gave a higher rating to the importance of yields per hectare, a neat and tidy landscape, having a tidy, well maintained farm/orchard, minimum weeds, volume of production, and no productive land going to waste, and a lower rating to the importance of reducing carbon emissions. They reported that they more frequently considered or implemented paying close attention to money in the bank and

good returns from each part of the business. Conventional farmers reported that they more frequently considered or implemented the adoption of proven practices rather than doing their own experiments and less frequently considered or implemented paying close attention to changes in plants/animals/insects on their farms, deviating from their established farm plans, and learning new things by talking with a wide variety of people. Conventional farmers gave a lower rating to customer requirements, customer satisfaction and farm environmental health.

Environment
Conventional farmers gave a lower rating of importance to soil biological activity and biodiversity. With modified conventional farmers they placed less importance on soil health, the number of native bird species, the number of plant and tree species, native and other, the presence of productive and non-productive species, and the amount of carbon sequestered, and gave a higher rating to pesticide use.

Conventional farmers, along with modified conventional farmers, agreed less than organic farmers with the claims that farms that have more native and introduced birds are also more likely to cope with drought and climate stresses, provide important services on the farm (pollination, pest control, or nutrient cycling) and had more agreement with the view that it is not the farmer's responsibility to encourage birds on the farm. Conventional farmers were less interested in participating in a market accreditation scheme in the form of a "bird tick" that certifies production as native or introduced bird friendly.

Conventional farmers, along with modified conventional farmers, gave a lower rating to the importance of native and exotic trees and shrubs for increasing native bird diversity and abundance, than organic farmers. Conventional farmers gave a lower rating to the importance of native and exotic trees and shrubs for increasing insect diversity and abundance, enhancing stream health by planting along riparian zones, managing erosion, providing fodder and providing trees for logs/timber. Conventional farmers gave a lower rating to the importance of native trees and shrubs for providing shelter for stock and fruit, while both conventional and modified conventional farmers gave a lower rating to the importance of exotic trees and shrubs for providing shelter for stock and fruit. Conventional management farmers gave a lower rating to the importance of exotic trees and shrubs for generating carbon credits.

Social
Conventional farmers reported less agreement with each relationship between the management of their farm/orchard to their family, their community and the world and with the effect of the management of their farm/orchard on the environment on a global scale. They, along with modified conventional farmers, reported less agreement with the effects of the management of their farm/orchard on the environment on a property and a regional scale. Conventional farmers gave a slightly lower rating of importance (but it was still important) to treating workers well.

Conventional farmers along with modified conventional farmers had spent more years farming and were older.

Conventional and modified conventional management farmers disagreed with the claim that farmers contribute to climate change and that that they should take responsibility for decreasing emissions while organic farmers were neutral about this. They (conventional and modified conventional) agreed more that technology solutions are needed to decrease emissions. Conventional farmers agreed more that farmers should take responsibility only to the same extent as farmers elsewhere.

In summary, conventional farmers were less customer-oriented, preferred the tried and true practices, and reported less strong links between their farm management and its social and

environmental effects. Farm environment health was less important, and they had less interest in native and exotic trees and shrubs and native and introduced birds.

Modified conventional management

Modified conventional management farmers have three potential locations relative to the other two management systems: they appeared to express the perspective of either the organic or conventional farmers or appeared in between them. We will first present the results for which they appeared to be in the middle – significantly different from both organic and conventional farmers. Then we will present the results where they identified more strongly with the conventional farmers and then the results where they match the organic farmers. The only two results for which modified conventional farmers reported the highest ratings were the frequency they considered or implemented learning new things by talking to a wide variety of people, and their involvement in providing cash financial support for community activities.

Situations in which modified conventional farmers were between conventional and organic farmers

Modified conventional farmers were in the middle of the two other management systems with regard to the frequency with which they considered or implemented the adoption of proven practices rather than doing their own experiments, interest in participating in a market accreditation scheme in the form of a "bird tick" that certifies production as native bird friendly, in the importance of native and exotic trees and shrubs for increasing insect diversity and abundance and shelter for stock and fruit, and the importance of exotic trees and shrubs for providing fodder and logs/timber.

Modified conventional farmers reported ratings in between those of the other management systems for agreement with the relationship between the management of their farm/orchard to themselves and their family, the community and the world. They reported similar middle ratings for the effects of the management of their farm/orchard on the environment on a global scale and regarding the claim that farmers contribute to climate change and should take responsibility for decreasing emissions.

Characteristics that modified conventional farmers shared with conventional farmers

Modified conventional farmers, along with conventional farmers, gave a higher rating to the importance of yields per hectare, neat and tidy landscape, having a tidy, well maintained farm/orchard, minimum weeds, volume of production, and no productive land going to waste, and a lower rating to the importance of reducing carbon emissions. They reported that they more frequently considered or implemented paying close attention to money in the bank and good returns from each part of the business.

Modified conventional farmers, with conventional farmers, placed less importance on soil health, the number of native bird species, the number of plant and tree species, native and other, the presence of productive and non-productive species, and the amount of carbon sequestered. They gave a higher rating to pesticide use.

They agreed even less than organic farmers with the claims that farms that have more native and introduced birds are also more likely to cope with drought and climate stresses, provide important services on the farm (pollination, pest control, or nutrient cycling) and had more agreement with the view that it is not the farmer's responsibility to encourage birds on the farm. They gave a lower rating to the importance of native and exotic trees and shrubs for increasing native bird diversity and abundance, exotic trees and shrubs for providing shelter for stock and fruit than organic farmers.

Modified conventional farmers, along with conventional farmers, reported less agreement with each of the relationships between the management of their farm/orchard to the environment on a property and a regional scale. They disagreed with the claim that farmers contribute to

climate change and that that they should take responsibility for decreasing emissions while organic farmers were neutral about this. They agreed more that technological solutions are needed to decrease emissions.

They were older than organic farmers and had spent more years farming.

Characteristics that modified conventional farmers shared with organic farmers
Modified conventional farmers alongside organic farmers reported that they more frequently considered or implemented paying close attention to changes in plants/animals/insects on their farms and deviating from their established farm plans. They both gave a higher rating to the importance of customer requirements and satisfaction, and farm environmental health.

Together with organic management farmers, modified conventional farmers gave a higher rating to the importance of exotic trees and shrubs for generating carbon credits and for managing erosion. They placed more importance on planting native trees and shrubs to enhance stream health by planting along riparian zones, to provide fodder and logs/timber.

Modified conventional and organic farmers felt it was more important that farm/orchard workers are treated well. They agreed less that farmers should take responsibility for reducing greenhouse gas emissions only to the same extent as farmers elsewhere.

In summary, most of the distinctions between management systems related to the differences between organic and conventional management with only two situations in which modified conventional farmers gave higher ratings than the other two management system farmers and the fourteen presented above, where they were distinctly in the middle of the other two. Modified conventional management farmers had higher agreement, compared to organic only, that introduced birds cause damage to the farm operation, attached more importance to family needs, and to gross income and working expenses. Compared to conventional farmers they attached more importance to the farm or orchard making a contribution to the local community. These results indicate a consistent pattern in which modified conventional management farmers gave emphasis to income and to community contribution.

3.3 Sector patterns – main effects

In terms of sector patterns, Table 36 shows the results for sector main effects for each set of questions used in the questionnaire. There are eight logically possible combinations of sector effects. The table starts in the first column with a comparison of results for which there was a difference for each sector result. The next three columns show comparisons for which all three sectors were involved and one was statistically different from the other two. The next three columns show comparisons where only two sectors were involved. The last column of comparisons includes all cases where there were no statistically significant results for any sector. The table also includes the total number of variables in each question set, and the percentage of these for which there were statistically significant main effects. The asterisks indicate which management system had a different result but note that it does not indicate which one had the highest or lowest score for a particular variable.

The table shows that out of the total of 133 questions asked, there were 65 for which there was no statistically significant relationship. Overall there was a relationship for 68 (51 per cent) of the questions. For each set of questions the proportion of statistically significant relationships varies: in the case of native trees and shrubs, and exotic trees and shrubs it was 100 per cent, and the case of difference to the farm in ten years and level of attachment it was zero per cent. Generally the annual production indicators, the environmental performance indicators and introduced bird diversity and management had between 67 and 78 per cent with a statistically significant difference.

The most commonly occurring pattern of differences occurs in the fourth column of results and shows that there were 26 cases where the horticulture sector was different from both sheep/beef and dairy. In addition, column 1 shows that there were nine cases where each sector was different from the others. These sector results are summarised in Table 37 which shows the total number of statistically significant differences for each sector compared to the others. (Note that counts are repeated in the table.) The table shows that the horticultural sector responses had a total of 51 distinctive comparisons when compared with the sheep/beef sector responses, and 43 when compared with the dairy sector, while the sheep beef and dairy sector responses differed 30 times. The main result is that the horticultural sector was demonstrated to be more different from the sheep/beef sector than from the dairy sector while the sheep/beef and dairy sectors were closer in their responses to the items in this survey.

Table 36: Patterns of sector effects across all variables

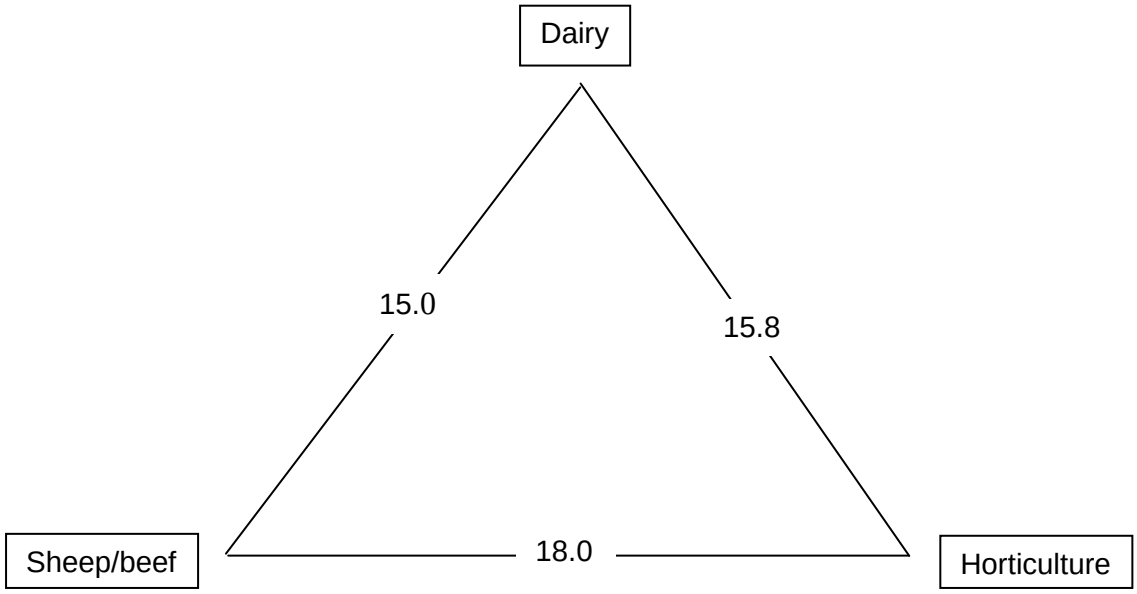
	SB* Hort** D***	SB* Hort* D**	SB* Hort** D**	SB* Hort** D*	SB* Hort D**	SB Hort* D**	SB* Hort** D	SB Hort D	Total	% Sign.
Intentions to use management systems				1				4	5	20
Annual financial indicators					2			9	11	18
Annual production indicators	3		1	1	1		1	2	9	78
Environmental performance indicators	1	1	6	1	1	1	2	4	17	76
Social performance indicators			1	2	1	1		9	14	36
Approach to management			1	1	1			5	8	38
Difference in ten years								1	1	100
Connections					1			5	6	17
Community participation			1	1		1		8	11	27
Level of attachment								1	1	100
Farming factors	1			2				6	9	33
Emission trading					1			4	5	20
Native bird diversity and management	1			1			1	3	6	50
Introduced bird diversity and management				1	1	1	1	2	6	67
Native trees and shrubs	1			7		1			9	100
Exotic trees and shrubs	1			6		1	1		9	100
Background information	1	1		2				2	6	67
Totals	9	2	10	26	9	6	6	65	133	51

Table 37: Summary of sector main effects

Sheep/beef compared with Horticulture	cf. other two – each different cf. other two like Dairy but cf. Hort cf. Hort only	9 10 26 6
	Total	51
Sheep/beef compared with Dairy	cf. other two – each different cf. other two like Hort but cf. Dairy only cf. Dairy only	9 10 2 9
	Total	30
Horticulture compared with Dairy	cf. other two – each different cf. other two like S/B but cf. Dairy only cf. Dairy only	9 26 2 6
	Total	43

A distance analysis over all suitable variables from the questionnaire agrees with and summarises these results (see Figure 27). In other words, sector effects were more likely to be driven by horticulture.

Figure 27: Distances between sectors (133 variables)



As before, it is possible to count the number of significant differences at the five per cent level of significance among the sector results and compare these to the number which would occur by chance (five in 100). The statistically significant differences which involve sectors are shown at the bottom of each column in Table 36. However, where the differences include comparisons between each sector that were found to be statistically significantly different (the first column) there were in fact three tests made. Therefore the column total has to be multiplied by three. The totals for the next three columns need to be multiplied by two and the next three columns count as they are. The sum of these adjusted totals is 124. The overall total is 399 (133 multiplied by three). The 124 statistically significant differences found are 31 per cent of the overall total, much more that the 20 expected by chance.

Having demonstrated that there are differences across sectors it is appropriate to illustrate these differences by summarising the substantive results presented earlier. In these summaries attention is given only to comparisons which include all three management systems.

Horticulture

Production, financial and appearance

Horticulturalists gave a higher rating to yields per hectare and volume of production, and gave a lower rating to the presence of a neat and tidy landscape and to minimum weeds, and along with sheep/beef farmers to a tidy, well maintained farm/orchard. Along with dairy farmers they rated quality of production is at a maximum as more important. They reported a higher frequency of considering or implementing paying close attention to changes in plant, animals or insects, and, along with dairy famers, of considering or implementing adoption of proven practices rather than doing their own experiments. Horticulturalists gave a higher rating to customer requirements, customer satisfaction and off-farm product quality.

Environment

Across all management systems horticulturalists rated pesticide use more important than pastoral farmers.

Horticulturalists placed a greater importance on water budgeting. Horticulturalists and dairy farmers gave a higher rating of importance to soil fertility levels, nutrient budgeting, and energy use and a lower rating to the number of native bird species, and the number of plant and tree species, native and other.

Horticulturalists reported slight disagreement with the claim that native birds provide important services on my farm (pollination, pest control, or nutrient cycling) while sheep/beef and dairy farmers were neutral. They were neutral about the claim that some native birds cause damage to the farm operation while sheep/beef and dairy farmers somewhat disagreed.

Horticulturalists slightly disagreed with the claim that introduced birds provide important services on the farm (pollination, pest control, or nutrient cycling) while sheep/beef and dairy farmers were neutral. Horticulturalists agreed more with the claim that some introduced birds cause damage to the farm operation.

Horticulturalists gave a lower score to planting native trees and shrubs for increasing insect diversity and abundance. They gave a lower rating to the importance of planting native and exotic trees and shrubs for increasing native bird diversity and abundance, enhancing stream health by planting along riparian zones, increasing shelter for stock and fruit, managing erosion, making their farm look attractive, providing fodder for stock and providing logs or timber.

Social

Horticulturalists gave a lower rating to having children involved and scope for farm succession/future generations. Along with dairy farmers they reported a greater concern about neighbours approving of their farming/orcharding practices and considering them to be a good famer/orchardist. They reported lower levels of involvement in providing cash financial support to community activities and, with dairy farmers, less involvement in festivals or shows such as A&P shows. Along with sheep/beef farmers, horticulturalists reported lower levels of debt as a percentage of equity. Horticulturalists had fewer years in orcharding compared with pastoral farmers in farming.

In summary, horticulturalists emphasised yields and volume of production, were less concerned about the presence of a neat and tidy landscape, rated pesticide use as more

important than those in the other sectors, monitored their plants, animals and insects, and were the most customer oriented. They were not so keen on native or introduced birds, or on native or exotic trees or shrubs. There was less family involvement in orcharding and horticulturalists gave less financial support to the community, and tended to be younger than those in the other sectors.

Sheep/beef

Production, financial and appearance

Sheep/beef farmers gave a lower rating to the importance of yields per hectare, volume of production, quality of production is at a maximum, and, along with horticulturalists, to a tidy, well maintained farm/orchard, and gave a higher rating, along with dairy farmers, to the presence of a neat and tidy landscape. They reported a lower frequency of considering or implementing adoption of proven practices rather than doing their own experiments, and, along with dairy farmers, of considering or implementing paying close attention to changes in plant, animals or insects. With dairy farmers, sheep/beef farmers gave lower ratings to customer requirements, customer satisfaction and off-farm product quality.

Environment

Sheep/beef farmers gave lower ratings of importance to soil fertility levels, nutrient budgeting, and energy and pesticide use, and higher ratings to the number of native bird species, the number of plant and tree species, native and other. Along with dairy farmers, they placed less importance on water budgeting,

Sheep/beef farmers, along with dairy farmers, were neutral about the claim that native birds provide important services on my farm (pollination, pest control, or nutrient cycling) while horticulturalists slightly disagreed. Sheep/beef farmers disagreed more with the claim that some native birds cause damage to the farm operation.

There were similar patterns for claims about introduced birds. Sheep/beef and dairy farmers were neutral about the claim that introduced birds provide important services on the farm (pollination, pest control, or nutrient cycling) while horticulturalists slightly disagreed. Sheep/beef and dairy farmers agreed less with the claim that some introduced birds cause damage to the farm operation.

Sheep/beef farmers gave a higher score to planting native trees and shrubs for increasing insect diversity and abundance, and for planting exotic trees for providing logs or timber. They, along with dairy farmers, gave a higher rating to the importance of planting native and exotic trees and shrubs for increasing native bird diversity and abundance, enhancing stream health by planting along riparian zones, increasing shelter for stock and fruit, managing erosion, making their farm look attractive, and providing fodder for stock.

Social

Sheep/beef and dairy farmers gave a higher rating to having children involved. Sheep/beef farmers reported less concern about neighbours approving of their farming/orcharding practices and considering them to be a good famer. They reported greater involvement in festivals or shows such as A&P shows, and, along with dairy farmers, higher levels of involvement in providing cash financial support to community activities. They expressed the least satisfaction with their current level of financial viability, and, along with horticulturalists, a lower level of debt as a percentage of equity. Along with sheep/beef farmers, dairy farmers had more years in farming.

In summary, sheep/beef farmers were the least concerned about quality and quantity of production, pesticide use, nutrient budgeting and energy use and were more experimental, and placed a greater importance on biodiversity of species including both native and other

birds. They were least concerned about their neighbours' approval and were more involved in festivals and shows. They were least satisfied with their level of financial viability.

Dairy

Those surveyed in the dairy sector gave responses that were usually between those of the horticulture and sheep/beef sector or else they were aligned either with sheep/beef farmers or with horticulturalists, very rarely being the highest or the lowest by themselves.

Production, financial and appearance

Dairy farmers gave a higher rating to minimum weeds and a tidy, well maintained farm/orchard. Along with horticulturalists they assigned greater importance to quality of production is at a maximum, and with sheep/beef farmers to the presence of a neat and tidy landscape. They reported, with horticulturalists, a higher frequency of considering or implementing adoption of proven practices rather than doing their own experiments, and along with sheep/beef farmers less tendency to consider or implement paying close attention to changes in plant, animals or insects. Dairy farmers, with sheep/beef farmers gave lower ratings to customer requirements, customer satisfaction and off-farm product quality.

Environment

Dairy and sheep/beef farmers placed less importance on water budgeting. Dairy farmers and horticulturalists gave a higher rating of importance to soil fertility levels, nutrient budgeting, and energy use and a lower rating to the number of native bird species, and the number of plant and tree species, native and other.

Dairy farmers, along with sheep/beef farmers, were neutral about the claim that native birds provide important services on my farm (pollination, pest control, or nutrient cycling) while horticulturalists reported slight disagreement. Both the dairy and sheep/beef farmers somewhat disagreed with the claim that some native birds cause damage to the farm operation while horticulturalists were neutral.

Dairy farmers, along with sheep/beef farmers, were neutral about the claim that introduced birds provide important services on the farm (pollination, pest control, or nutrient cycling) while horticulturalists slightly disagreed. Sheep beef farmers, along with dairy farmers, agreed less with the claim that some introduced birds cause damage to the farm operation.

Dairy farmers, along with sheep/beef farmers, gave a higher score to the importance of planting native trees and shrubs for increasing insect diversity and abundance and to planting exotic trees and shrubs for increasing native bird diversity and abundance. They, with sheep/beef farmers, gave a higher rating to the importance of planting native and exotic trees and shrubs for enhancing stream health by planting along riparian zones, increasing shelter for stock and fruit, managing erosion, making their farm look attractive, and providing fodder for stock.

Social

Dairy farmers placed the most importance on the scope for farm succession/future generations, and with sheep/beef farmers gave a higher rating to having children involved on the farm. Along with horticulturalists, dairy farmers reported more concern about neighbours approving of their farming/orcharding practices and considering them to be a good farmer, and reported less involvement in festivals or shows such as A&P shows. Dairy farmers, along with sheep/beef farmers, indicated higher levels of involvement in providing cash financial support to community activities. They (dairy farmers) were the most satisfied with their current level of economic viability, had the highest level of debt as a percentage of equity, and, along with sheep/beef farmers, had more years in farming than horticulturalists had in orcharding.

In summary, dairy farmers placed the most importance on minimising weeds, having a tidy and well maintained farm, and future generations/succession. They were the most satisfied with their current level of economic viability but at the same time reported the greatest level of debt as a percentage of equity.

3.4 Combined analysis of management and sector patterns

The management system data were examined further by identifying each main effect and then looking to the simple effect results in each sector to see how the main effect pattern was replicated. This analysis is exploring how the different management systems work within a particular sector. Table 38 shows the frequency of simple effects within sectors that replicate management system main effects. Note that in some cases there was no significant main effect (counted in the first column of data headed NS) and sometimes an interaction effect occurred which obscured the replication of the simple effects (counted in the second column of data headed Int.). The remaining columns show which sector, or which sectors, replicated the main effect. In some cases there were no sectors which replicated the main effect, as counted in the column headed 'None'. In some of these cases there were simple effects that followed the general pattern of the main effects but did not exactly follow that pattern. In other words the policy applied was strictly for an exact replication of the main effects. There was less likelihood of having the main effect replicated if there was a three-way distinction in the main effects.

The results in the table show that 42 of the comparisons of main effects were not significant, indicating no difference between management systems overall (though there may have been some significant simple effects not accounted for here). There were 17 interaction effects for which the pattern of results was complex preventing direct comparisons of main and simple effects. When these interactions were examined it was found that some of the more common interactions were due to two things. Dairy modified conventional farmers tended to align themselves more with organic dairy farmers for items to do with the environment such as the importance of birds in the environment, water and nutrient budgeting and reducing carbon emissions. In the horticulture and sheep/beef sectors, modified conventional farmers/orchardists tended to align themselves more with conventional farmers/orchardists for these items. Another pattern was that the horticulture sector as a whole was more united in some responses where differences were occurring across management systems in the sheep/beef and dairy sectors, such as concern about customers and environmental health. (Note that these comments also apply to the next section looking at simple effects within management systems which replicate sector main effects, as any interaction interferes with sector and management system main effects.)

Of the other relevant comparisons, there were 23 for which the main effect was not replicated in any the sectors. These comparisons can indicate that the larger numbers of comparisons across management systems compared with comparisons across managements systems within each sector gave greater power to the statistical analysis.

Of the remaining comparisons, the largest was for the sheep/beef sector which in 18 comparisons was the only sector to replicate the management system main effect. Putting it another way, for these results the management system main effect was largely driven by the differences in the sheep/beef sector. Horticulture had ten and dairy had eight comparisons which were only replicated in these sectors. The results are summarised in Table 39 and they suggest that management system differences, when they occur, are more likely to occur in the sheep/beef sector, or, in other words, management systems are not so distinct for horticulture and dairy.

Table 38: Frequency of simple effects (within sectors) which replicate management system main effects

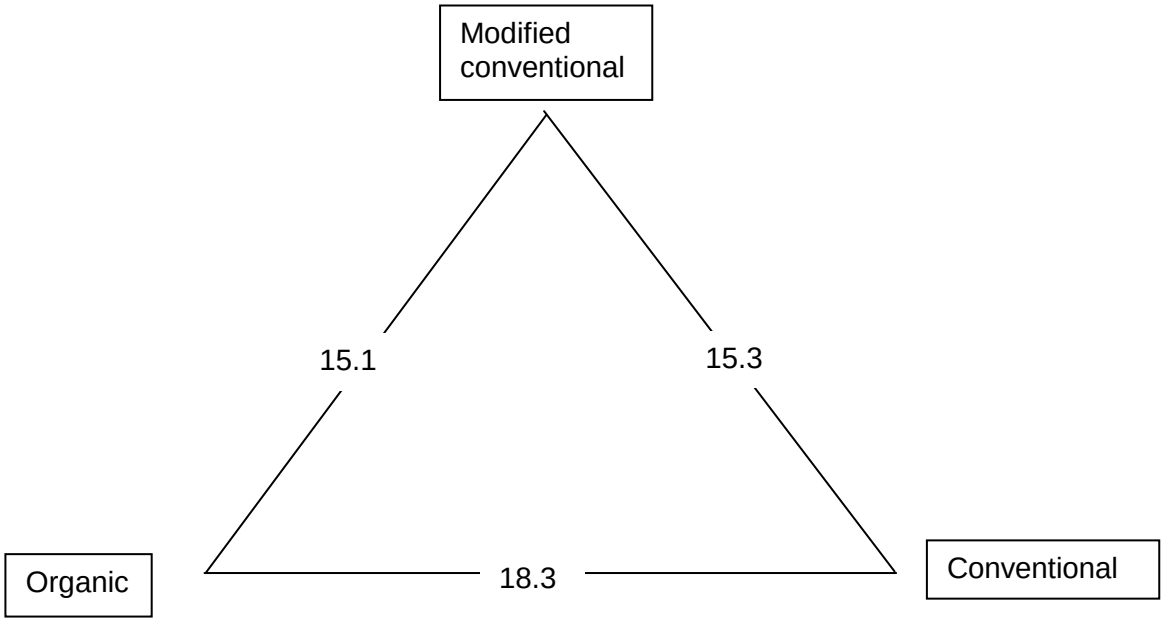
	NS	Int.	D	S/B	H	S/B +D	H +D	S/B +H	All	None	Total
Intentions to use management systems					1			1	3		5
Annual financial indicators	7	2	1				1				11
Annual production indicators	2	3	2							2	9
Environmental performance indicators	1	6		3				2		5	17
Social performance indicators	9	1		2	1					1	14
Approach to management	3			3	2						8
Difference in ten years	1										1
Connections								1		5	6
Community participation	7			2	2						11
Level of attachment	1										1
Farming factors	3	3		2		1					9
Emission trading	2		1				1			1	5
Native bird diversity and management	2			2			1	1			6
Introduced bird diversity and management	1			1	1			1	2		6
Native trees and shrubs	1	1	2	2						3	9
Exotic trees and shrubs	1	1	2	1	1					3	9
Background information	1				2					3	6
Total	42	17	8	18	10	1	3	6	5	23	133

Table 39: Summary of simple and main effects comparisons for management system

SB	S/B alone S/B and Hort S/B and dairy	18 6 1
	Total	25
Hort	Hort alone Hort and S/B Hort and dairy	10 6 3
	Total	19
Dairy	Dairy alone Dairy and S/B Dairy and Hort	8 1 3
	Total	12

It is also possible to do distance analyses for each sector to compare management systems within each sector to observe whether they have the same patterns and distances.[9] Observing Figure 28, Figure 29 and Figure 30, it can be seen that in both the sheep/beef and dairy sectors modified conventional management is situated almost equidistant between organic and conventional management whereas in the horticultural sector it is closer to conventional management. The distances between each management system in the sheep/beef and dairy sectors are very similar. When these figures are compared with the overall distance analysis which does not account for sectors (Figure 26) it is apparent that it is more representative of the difference management systems within the horticulture sector where modified conventional management is closer to conventional management than in the other pastoral sectors where it is more equidistant.

Figure 28: Distance between management systems within the sheep/beef sector (133 variables)



[9] It is possible to compare these distances because each analysis was carried out with the same number of variables.

Figure 29: Distance between management systems within the horticulture sector (133 variables)

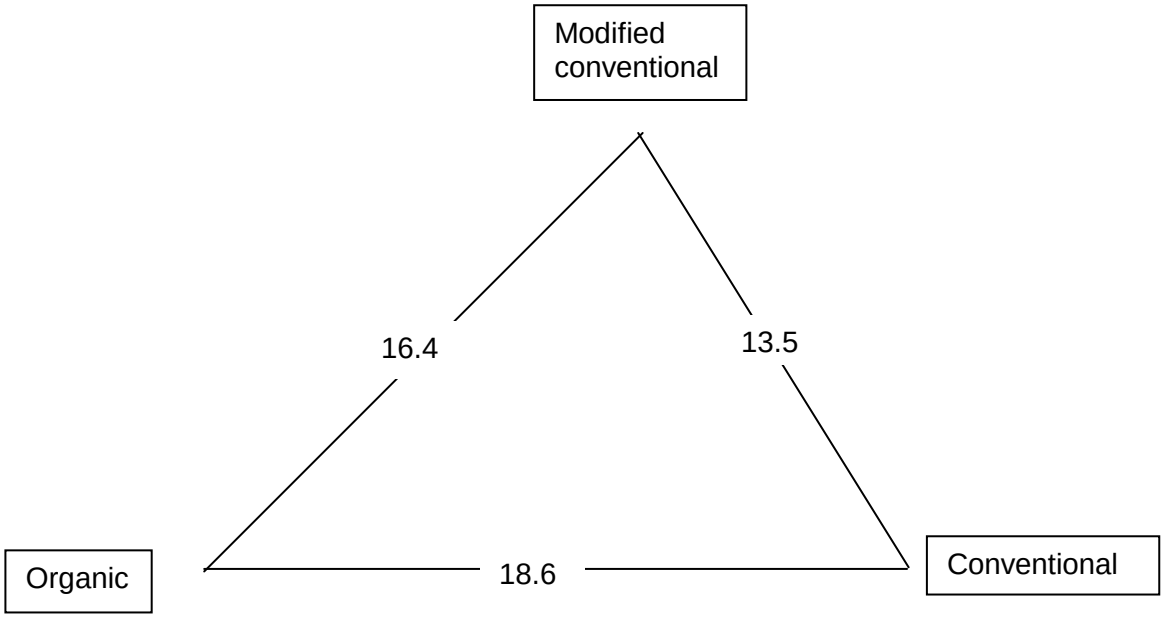
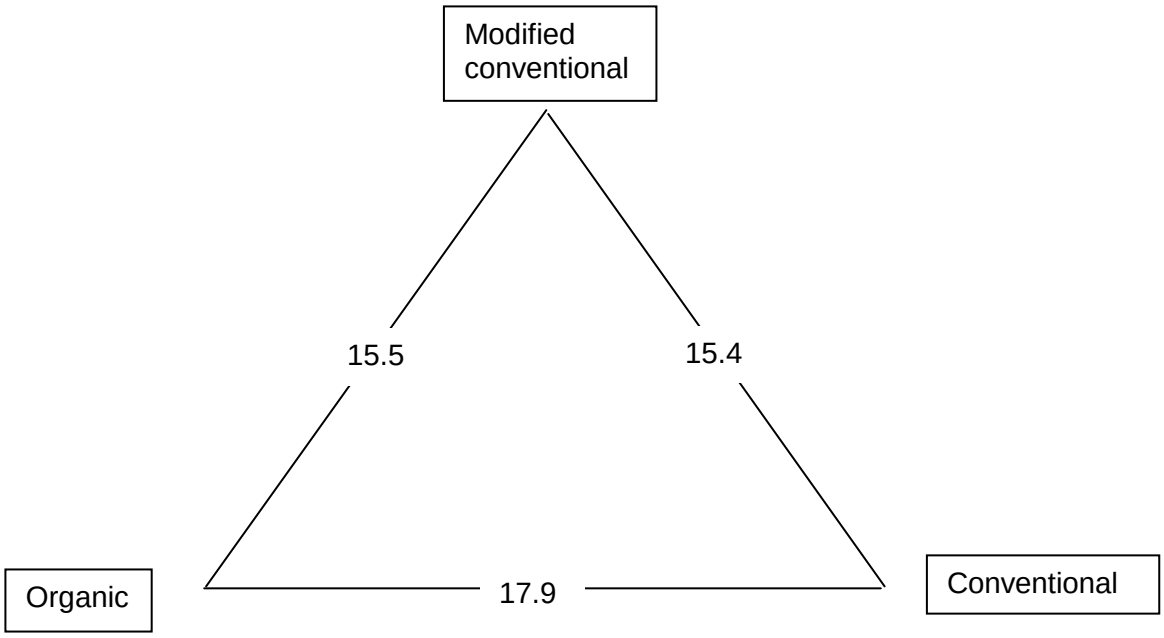
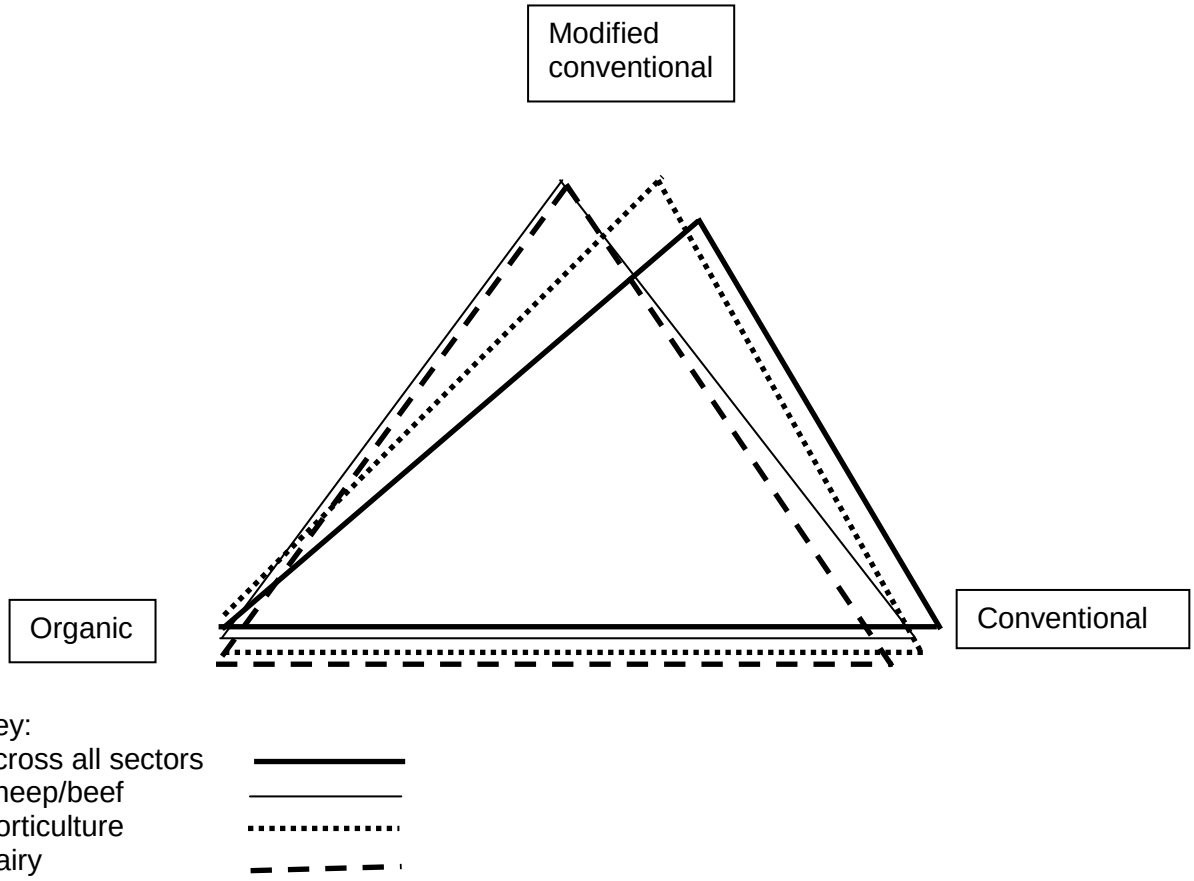


Figure 30: Distance between management systems within the dairy sector (133 variables)



All the management system comparisons in each sector above used all 133 suitable variables in the questionnaire therefore all the distances could be compared as they are on the same equivalent scale. Thus comparisons make more sense when the last three figures are superimposed on the overall distance triangle (see Figure 31). This demonstrates that basically the distance between management systems is similar regardless of sector with organic and conventional management being the furthest apart. It is interesting to note that in the overall distance analysis, organic and modified conventional have moved further away than when the management systems are compared by sector. This could possibly be explained by the presence of interactions which are masked in the overall analysis but show up in the within sector comparisons.

Figure 31: Distance analyses for management systems in each sector for all 133 'scalable' items in the questionnaire



In a similar way to the above analysis, the following tables report management system patterns within sectors. The sector data were examined further by identifying each main effect and then looking to the simple effect results for management systems to see how the main effect pattern was replicated. Table 40 shows the frequency of simple effects within sectors that replicate management system main effects. Note that in some cases there was no significant main effect (counted in the first column of data headed NS) and sometimes an interaction effect occurred which obscured the replication of main effects and simple effects (counted in the second column of data headed Int.). The remaining columns show for which management systems the main effect was replicated. In some cases there were no management systems replicating the main effect, as counted in the column headed 'None'. In some of these cases there were simple effects that followed the general pattern of the main

effects but did not exactly follow the pattern. In other words the policy applied was strictly for an exact replication of the main effects. It was less likely to have the main effect followed if there was a three-way distinction in the main effects.

Table 40: Frequency of simple effects (within management systems) which replicate sector main effects

	NS	Int.	Org	CV	MCV	CV+ Org	MCV +Org	CV+ MCV	All	None	Total
Intentions to use management systems	4									1	5
Annual financial indicators	9	2		1							11
Annual production indicators		3	3							3	9
Environmental performance indicators	4	6		4	2					1	17
Social performance indicators	7	1	1	2	1		1			1	14
Approach to management	5			2			1				8
Difference in ten years	1										1
Connections	5			1							6
Community participation	8				2					1	11
Level of attachment	1										1
Farming factors	3	3		1						2	9
Emission trading	4				1						5
Native bird diversity and management	3		1	1						1	6
Introduced bird diversity and management	1			1						4	6
Native trees and shrubs		1			1		2	3	1	1	9
Exotic trees and shrubs		1			2	1	1	1		3	9
Background information	2		1	1		1				1	6
Total	56	17	6	14	9	2	5	4	1	19	133

The results in the table show that 56 of the comparisons of main effects and simple effects were not significant. As before, there were 17 interaction effects for which the pattern of results was described earlier. Of the relevant comparisons, there were 19 for which the main effect was not replicated exactly for the management systems. Of the remaining comparisons, the largest was for conventional management which had 14 comparisons in which it was the only management system replicating the sector main effect. Putting it another way, for these results the sector main effect was largely driven by the sector differences within conventional management. Modified conventional management and

organic management had nine and six situations in which they were the only management systems which replicated sector differences. The results are summarised in Table 41 and they suggest that sector differences, when they occurred, were more likely to be within conventional and modified conventional management. In other words, the sector differences are not so distinct or frequent within organic management, indicating that organic farmers and orchardists have more in common across all three sectors compared with those using the other management systems.

Table 41: Summary of simple and main effects comparisons for sectors

CV	CV alone CV and MCV CV and Org	14 4 2
	Total	20
MCV	MCV alone MCV and CV MCV and Org	9 4 5
	Total	18
Org	Org alone Org and CV Org and MCV	6 2 5
	Total	13

Similarly, in the distance analyses comparing the sectors within each management system (see Figure 32, Figure 33 and Figure 34) it can be seen that the distances between the sheep/beef and horticulture sectors are very similar within all management systems with a slightly lesser distance between them in the modified conventional system. There are also similar distances between sheep/beef and dairy within all management systems with a slightly longer distance in conventional management. The distances between the dairy and horticulture sectors are more varied across the management systems with the greatest distance being in modified conventional and the least in conventional management. When compared with the overall distance between sectors analysis (Figure 27) it can be observed that this does not represent the patterns of differences between each sector in each management system.

Figure 32: Distance between sectors within conventional management (for 133 variables)

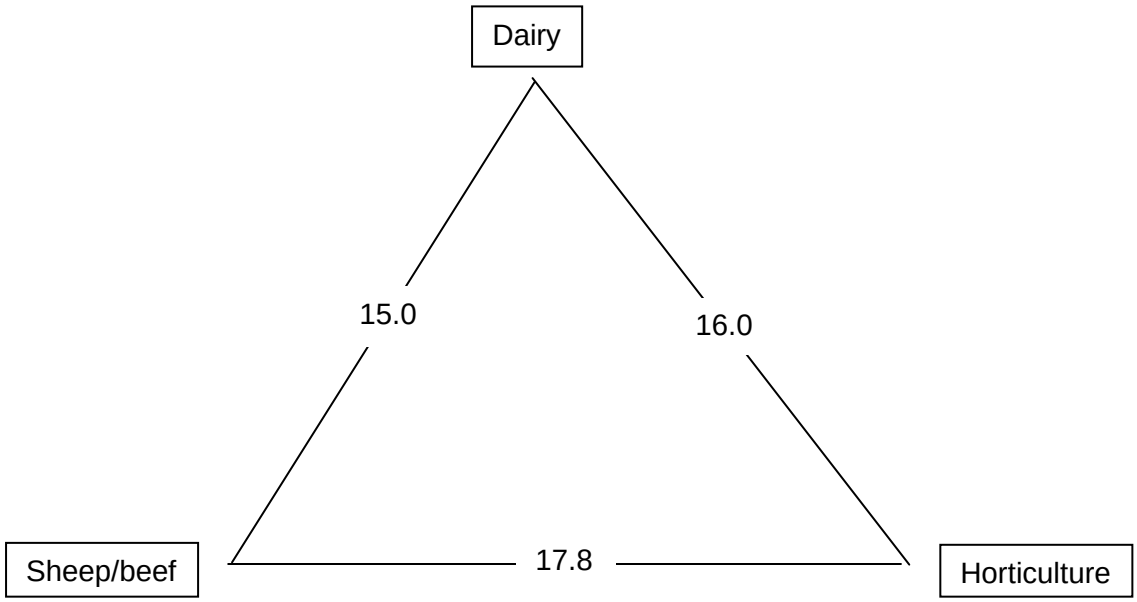


Figure 33: Distance between sectors within modified conventional management (for 133 variables)

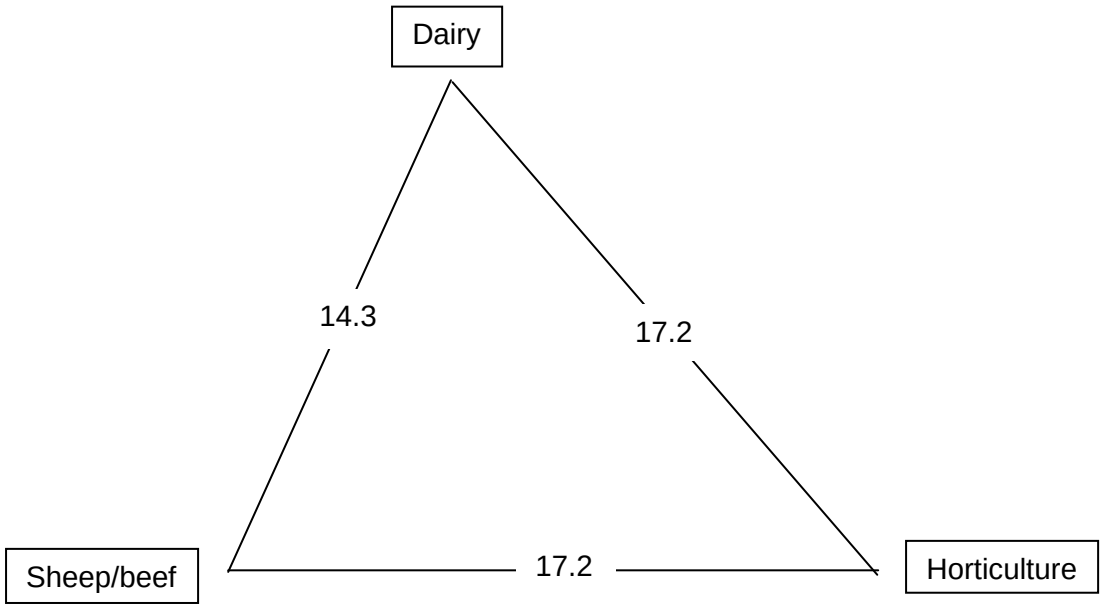
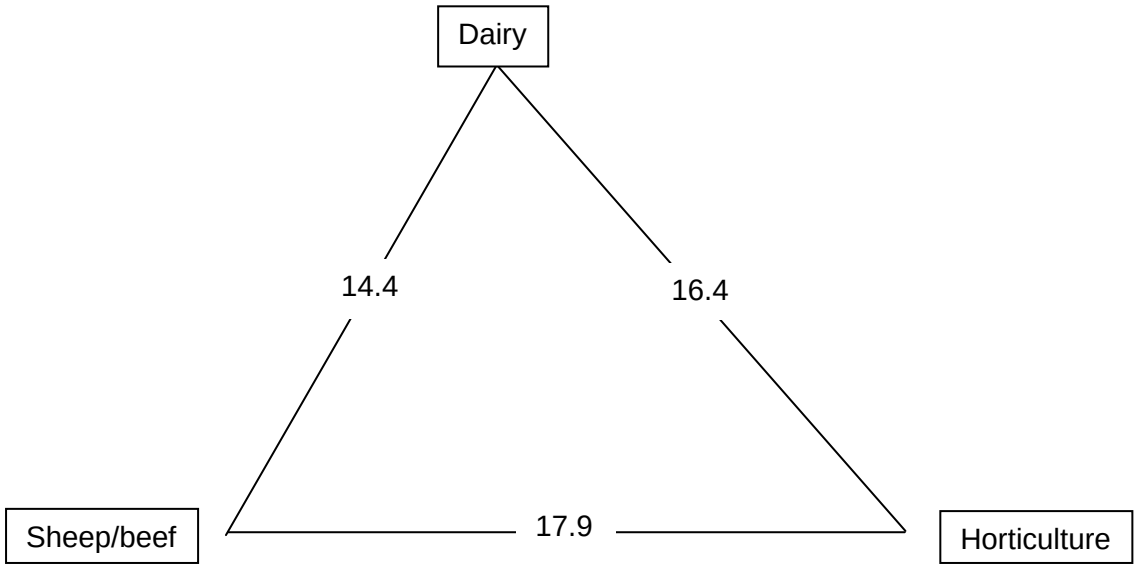
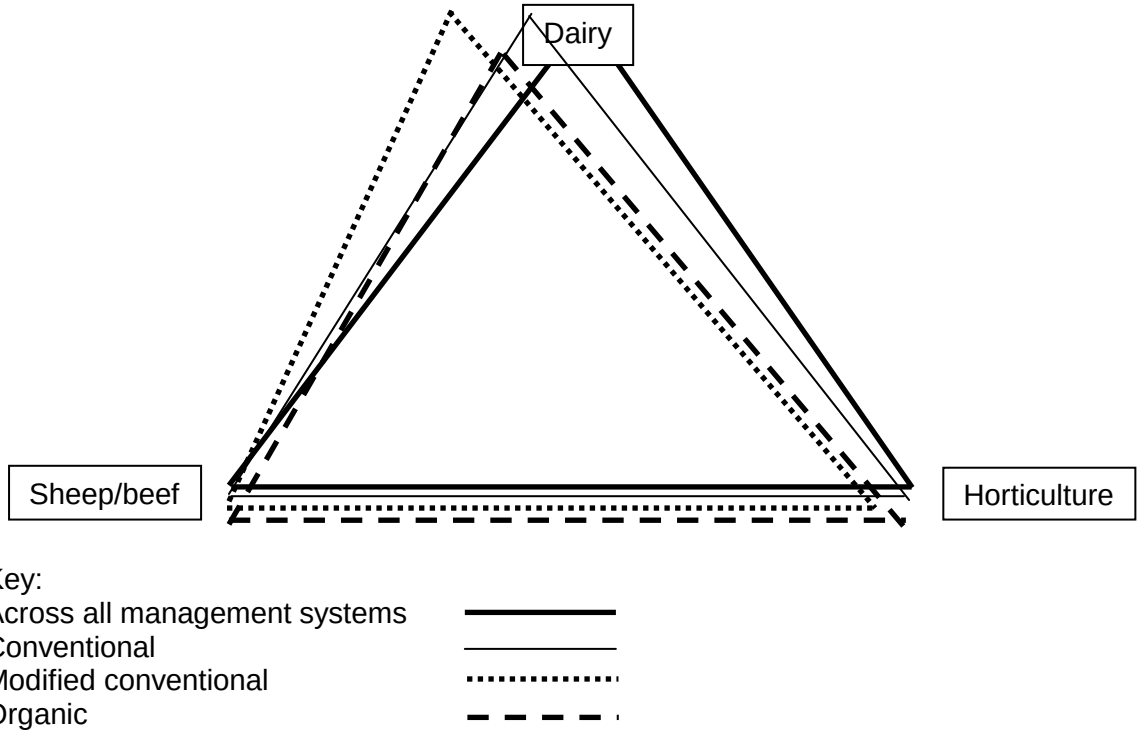


Figure 34: Distance between sectors within organic management (for 133 variables)



As before for management systems we can superimpose the last three figures for purposes of easier comparison (see Figure 35). The sheep/beef and horticulture sectors are the most distant whatever the management system except for modified conventional management where the horticulture sector is equidistant from sheep/beef and dairy. Here also it is interesting to note that in the overall distance analysis the dairy sector is closer to the horticultural sector than it is when the sectors are compared by management system. Again, this could possibly be explained by the presence of interactions which are masked in the overall analysis but show up in the within-management system comparisons.

Figure 35: Distance analyses for each management system for each sector for all 155 'scalable' items in the questionnaire



3.5 Conclusions supported by meta-analysis

In terms of management system, the meta-analysis shows that organic management was the most distinctive, driving most of the management system main effects documented. Modified conventional management had few differences from conventional or organic management. This evidence supports the view that the ovoid ideal types (see Figure 25) need to show the greatest bulge out of the core of shared values and practices for organic management, a lesser bulge for modified conventional (integrated) management and very little for conventional management which could be regarded as the 'norm'. It supports the view that modified conventional management lies between organic and conventional management, and somewhat closer to conventional management (see Figure 26).

In terms of sectors, the meta-analysis shows that the horticultural sector was the most distinctive (see Figure 27), driving more of the sector effects documented. The dairy sector had the least number of differences from the other sectors. However, the number of differences between the sectors was much less than those for the management system comparisons. The responses to the production performance questions show that, in the opinion of farmers, for both yield per hectare and volume of production is at a maximum, there was a consistent ordering from highest to lowest for horticulture, dairy to sheep/beef, with each mean score being statistically significant different. These results support the view that horticulture is the more production focused sector.[10]

In terms of management system combined with sector patterns, management system main effects were driven by the sheep/beef sector but horticulture was also a major driver. Sector main effects were driven by conventional management. This evidence does not support the hypothesis that management system effects are greatest in the more intensive sectors (dairy and horticulture). In fact, it indicates that the sheep/beef sector had the greater diversity of responses and that the responses in the dairy sector were more uniform.

[10] We calculated the 2006-7 revenue per effective hectare from the available data in the survey, and the analysis demonstrated a statistically significant difference between the horticulture sector when compared with both the sheep/beef and dairy sectors (means of $19,912/ha, $822/ha and $3,561/ha respectively). The variation was too great to pick up the smaller difference between the dairy and sheep/beef sectors and the differences between management systems overall and within each sector. The statistical analysis almost seems irrelevant in this instance when the means are of such different orders of magnitude. Analysis by management systems restricted to each sector did not show any significant differences either.

References

Black, T.R. (2004), Nonparametric Statistics. In, Lewis-Beck, M.S., Bryman, A. and Liao, T.F. (eds.), The Sage Encyclopedia of Social Science Research Methods, London, Thousand Oaks, New Delhi: Sage Publications, pp. 733-737.

Connelly, N., Brown T. and Decker, D. (2003), Factors affecting response rates to natural resource-focused mail surveys: empirical evidence of declining rates over time. Society and Natural Resources 16(6): 541-549.

Curtin, R., Prosser, S. and Singer, E. (2005), Changes in telephone survey nonresponse over the past quarter century. Public Opinion Quarterly 69(1): 87-98.

de Vaus, D.A. (1995), Surveys in Social Research. St Leonards, Australia: Allen & Unwin.

Fairweather, John, Lesley Hunt, Andrew Cook, Chris Rosin and Hugh Campbell (2007a), New Zealand Farmer and Grower Attitude and Opinion Survey: Analysis by Sector and Management System. ARGOS Research Report 07/07.

Fairweather, John, Lesley Hunt, Chris Rosin and Hugh Campbell (2007b), The representativeness of ARGOS panels and between panel comparisons. ARGOS Research Report 07/03.

Foster, J.J. (2006), Parametric Tests. In, Jupp, V. (ed.), The Sage Dictionary of Social Research Methods. London, Thousand Oaks, New Dehli: Sage Publications, p.214.

Hunt, Lesley, Chris Rosin, Carmen McLeod, Marion Read, John Fairweather, Hugh Campbell (2005), Understanding Approaches to Kiwifruit Production in New Zealand: Report on First Qualitative Interviews of ARGOS Kiwifruit Participants. ARGOS Research Report No. 05/01.

Hunt, Lesley, Chris Rosin, Marion Read, John Fairweather, Hugh Campbell (2006), Understanding Approaches to Sheep/Beef Production in New Zealand: Report on First Qualitative Interviews of ARGOS Sheep/Beef Participants. ARGOS Research Report No. 06/01.

Liao,T.F. (2004), Categorical Data Analysis. In, Lewis-Beck, M.S., Bryman, A. and Liao, T.F. (eds), The Sage Encyclopedia of Social Science Research Methods, London, Thousand Oaks, New Dehli: Sage Publications, pp.96-100.

Manly, B. (2005), Multivariate statistical methods: A primer (3rd ed.). Boca Raton, FL: Chapman & Hall/CRC Press.

Monette, D.R., Sullivan, T.J. and DeJong, C.R. (1994), Applied Social Research: Tool for the human services. Fort Worth, TX: Harcourt Brace.

Rowtree, D. (2000), Statistics Without Tears: A Primer for Non-mathematicians. London, Penguin Books.

Shamai, S. and Ilotov, Z. (2004), Measuring sense of place: methodological aspects. Tijdschrift voor Economische en Social Geografie 96 (5): 467-476.

Appendix 1: Full data tables for each question

A2a - Intention to use conventional management

	1 Very strong intention not to use	2	3	4	5	6	7 Very strong intention to use	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	2	1	0	11	12	17	23	66	5.62[a]	1.44
Per cent	3	2	0	17	18	26	35	100		
Modified										
Frequency	2	3	2	4	4	4	2	21	4.19[b]	1.86
Per cent	10	14	10	19	19	19	10	100		
Organic										
Frequency	26	5	0	2	0	0	1	34	1.50[c]	1.24
Per cent	76	15	0	6	0	0	3	100		
							Sector	**average**	**[1]4.17**	
HORTICULTURE										
Conventional										
Frequency	3	0	0	4	5	11	7	30	[2]5.30[a]	1.74
Per cent	10	0	0	13	17	37	23	100		
Modified										
Frequency	8	5	11	5	6	8	2	45	3.62[b]	1.86
Per cent	18	11	24	11	13	18	4	100		
Organic										
Frequency	37	1	0	1	1	0	0	40	1.20[c]	0.79
Per cent	93	3	0	3	3	0	0	100		
							Sector	**average**	**[2]3.80**	
DAIRY										
Conventional										
Frequency	1	1	1	8	11	34	35	91	[1]5.96[a]	1.19
Per cent	1	1	1	9	12	37	38	100		
Modified										
Frequency	5	0	3	7	5	5	1	26	4.00[b]	1.81
Per cent	19	0	12	27	19	19	4	100		
Organic										
Frequency	25	1	1	0	1	0	0	28	1.25[c]	0.84
Per cent	89	4	4	0	4	0	0	100		
							Sector	**average**	**[1]4.22**	
CV avg.	**5.65[a]**									
Mod avg.	**3.95[b]**									
Org avg.	**1.31[c]**									

A2b - Intention to use modified conventional management

	1 Very strong intention not to use	2	3	4	5	6	7 Very strong intention to use	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	2	3	7	16	17	10	3	58	4.47[b]	1.38
Per cent	3	5	12	28	29	17	5	100		
Modified										
Frequency	1	1	2	2	2	8	9	25	[2]5.52[a]	1.73
Per cent	4	4	8	8	8	32	36	100		
Organic										
Frequency	22	2	3	2	2	0	2	33	[1]2.03[c]	1.78
Per cent	67	6	9	6	6	0	6	100		
							Sector	**average**	**4.15**	
HORTICULTURE										
Conventional										
Frequency	1	3	3	4	3	9	5	28	4.86[b]	1.80
Per cent	4	11	11	14	11	32	18	100		
Modified										
Frequency	0	0	0	4	9	16	30	59	[1]6.22[a]	0.95
Per cent	0	0	0	7	15	27	51	100		
Organic										
Frequency	35	3	0	0	2	0	0	40	[2]1.28[c]	0.91
Per cent	88	8	0	0	5	0	0	100		
							Sector	**average**	**4.33**	
DAIRY										
Conventional										
Frequency	1	2	9	22	21	18	7	80	4.78[b]	1.30
Per cent	1	3	11	28	26	23	9	100		
Modified										
Frequency	0	1	1	1	7	8	14	32	5.94[a]	1.27
Per cent	0	3	3	3	22	25	44	100		
Organic										
Frequency	18	5	3	1	0	0	0	27	1.52[c]	0.85
Per cent	67	19	11	4	0	0	0	100		
							Sector	**average**	**4.27**	
CV avg.	**4.71**[b]									
Mod avg.	**5.90**[a]									
Org avg.	**1.59**[c]									

A2c - Intention to use organic management (registered)

	1 Very strong intention not to use	2	3	4	5	6	7 Very strong intention to use	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	31	10	6	3	1	2	1	54	1.94[c]	1.47
Per cent	57	19	11	6	2	4	2	100		
Modified										
Frequency	8	3	3	3	0	2	2	21	2.90[b]	2.10
Per cent	38	14	14	14	0	10	10	100		
Organic										
Frequency	1	0	2	0	1	3	40	47	6.60[a]	1.21
Per cent	2	0	4	0	2	6	85	100		
							Sector	**average**	**3.86**	
HORTICULTURE										
Conventional										
Frequency	16	4	1	4	0	0	0	25	1.72[c]	1.13
Per cent	64	16	4	16	0	0	0	100		
Modified										
Frequency	19	6	7	5	4	1	3	45	2.64[b]	1.87
Per cent	42	13	16	11	9	2	7	100		
Organic										
Frequency	0	0	0	0	1	2	50	53	6.92[a]	0.33
Per cent	0	0	0	0	2	4	94	100		
							Sector	**average**	**3.83**	
DAIRY										
Conventional										
Frequency	47	16	4	5	1	0	2	75	1.73[b]	1.29
Per cent	63	21	5	7	1	0	3	100		
Modified										
Frequency	12	4	4	3	1	1	0	25	2.20[b]	1.47
Per cent	48	16	16	12	4	4	0	100		
Organic										
Frequency	0	0	1	0	1	4	34	40	6.75[a]	0.74
Per cent	0	0	3	0	3	10	85	100		
							Sector	**average**	**3.67**	
CV avg.	**1.79**[c]									
Mod avg.	**2.56**[b]									
Org avg.	**6.76**[a]									

A2d - Intention to use organic management (unregistered)

	1 Very strong intention not to use	2	3	4	5	6	7 Very strong intention to use	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	20	9	8	6	6	2	3	54	[1]2.76	1.85
Per cent	37	17	15	11	11	4	6	100		
Modified										
Frequency	6	2	1	3	2	6	1	21	3.71	2.19
Per cent	29	10	5	14	10	29	5	100		
Organic										
Frequency	12	0	0	4	1	4	11	32	4.19	2.68
Per cent	38	0	0	13	3	13	34	100		
							Sector	**average**	**3.41**	
HORTICULTURE										
Conventional										
Frequency	14	4	2	3	2	0	0	25	[2]2.00[b]	1.38
Per cent	56	16	8	12	8	0	0	100		
Modified										
Frequency	13	2	5	4	10	7	6	47	3.87[a]	2.19
Per cent	28	4	11	9	21	15	13	100		
Organic										
Frequency	14	3	3	2	2	3	11	38	3.74[a]	2.61
Per cent	37	8	8	5	5	8	29	100		
							Sector	**average**	**2.99**	
DAIRY										
Conventional										
Frequency	36	13	11	5	5	2	3	75	2.31[b]	1.69
Per cent	48	17	15	7	7	3	4	100		
Modified										
Frequency	8	4	4	4	1	1	3	25	3.04	2.05
Per cent	32	16	16	16	4	4	12	100		
Organic										
Frequency	8	0	1	2	6	3	4	24	3.96[a]	2.35
Per cent	33	0	4	8	25	13	17	100		
							Sector	**average**	**2.96**	
CV avg.	**2.35**[b]									
Mod avg.	**3.52**[a]									
Org avg.	**3.96**[a]									

A2e - Intentions to use genetically modified plants and animals, if they become available.

	1 Very strong intention not to use	2	3	4	5	6	7 Very strong intention to use	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	26	7	6	9	2	3	0	53	[2]2.30[a]	1.58
Per cent	49	13	11	17	4	6	0	100		
Modified										
Frequency	12	2	0	1	1	2	3	21	2.76[a]	2.45
Per cent	57	10	0	5	5	10	14	100		
Organic										
Frequency	32	0	0	1	0	0	0	33	1.09[b]	0.52
Per cent	97	0	0	3	0	0	0	100		
							Sector	**average**	**2.07**	
HORTICULTURE										
Conventional										
Frequency	9	4	0	5	3	3	1	25	3.08[a]	2.04
Per cent	36	16	0	20	12	12	4	100		
Modified										
Frequency	22	3	3	8	5	1	3	45	2.69[a]	1.97
Per cent	49	7	7	18	11	2	7	100		
Organic										
Frequency	39	0	0	0	0	0	1	40	1.15[b]	1.86
Per cent	98	0	0	0	0	0	3	100		
							Sector	**average**	**2.42**	
DAIRY										
Conventional										
Frequency	25	12	6	14	8	13	3	81	[1]3.23[a]	2.00
Per cent	31	15	7	17	10	16	4	100		
Modified										
Frequency	13	3	1	4	2	2	1	26	2.58[a]	1.96
Per cent	50	12	4	15	8	8	4	100		
Organic										
Frequency	27	2	0	0	0	0	0	29	1.07[b]	0.26
Per cent	93	7	0	0	0	0	0	100		
							Sector	**average**	**2.44**	
CV avg.	**2.90[a]**									
Mod avg.	**2.67[a]**									
Org avg.	**1.10[b]**									

B1a - Importance of gross income in annual financial performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	2	0	3	11	9	13	29	67	5.69	1.52
Per cent	3	0	4	16	13	19	43	100		
Modified										
Frequency	0	1	1	3	3	4	15	27	5.96	1.45
Per cent	0	4	4	11	11	15	56	100		
Organic										
Frequency	2	1	0	9	7	11	16	46	5.50	1.58
Per cent	4	2	0	20	15	24	35	100		
							Sector	**Average**	**5.70**	
HORTICULTURE										
Conventional										
Frequency	0	0	0	4	5	8	15	32	5.94	1.48
Per cent	0	0	0	13	16	25	47	100		
Modified										
Frequency	1	0	0	3	6	18	33	61	5.90	1.48
Per cent	2	0	0	5	10	30	54	100		
Organic										
Frequency	1	1	2	1	17	12	18	52	5.56	1.55
Per cent	2	2	4	2	33	23	35	100		
							Sector	**Average**	**5.81**	
DAIRY										
Conventional										
Frequency	3	0	2	7	21	18	42	93	5.85	1.41
Per cent	3	0	2	8	23	19	45	100		
Modified										
Frequency	0	0	0	2	6	7	17	32	6.22[a]	0.97
Per cent	0	0	0	6	19	22	53	100		
Organic										
Frequency	1	0	2	8	12	5	12	40	5.33[b]	1.44
Per cent	3	0	5	20	30	13	30	100		
							Sector	**Average**	**5.79**	
CV avg.	**5.83**									
Mod avg.	**6.04[a]**									
Org avg.	**5.45[b]**									

B1b - Importance of working expenses in annual financial performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	0	1	2	10	6	18	30	67	5.91	1.29
Per cent	0	1	3	15	9	27	45	100		
Modified										
Frequency	0	1	1	3	4	5	13	27	5.85	1.43
Per cent	0	4	4	11	15	19	48	100		
Organic										
Frequency	1	0	0	4	6	16	19	46	6.00	1.21
Per cent	2	0	0	9	13	35	41	100		
							Sector	**average**	**5.92**	
HORTICULTURE										
Conventional										
Frequency	0	0	0	4	5	8	15	32	6.06	1.08
Per cent	0	0	0	13	16	25	47	100		
Modified										
Frequency	1	0	0	3	6	18	33	61	6.26[a]	1.09
Per cent	2	0	0	5	10	30	54	100		
Organic										
Frequency	1	1	2	1	17	12	18	52	5.69[b]	1.35
Per cent	2	2	4	2	33	23	35	100		
							Sector	**average**	**6.00**	
DAIRY										
Conventional										
Frequency	1	0	0	3	14	27	48	93	6.25[a]	1.01
Per cent	1	0	0	3	15	29	52	100		
Modified										
Frequency	0	0	0	2	3	9	18	32	6.34[a]	0.90
Per cent	0	0	0	6	9	28	56	100		
Organic										
Frequency	0	0	1	5	9	11	14	40	5.80[b]	1.14
Per cent	0	0	3	13	23	28	35	100		
							Sector	**average**	**6.14**	
CV avg.	**6.08**									
Mod avg.	**6.16[a]**									
Org avg.	**5.83[b]**									

B1c - Importance of change in bank balance in annual financial performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	0	7	7	12	18	5	16	65	4.85	1.63
Per cent	0	11	11	18	28	8	25	100		
Modified										
Frequency	3	0	5	5	3	5	6	27	4.63	1.94
Per cent	11	0	19	19	11	19	22	100		
Organic										
Frequency	3	0	5	13	6	6	13	46	4.93	1.76
Per cent	7	0	11	28	13	13	28	100		
							Sector	**average**	**4.82**	
HORTICULTURE										
Conventional										
Frequency	0	3	2	3	5	6	11	30	5.40	1.69
Per cent	0	10	7	10	17	20	37	100		
Modified										
Frequency	4	4	6	12	10	9	16	61	4.82	1.86
Per cent	7	7	10	20	16	15	26	100		
Organic										
Frequency	2	4	1	12	11	11	11	52	4.98	1.65
Per cent	4	8	2	23	21	21	21	100		
							Sector	**average**	**5.11**	
DAIRY										
Conventional										
Frequency	3	3	11	23	22	14	17	93	4.81	1.55
Per cent	3	3	12	25	24	15	18	100		
Modified										
Frequency	2	2	3	5	5	7	8	32	4.94	1.85
Per cent	6	6	9	16	16	22	25	100		
Organic										
Frequency	2	3	7	8	8	7	5	40	4.45	1.68
Per cent	5	8	18	20	20	18	13	100		
							Sector	**average**	**4.73**	
CV avg.	**5.01**									
Mod avg.	**4.80**									
Org avg.	**4.77**									

B1d - Importance of actual income versus budget income in annual financial performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	3	6	7	10	16	11	14	67	4.78	1.76
Per cent	4	9	10	15	24	16	21	100		
Modified										
Frequency	1	3	1	4	4	9	5	27	5.00	1.75
Per cent	4	11	4	15	15	33	19	100		
Organic										
Frequency	3	1	3	10	8	11	10	46	5.00	1.70
Per cent	7	2	7	22	17	24	22	100		
							Sector	**average**	**4.90**	
HORTICULTURE										
Conventional										
Frequency	0	1	3	9	7	6	5	31	4.94	1.36
Per cent	0	3	10	29	23	19	16	100		
Modified										
Frequency	4	6	6	12	14	8	11	61	4.54	1.79
Per cent	7	10	10	20	23	13	18	100		
Organic										
Frequency	4	2	4	11	15	5	11	52	4.73	1.74
Per cent	8	4	8	21	29	10	21	100		
							Sector	**average**	**4.78**	
DAIRY										
Conventional										
Frequency	4	5	14	28	9	20	13	93	4.56	1.64
Per cent	4	5	15	30	10	22	14	100		
Modified										
Frequency	1	2	2	5	4	11	7	32	5.19[a]	1.65
Per cent	3	6	6	16	13	34	22	100		
Organic										
Frequency	3	4	4	11	7	6	5	40	4.33[b]	1.75
Per cent	8	10	10	28	18	15	13	100		
							Sector	**average**	**4.66**	
CV avg.	**4.75**									
Mod avg.	**4.92**									
Org avg.	**4.66**									

B1e - Importance of cash surplus/deficit in annual financial performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	1	0	5	13	5	18	26	68	[2]5.63[b]	1.47
Per cent	1	0	7	19	7	26	38	100		
Modified										
Frequency	0	0	1	2	4	7	13	27	6.07	1.14
Per cent	0	0	4	7	15	26	48	100		
Organic										
Frequency	1	0	0	5	5	8	27	46	6.15[a]	1.30
Per cent	2	0	0	11	11	17	59	100		
							Sector	**average**	**5.91**	
HORTICULTURE										
Conventional										
Frequency	0	0	0	5	3	9	15	32	6.06	1.11
Per cent	0	0	0	16	9	28	47	100		
Modified										
Frequency	0	0	3	2	10	19	27	61	6.07	1.09
Per cent	0	0	5	3	16	31	44	100		
Organic										
Frequency	1	3	0	7	3	16	22	52	5.77	1.55
Per cent	2	6	0	13	6	31	42	100		
							Sector	**average**	**5.97**	
DAIRY										
Conventional										
Frequency	1	0	1	3	9	33	46	93	[1]6.25	1.02
Per cent	1	0	1	3	10	35	49	100		
Modified										
Frequency	0	1	0	3	4	10	14	32	6.00	1.22
Per cent	0	3	0	9	13	31	44	100		
Organic										
Frequency	1	0	1	3	6	14	14	39	5.85	1.31
Per cent	3	0	3	8	15	36	36	100		
							Sector	**average**	**6.06**	
CV avg.	**6.00**									
Mod avg.	**6.04**						**Interaction**			
Org avg.	**5.92**									

B1f - Importance of net profit/loss in annual financial performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	0	0	4	13	8	16	27	68	5.72	1.33
Per cent	0	0	6	19	12	24	40	100		
Modified										
Frequency	1	0	0	3	1	9	13	27	6.04	1.40
Per cent	4	0	0	11	4	33	48	100		
Organic										
Frequency	1	0	1	3	10	10	21	46	5.93	1.31
Per cent	2	0	2	7	22	22	46	100		
							Sector	**average**	**5.87**	
HORTICULTURE										
Conventional										
Frequency	0	0	0	5	7	4	16	32	5.97	1.18
Per cent	0	0	0	16	22	13	50	100		
Modified										
Frequency	0	0	1	3	11	17	29	61	6.15	1.00
Per cent	0	0	2	5	18	28	48	100		
Organic										
Frequency	1	2	1	6	8	12	22	52	5.73	1.51
Per cent	2	4	2	12	15	23	42	100		
							Sector	**average**	**5.94**	
DAIRY										
Conventional										
Frequency	0	1	1	7	13	35	36	93	6.02	1.05
Per cent	0	1	1	8	14	38	39	100		
Modified										
Frequency	0	1	1	4	5	6	15	32	5.84	1.39
Per cent	0	3	3	13	16	19	47	100		
Organic										
Frequency	1	0	0	5	8	11	14	39	5.77	1.31
Per cent	3	0	0	13	21	28	36	100		
							Sector	**average**	**5.90**	
CV avg.	**5.91**									
Mod avg.	**6.00**									
Org avg.	**5.81**									

B1g - Importance of change in equity in annual financial performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	5	5	7	14	12	11	12	66	[2]4.58	1.33
Per cent	8	8	11	21	18	17	18	100		
Modified										
Frequency	1	1	3	5	3	8	6	27	5.07	1.40
Per cent	4	4	11	19	11	30	22	100		
Organic										
Frequency	3	5	0	6	12	7	13	46	5.00	1.31
Per cent	7	11	0	13	26	15	28	100		
							Sector	**average**	**4.84**	
HORTICULTURE										
Conventional										
Frequency	2	1	1	9	6	6	6	31	4.87	1.67
Per cent	6	3	3	29	19	19	19	100		
Modified										
Frequency	1	4	3	14	16	11	11	60	4.95	1.50
Per cent	2	7	5	23	27	18	18	100		
Organic										
Frequency	4	6	4	8	13	11	6	52	4.48	1.79
Per cent	8	12	8	15	25	21	12	100		
							Sector	**average**	**4.77**	
DAIRY										
Conventional										
Frequency	3	3	3	20	17	26	20	92	[1]5.21	1.52
Per cent	3	3	3	22	18	28	22	100		
Modified										
Frequency	2	3	2	4	4	8	9	32	5.03	1.93
Per cent	6	9	6	13	13	25	28	100		
Organic										
Frequency	1	2	2	7	11	9	7	39	5.05	1.50
Per cent	3	5	5	18	28	23	18	100		
							Sector	**average**	**5.11**	
CV avg.	**4.90**									
Mod avg.	**5.02**									
Org avg.	**4.85**									

B1h - Importance of the ratio of working expenses/gross income in annual financial performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	3	4	6	8	14	16	16	67	5.06	1.33
Per cent	4	6	9	12	21	24	24	100		
Modified										
Frequency	1	3	3	3	3	9	5	27	4.89	1.40
Per cent	4	11	11	11	11	33	19	100		
Organic										
Frequency	1	3	0	6	9	10	17	46	5.54	1.31
Per cent	2	7	0	13	20	22	37	100		
							Sector	**average**	**5.16**	
HORTICULTURE										
Conventional										
Frequency	0	3	2	6	6	5	9	31	5.13	1.65
Per cent	0	10	6	19	19	16	29	100		
Modified										
Frequency	1	3	5	6	16	18	12	61	5.21	1.48
Per cent	2	5	8	10	26	30	20	100		
Organic										
Frequency	4	3	3	5	16	10	11	52	4.92	1.78
Per cent	8	6	6	10	31	19	21	100		
							Sector	**average**	**5.09**	
DAIRY										
Conventional										
Frequency	2	5	5	18	19	28	15	92	5.08	1.49
Per cent	2	5	5	20	21	30	16	100		
Modified										
Frequency	0	1	2	3	6	10	9	31	5.58	1.36
Per cent	0	3	6	10	19	32	29	100		
Organic										
Frequency	1	2	3	6	7	12	9	40	5.20	1.59
Per cent	3	5	8	15	18	30	23	100		
							Sector	**average**	**5.25**	
CV avg.	**5.09**									
Mod avg.	**5.25**									
Org avg.	**5.23**									

B1i - Importance of return on capital in annual financial performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	7	10	9	13	16	4	8	67	[2]3.97	1.33
Per cent	10	15	13	19	24	6	12	100		
Modified										
Frequency	2	1	2	9	3	4	6	27	4.70	1.40
Per cent	7	4	7	33	11	15	22	100		
Organic										
Frequency	5	6	6	9	9	6	5	46	4.06	1.31
Per cent	11	13	13	20	20	13	11	100		
							Sector	**average**	**[2]4.20**	
HORTICULTURE										
Conventional										
Frequency	1	3	4	10	5	1	7	31	4.48	1.73
Per cent	3	10	13	32	16	3	23	100		
Modified										
Frequency	3	8	4	14	12	10	10	61	4.54	1.77
Per cent	5	13	7	23	20	16	16	100		
Organic										
Frequency	7	3	5	6	17	7	7	52	4.38	1.88
Per cent	13	6	10	12	33	13	13	100		
							Sector	**average**	**4.47**	
DAIRY										
Conventional										
Frequency	4	10	10	18	21	12	17	92	[1]4.59	1.74
Per cent	4	11	11	20	23	13	18	100		
Modified										
Frequency	1	3	6	1	7	5	9	32	4.91	1.87
Per cent	3	9	19	3	22	16	28	100		
Organic										
Frequency	1	2	6	9	9	8	5	40	4.68	1.53
Per cent	3	5	15	23	23	20	13	100		
							Sector	**average**	**[1]4.70**	
CV avg.	**4.36**									
Mod avg.	**4.73**									
Org avg.	**4.39**									

B1j - Importance of money available in annual financial performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	2	1	4	6	8	21	25	67	5.69	1.33
Per cent	3	1	6	9	12	31	37	100		
Modified										
Frequency	1	1	2	2	4	6	11	27	5.56	1.40
Per cent	4	4	7	7	15	22	41	100		
Organic										
Frequency	2	2	3	5	5	10	19	46	5.50	1.31
Per cent	4	4	7	11	11	22	41	100		
							Sector	**average**	**5.59**	
HORTICULTURE										
Conventional										
Frequency	0	0	2	2	8	8	11	31	5.77	1.20
Per cent	0	0	6	6	26	26	35	100		
Modified										
Frequency	1	0	0	8	4	21	27	61	6.03	1.21
Per cent	2	0	0	13	7	34	44	100		
Organic										
Frequency	2	1	0	4	8	14	22	51	5.84	1.49
Per cent	4	2	0	8	16	27	43	100		
							Sector	**average**	**5.86**	
DAIRY										
Conventional										
Frequency	1	2	3	10	19	26	30	91	5.66	1.34
Per cent	1	2	3	11	21	29	33	100		
Modified										
Frequency	2	0	2	3	2	12	11	32	5.59	1.68
Per cent	6	0	6	9	6	38	34	100		
Organic										
Frequency	0	0	2	2	9	14	12	39	5.82	1.10
Per cent	0	0	5	5	23	36	31	100		
							Sector	**average**	**5.69**	
CV avg.	**5.70**									
Mod avg.	**5.72**									
Org avg.	**5.73**									

B1k - Importance of not monitoring financial performance in annual financial performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev
SHEEP/BEEF										
Conventional										
Frequency	12	7	8	8	6	8	8	57	[1]3.79	1.33
Per cent	21	12	14	14	11	14	14	100		
Modified										
Frequency	5	1	0	5	1	5	1	18	[1]3.83	1.40
Per cent	28	6	0	28	6	28	6	100		
Organic										
Frequency	15	1	1	7	3	3	4	34	3.21	1.31
Per cent	44	3	3	21	9	9	12	100		
							Sector	**Avg.**	**[1]3.62**	
HORTICULTURE										
Conventional										
Frequency	4	5	4	5	5	3	1	27	[1]3.56	1.76
Per cent	15	19	15	19	19	11	4	100		
Modified										
Frequency	20	5	1	7	4	5	3	45	[2]2.93	2.14
Per cent	44	11	2	16	9	11	7	100		
Organic										
Frequency	15	5	6	12	3	2	2	45	2.93	1.78
Per cent	33	11	13	27	7	4	4	100		
							Sector	**Avg.**	**3.20**	
DAIRY										
Conventional										
Frequency	30	8	5	16	5	3	2	69	[2]2.64[b]	1.77
Per cent	43	12	7	23	7	4	3	100		
Modified										
Frequency	11	3	0	4	4	0	2	24	[2]2.79	2.06
Per cent	46	13	0	17	17	0	8	100		
Organic										
Frequency	5	7	0	9	4	3	3	31	3.68[a]	1.94
Per cent	16	23	0	29	13	10	10	100		
							Sector	**Avg.**	**[2]3.00**	
CV avg.	**3.30**							**Interaction**		
Mod avg.	**3.16**									
Org avg.	**3.28**									

B2a – Importance of health of stock or plants in production performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	0	0	0	0	0	14	57	71	6.80	0.40
Per cent	0	0	0	0	0	20	80	100		
Modified										
Frequency	0	0	0	0	0	1	26	27	6.96	0.19
Per cent	0	0	0	0	0	4	96	100		
Organic										
Frequency	0	0	0	0	0	3	44	47	[1]6.94	0.33
Per cent	0	0	0	0	0	6	94	100		
							Sector	**Average**	**[1]6.87**	
HORTICULTURE										
Conventional										
Frequency	0	0	0	1	2	5	24	32	6.63	0.75
Per cent	0	0	0	3	6	16	75	100		
Modified										
Frequency	0	0	0	0	3	7	53	63	6.79[a]	0.51
Per cent	0	0	0	0	5	11	84	100		
Organic										
Frequency	2	0	0	1	2	5	41	51	[2]6.53[b]	1.29
Per cent	4	0	0	2	4	10	80	100		
							Sector	**Average**	**[2]6.41**	
DAIRY										
Conventional										
Frequency	0	0	0	0	0	19	75	94	6.80	0.40
Per cent	0	0	0	0	0	20	80	100		
Modified										
Frequency	0	0	0	0	0	6	25	31	6.81	0.40
Per cent	0	0	0	0	0	19	81	100		
Organic										
Frequency	1	0	0	0	2	4	33	40	[2]6.65	1.05
Per cent	2	0	0	0	5	10	82	99		
							Sector	**Average**	**6.76**	
CV. avg.	**6.74**									
Mod. Avg.	**6.85**									
Org. avg.	**6.70**									

B2b – Importance of yields per hectare compared to other similar farmers/orchardists in production performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	6	11	6	16	10	6	12	67	[2]4.18	1.92
Per cent	9	16	9	24	15	9	18	100		
Modified										
Frequency	2	3	0	7	4	8	3	27	[2]4.63	1.78
Per cent	7	11	0	26	15	30	11	100		
Organic										
Frequency	4	2	8	15	13	3	2	47	[2]4.02	1.75
Per cent	9	4	17	32	28	6	4	100		
							Sector	**Average**	**[3]4.25**	
HORTICULTURE										
Conventional										
Frequency	1	2	1	3	5	9	11	32	[1]5.50	1.67
Per cent	3	6	3	9	16	28	34	100		
Modified										
Frequency	2	2	1	3	17	22	16	63	[1]5.56	1.41
Per cent	3	3	2	5	27	35	25	100		
Organic										
Frequency	2	2	2	9	16	12	8	51	[1]5.02	1.49
Per cent	4	4	4	18	31	24	16	100		
							Sector	**Average**	**[1]5.37**	
DAIRY										
Conventional										
Frequency	3	5	7	16	28	21	13	93	[1]4.89	1.51
Per cent	3	5	8	17	30	23	14	100		
Modified										
Frequency	0	2	3	5	6	11	4	31	5.06[a]	1.44
Per cent	0	6	10	16	19	36	13	100		
Organic										
Frequency	4	5	6	10	9	5	1	40	[2]3.85[b]	1.59
Per cent	10	12	15	25	22	12	2	98		
							Sector	**Average**	**[2]4.62**	
CV. avg.	**4.87[a]**									
Mod. Avg.	**5.09[a]**									
Org. avg.	**4.28[b]**									

B2c – Importance of presence of a neat and tidy landscape in production performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	2	1	3	9	16	22	16	69	5.41	1.42
Per cent	3	1	4	13	23	32	23	100		
Modified										
Frequency	0	1	1	6	2	12	5	27	5.41	1.34
Per cent	0	4	4	22	7	44	19	100		
Organic										
Frequency	2	2	3	8	8	15	9	47	[1]5.11	1.47
Per cent	4	4	6	17	17	32	19	100		
							Sector	**Average**	**[1]5.32**	
HORTICULTURE										
Conventional										
Frequency	0	2	1	5	9	9	7	33	5.30[a]	1.38
Per cent	0	6	3	15	27	27	21	100		
Modified										
Frequency	1	5	9	5	20	16	7	63	[2]4.81	1.52
Per cent	2	8	14	8	32	25	11	100		
Organic										
Frequency	7	5	7	12	8	6	7	52	[2]4.06[b]	1.90
Per cent	13	10	13	23	15	12	13	100		
							Sector	**Average**	**[2]4.79**	
DAIRY										
Conventional										
Frequency	1	0	3	11	24	34	21	94	5.59	1.16
Per cent	1	0	3	12	26	36	22	100		
Modified										
Frequency	0	1	1	1	7	11	10	31	[1]5.81[a]	1.22
Per cent	0	3	3	3	23	36	32	100		
Organic										
Frequency	0	1	7	5	10	10	7	40	[1]5.05[b]	1.43
Per cent	0	2	18	12	25	25	18	100		
							Sector	**Average**	**[1]5.48**	
CV. avg.	**5.44[a]**									
Mod. Avg.	**5.36[a]**									
Org. avg.	**4.75[b]**									

B2d – Importance of minimum weeds in production performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	1	2	3	9	17	18	19	69	5.45	1.41
Per cent	1	3	4	13	25	26	28	100		
Modified										
Frequency	0	0	2	5	5	8	7	27	[1]5.48[a]	1.28
Per cent	0	0	7	19	19	30	26	100		
Organic										
Frequency	3	1	2	16	11	9	5	47	[1]4.66[b]	1.46
Per cent	6	2	4	34	23	19	11	100		
							Sector	**Average**	**[2]5.22**	
HORTICULTURE										
Conventional										
Frequency	1	1	1	3	12	9	5	32	[2]5.22[a]	1.39
Per cent	3	3	3	9	38	28	16	100		
Modified										
Frequency	4	1	5	20	15	14	4	63	[2]4.57[b]	1.46
Per cent	6	2	8	32	24	22	6	100		
Organic										
Frequency	6	9	4	10	9	7	6	51	[2]4.02[b]	1.92
Per cent	12	18	8	20	18	14	12	100		
							Sector	**Average**	**[3]4.68**	
DAIRY										
Conventional										
Frequency	0	1	0	5	27	40	22	95	[1]5.80[a]	0.93
Per cent	0	1	0	5	28	42	23	99		
Modified										
Frequency	0	1	0	2	4	10	14	31	[1]6.06[a]	1.18
Per cent	0	3	0	6	13	32	45	99		
Organic										
Frequency	1	3	5	7	10	7	7	40	[1]4.78[b]	1.62
Per cent	2	8	12	18	25	18	18	101		
							Sector	**Average**	**[1]5.56**	
CV. avg.	**5.50[a]**									
Mod. Avg.	**5.40[a]**									
Org. avg.	**4.50[b]**									

B2e – Importance of volume of production is at a maximum in production performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	1	2	7	15	14	19	11	69	5.03[a]	1.43
Per cent	1	3	10	22	20	28	16	100		
Modified										
Frequency	1	2	1	8	6	6	3	27	[2]4.70	1.54
Per cent	4	7	4	30	22	22	11	100		
Organic										
Frequency	5	6	3	11	12	6	4	47	[2]4.13[b]	1.61
Per cent	11	13	6	23	26	13	9	100		
							Sector	**Average**	**[3]4.67**	
HORTICULTURE										
Conventional										
Frequency	0	0	1	6	8	7	10	32	5.59	1.21
Per cent	0	0	3	19	25	22	31	100		
Modified										
Frequency	0	1	2	9	11	23	16	62	[1]5.63	1.20
Per cent	0	2	3	15	18	37	26	100		
Organic										
Frequency	2	3	3	7	12	12	13	52	[1]5.15	1.66
Per cent	4	6	6	13	23	23	25	100		
							Sector	**Average**	**[1]5.47**	
DAIRY										
Conventional										
Frequency	0	3	1	17	24	28	21	94	5.45[a]	1.23
Per cent	0	3	1	18	26	30	22	100		
Modified										
Frequency	0	1	4	4	3	12	7	31	[1]5.35[a]	1.47
Per cent	0	3	13	13	10	39	23	101		
Organic										
Frequency	3	2	4	10	12	6	3	40	[2]4.40[b]	1.57
Per cent	8	5	10	25	30	15	8	101		
							Sector	**Average**	**[2]5.10**	
CV. avg.	**5.36[a]**									
Mod. Avg.	**5.24[a]**									
Org. avg.	**4.56[b]**									

B2f – Importance of quality of production is at a maximum in production performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	1	1	0	9	10	26	22	69	[2]5.78[b]	1.25
Per cent	1	1	0	13	14	38	32	100		
Modified										
Frequency	0	2	0	1	2	12	10	27	[2]5.93[b]	1.36
Per cent	0	7	0	4	7	44	37	100		
Organic										
Frequency	0	0	0	1	2	18	26	47	6.47[a]	1.15
Per cent	0	0	0	2	4	38	55	100		
							Sector	**Average**	**[2]6.03**	
HORTICULTURE										
Conventional										
Frequency	0	0	0	0	4	11	17	32	[1]6.41	0.71
Per cent	0	0	0	0	13	34	53	100		
Modified										
Frequency	0	1	0	0	1	16	44	62	[1]6.63	0.77
Per cent	0	2	0	0	2	26	71	100		
Organic										
Frequency	1	0	1	2	5	9	34	52	6.33	1.22
Per cent	2	0	2	4	10	17	65	100		
							Sector	**Average**	**[1]6.44**	
DAIRY										
Conventional										
Frequency	0	0	0	1	17	38	38	94	[1]6.20	0.77
Per cent	0	0	0	1	18	40	40	99		
Modified										
Frequency	0	0	2	0	1	12	16	31	6.29	1.04
Per cent	0	0	6	0	3	39	52	100		
Organic										
Frequency	1	0	0	2	1	14	22	40	6.33	1.05
Per cent	2	0	0	5	2	35	55	100		
							Sector	**Average**	**[1]6.26**	
CV. avg.	**6.14[b]**							**Interaction**		
Mod. Avg.	**6.28**									
Org. avg.	**6.37[a]**									

B2g - Importance of mixture of productive uses/activities in production performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev
SHEEP/BEEF										
Conventional										
Frequency	4	2	8	14	17	16	6	67	4.64[b]	1.55
Per cent	6	3	12	21	25	24	9	100		
Modified										
Frequency	0	1	1	7	4	6	8	27	[1]5.37[a]	1.45
Per cent	0	4	4	26	15	22	30	100		
Organic										
Frequency	0	1	2	10	7	16	10	46	5.41[a]	1.49
Per cent	0	2	4	22	15	35	22	100		
							Sector	**Avg.**	**5.07**	
HORTICULTURE										
Conventional										
Frequency	0	2	3	2	8	9	7	31	[1]5.29[a]	1.49
Per cent	0	6	10	6	26	29	23	100		
Modified										
Frequency	8	4	4	8	12	18	8	62	[2]4.58[b]	1.93
Per cent	13	6	6	13	19	29	13	100		
Organic										
Frequency	3	4	1	5	11	19	8	51	5.08	1.70
Per cent	6	8	2	10	22	37	16	100		
							Sector	**Avg.**	**5.04**	
DAIRY										
Conventional										
Frequency	5	5	11	21	22	18	11	93	[2]4.59[b]	1.60
Per cent	5	5	12	23	24	19	12	100		
Modified										
Frequency	0	1	3	4	6	13	4	31	5.26[a]	1.32
Per cent	0	3	10	13	19	42	13	100		
Organic										
Frequency	0	3	4	8	9	10	6	40	4.93	1.47
Per cent	0	8	10	20	22	25	15	100		
							Sector	**Avg.**	**4.87**	
CV. avg.	**4.83**							**Interaction**		
Mod. Avg.	**5.08**									
Org. avg.	**5.13**									

B2h – Importance no productive land is going to waste in production performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	3	3	3	11	13	23	13	69	5.16[a]	1.59
Per cent	4	4	4	16	19	33	19	100		
Modified										
Frequency	0	4	1	3	6	9	4	27	5.00	1.62
Per cent	0	15	4	11	22	33	15	100		
Organic										
Frequency	7	5	3	5	9	12	6	47	[2]4.36[b]	1.78
Per cent	15	11	6	11	19	26	13	100		
							Sector	**Average**	**[2]4.87**	
HORTICULTURE										
Conventional										
Frequency	1	0	1	4	9	11	6	32	5.41	1.32
Per cent	3	0	3	13	28	34	19	100		
Modified										
Frequency	3	2	1	9	15	21	12	63	5.25[a]	1.52
Per cent	5	3	2	14	24	33	19	100		
Organic										
Frequency	2	7	3	6	12	15	7	52	4.77[b]	1.73
Per cent	4	13	6	12	23	29	13	100		
							Sector	**Average**	**5.17**	
DAIRY										
Conventional										
Frequency	1	3	1	9	31	31	18	94	5.46	1.22
Per cent	1	3	1	10	33	33	19	100		
Modified										
Frequency	1	2	2	2	2	12	10	31	5.52	1.71
Per cent	3	6	6	6	6	39	32	98		
Organic										
Frequency	2	0	3	8	11	9	7	40	[1]5.03	1.51
Per cent	5	0	8	20	28	22	18	101		
							Sector	**Average**	**[1]5.34**	
CV. avg.	**5.35[a]**									
Mod. Avg.	**5.27[a]**									
Org. avg.	**4.73[b]**									

B2i – Importance of reducing carbon emissions in production performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev
SHEEP/BEEF										
Conventional										
Frequency	12	6	11	17	15	3	5	69	3.67[b]	1.75
Per cent	17	9	16	25	22	4	7	100		
Modified										
Frequency	8	3	2	3	5	4	2	27	[2]3.52[b]	2.14
Per cent	30	11	7	11	19	15	7	100		
Organic										
Frequency	9	2	2	5	9	4	14	45	4.58[a]	2.04
Per cent	20	4	4	11	20	9	31	100		
							Sector	**Avg.**	**3.90**	
HORTICULTURE										
Conventional										
Frequency	5	3	4	6	9	4	1	32	3.84	3.84
Per cent	16	9	13	19	28	13	3	100		
Modified										
Frequency	21	4	4	20	6	6	2	63	[2]3.19[b]	3.19
Per cent	33	6	6	32	10	10	3	100		
Organic										
Frequency	7	5	3	5	9	13	10	52	4.60[a]	4.60
Per cent	13	10	6	10	17	25	19	100		
							Sector	**Avg.**	**3.90**	
DAIRY										
Conventional										
Frequency	17	17	11	32	13	4	0	94	3.20[b]	1.47
Per cent	18	18	12	34	14	4	0	100		
Modified										
Frequency	2	2	6	5	6	5	5	31	[1]4.48	1.79
Per cent	6	6	19	16	19	16	16	100		
Organic										
Frequency	2	3	2	9	5	11	8	40	4.93[a]	1.75
Per cent	5	8	5	22	12	28	20	100		
							Sector	**Avg.**	**4.07**	
CV. avg.	**3.55[b]**									
Mod. Avg.	**3.76[b]**							**Interaction**		
Org. avg.	**4.71[a]**									

B3a – Importance of soil fertility levels in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev	NA
SHEEP/BEEF											
Convention											
Frequency	0	1	0	5	18	27	17	68	[2]5.78[b]	1.0	3
Per cent	0	1	0	7	26	40	25	100			
Modified											
Frequency	1	0	1	1	5	5	14	27	[2]5.96	1.4	0
Per cent	4	0	4	4	19	19	52	100			
Organic											
Frequency	0	0	2	1	5	7	28	43	6.35[a]	1.0	2
Per cent	0	0	5	2	12	16	65	100			
							Sector average		**[2]6.00**		
HORTICULTURE											
Convention											
Frequency	0	0	0	1	6	10	14	31	[1]6.19	0.8	1
Per cent	0	0	0	3	19	32	45	100			
Modified											
Frequency	0	0	0	4	8	16	33	61	6.28	0.9	0
Per cent	0	0	0	7	13	26	54	100			
Organic											
Frequency	0	0	0	1	3	17	30	51	6.49	0.7	0
Per cent	0	0	0	2	6	33	59	100			
							Sector average		**[1]6.30**		
DAIRY											
Convention											
Frequency	0	0	1	1	13	36	44	95	[1]6.27	0.8	0
Per cent	0	0	1	1	14	38	46	100			
Modified											
Frequency	0	0	0	0	4	8	19	31	[1]6.48	0.7	0
Per cent	0	0	0	0	13	26	61	100			
Organic											
Frequency	0	0	0	4	6	10	20	40	6.15	1.0	0
Per cent	0	0	0	10	15	25	50	100			
							Sector average		**[1]6.29**		
CV avg.	**6.10[b]**										
Mod avg.	**6.26**										
Org avg.	**6.32[a]**										

B3b - Importance of soil biological activity in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Conventiona											
Frequency	0	3	1	8	14	22	15	63	[2]5.52[c]	1.29	5
Per cent	0	5	2	1	22	35	24	100			
Modified											
Frequency	2	0	0	2	3	3	17	27	6.00[b]	1.73	0
Per cent	7	0	0	7	11	11	63	100			
Organic											
Frequency	0	0	0	0	1	5	40	46	6.85[a]	0.42	1
Per cent	0	0	0	0	2	11	87	100			
							Sector average		**6.06**		
HORTICULTURE											
Conventiona											
Frequency	0	0	1	1	7	10	12	31	[1]6.00[b]	1.03	1
Per cent	0	0	3	3	23	32	39	100			
Modified											
Frequency	1	0	0	7	6	19	28	61	6.05[b]	1.20	0
Per cent	2	0	0	1	10	31	46	100			
Organic											
Frequency	0	0	0	0	2	12	38	52	6.69[a]	0.54	0
Per cent	0	0	0	0	4	23	73	100			
							Sector average		**6.23**		
DAIRY											
Conventiona											
Frequency	0	0	3	1	20	33	27	93	[1]5.76[b]	1.09	1
Per cent	0	0	3	1	22	35	29	100			
Modified											
Frequency	0	1	1	1	5	7	16	31	6.06[b]	1.29	0
Per cent	0	3	3	3	16	23	52	100			
Organic											
Frequency	0	0	0	0	1	11	28	40	6.68[a]	0.53	0
Per cent	0	0	0	0	3	28	70	100			
							Sector average		**6.13**		
CV avg.	**5.77[c]**										
Mod avg.	**6.04[b]**										
Org avg.	**6.73[a]**										

B3c - Importance of soil health in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Convention											
Frequency	0	2	0	5	11	26	23	67	[1]5.91[b]	1.14	3
Per cent	0	3	0	7	16	39	34	100			
Modified											
Frequency	1	0	1	1	3	5	16	27	6.11[b]	1.48	0
Per cent	4	0	4	4	11	19	59	100			
Organic											
Frequency	0	0	0	0	0	6	40	46	6.87[a]	0.34	1
Per cent	0	0	0	0	0	13	87	100			
							Sector average		**6.26**		
HORTICULTURE											
Convention											
Frequency	0	0	0	1	5	11	14	31	[2]6.23[b]	0.84	1
Per cent	0	0	0	3	16	35	45	100			
Modified											
Frequency	0	0	1	3	5	16	36	61	6.36[b]	0.95	0
Per cent	0	0	2	5	8	26	59	100			
Organic											
Frequency	0	0	1	0	0	10	41	52	6.73[a]	0.66	0
Per cent	0	0	2	0	0	19	79	100			
							Sector average		**6.42**		
DAIRY											
Convention											
Frequency	0	0	1	6	13	40	35	95	6.07[b]	0.93	0
Per cent	0	0	1	6	14	42	37	100			
Modified											
Frequency	0	0	1	0	3	9	18	31	6.39	0.92	0
Per cent	0	0	3	0	10	29	58	100			
Organic											
Frequency	0	0	0	0	0	8	32	40	6.80[a]	0.41	0
Per cent	0	0	0	0	0	20	80	100			
							Sector average		**6.38**		
CV avg.	**6.07[b]**										
Mod avg.	**6.29[b]**										
Org avg.	**6.80[a]**										

B3d - Importance of health of livestock and plants in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Convention											
Frequency	0	1	0	1	0	18	50	70	6.63[b]	0.78	1
Per cent	0	1	0	1	0	26	71	100			
Modified											
Frequency	1	0	0	0	0	2	24	27	6.70	1.17	0
Per cent	4	0	0	0	0	7	89	100			
Organic											
Frequency	0	0	0	0	0	5	42	47	6.89[a]	0.31	0
Per cent	0	0	0	0	0	11	89	100			
							Sector average		**6.73**		
HORTICULTURE											
Convention											
Frequency	0	0	0	1	2	8	21	32	[2]6.53	0.76	0
Per cent	0	0	0	3	6	25	66	100			
Modified											
Frequency	0	0	0	1	3	15	43	62	6.61	0.66	0
Per cent	0	0	0	2	5	24	69	100			
Organic											
Frequency	0	0	0	0	0	13	38	51	6.75	0.44	0
Per cent	0	0	0	0	0	25	75	100			
							Sector average		**[2]6.62**		
DAIRY											
Convention											
Frequency	0	0	0	0	2	15	78	95	[1]6.80	0.45	0
Per cent	0	0	0	0	2	16	82	100			
Modified											
Frequency	0	0	0	0	0	8	23	31	6.74	0.44	0
Per cent	0	0	0	0	0	26	74	100			
Organic											
Frequency	0	0	0	0	0	8	32	40	6.80	0.41	0
Per cent	0	0	0	0	0	20	80	100			
							Sector average		**[1]6.78**		
CV avg.	**6.66[b]**										
Mod avg.	**6.69**										
Org avg.	**6.81[a]**										

B3e - Importance of level of biodiversity (the number and type of productive and unproductive species) in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Convention											
Frequency	1	2	7	18	12	9	6	55	4.62[c]	1.39	9
Per cent	2	4	13	33	22	16	11	10			
Modified											
Frequency	0	3	1	2	5	11	5	27	[1]5.30[b]	1.54	0
Per cent	0	11	4	7	19	41	19	10			
Organic											
Frequency	0	0	0	3	7	13	23	46	6.22[a]	0.94	1
Per cent	0	0	0	7	15	28	50	10			
							Sector		**[1]5.31**		
HORTICULTURE											
Convention											
Frequency	4	2	1	7	10	3	2	29	4.17[b]	1.73	3
Per cent	14	7	3	24	34	10	7	10			
Modified											
Frequency	5	4	5	9	12	17	3	55	[2]4.49[b]	1.72	4
Per cent	9	7	9	16	22	31	5	10			
Organic											
Frequency	0	1	3	4	5	22	15	50	5.78[a]	1.25	0
Per cent	0	2	6	8	10	44	30	10			
							Sector		**[2]4.77**		
DAIRY											
Convention											
Frequency	2	7	8	27	35	7	5	91	4.40[b]	1.28	2
Per cent	2	8	9	30	38	8	5	10			
Modified											
Frequency	0	4	2	3	5	7	6	27	5.00[b]	1.73	3
Per cent	0	15	7	11	19	26	22	10			
Organic											
Frequency	1	0	1	3	7	13	14	39	5.82[a]	1.32	0
Per cent	3	0	3	8	18	33	36	10			
							Sector		**5.01**		
CV avg.	**4.39[c]**										
Mod avg.	**4.93[b]**										
Org avg.	**5.93[a]**										

B3f - Importance of the number of native bird species in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Convention											
Frequency	2	1	1	13	18	19	10	64	[1]5.20[b]	1.35	4
Per cent	3	2	2	20	28	30	16	100			
Modified											
Frequency	2	1	3	5	1	4	11	27	[1]5.15	2.01	0
Per cent	7	4	11	19	4	15	41	100			
Organic											
Frequency	0	2	1	4	8	10	21	46	[1]5.87[a]	1.38	0
Per cent	0	4	2	9	17	22	46	100			
							Sector average		**[1]5.40**		
HORTICULTURE											
Convention											
Frequency	1	3	3	6	9	3	4	29	[2]4.52[b]	1.62	3
Per cent	3	10	10	21	31	10	14	100			
Modified											
Frequency	7	3	10	11	9	12	6	58	[2]4.24[b]	1.84	5
Per cent	12	5	17	19	16	21	10	100			
Organic											
Frequency	1	3	0	4	15	14	12	49	5.43[a]	1.44	2
Per cent	2	6	0	8	31	29	24	100			
							Sector average		**[2]4.73**		
DAIRY											
Convention											
Frequency	4	5	10	31	17	16	9	92	[2]4.48[b]	1.51	3
Per cent	4	5	11	34	18	17	10	100			
Modified											
Frequency	0	2	0	5	8	3	9	27	[1]5.37[a]	1.50	3
Per cent	0	7	0	19	30	11	33	100			
Organic											
Frequency	2	0	2	8	15	5	7	39	[2]4.97	1.46	1
Per cent	5	0	5	21	38	13	18	100			
							Sector average		**[2]4.86**		
CV avg.	**4.82[b]**						**Interaction**				
Mod avg.	**4.94[b]**										
Org avg.	**5.40[a]**										

B3g - Importance of the number of bird species, native and other, in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Convention											
Frequency	2	1	5	15	17	17	8	65	[1]4.95[b]	1.40	4
Per cent	3	2	8	23	26	26	12	10			
Modified											
Frequency	2	1	4	8	3	2	7	27	4.59[b]	1.87	0
Per cent	7	4	15	30	11	7	26	10			
Organic											
Frequency	0	2	1	6	10	8	20	47	[1]5.72[a]	1.41	0
Per cent	0	4	2	13	21	17	43	10			
							Sector		**[1]5.10**		
HORTICULTURE											
Convention											
Frequency	2	3	4	7	10	1	4	31	[2]4.26[b]	1.65	1
Per cent	6	10	13	23	32	3	13	10			
Modified											
Frequency	9	5	8	9	12	13	5	61	[2]4.13[b]	1.90	2
Per cent	15	8	13	15	20	21	8	10			
Organic											
Frequency	2	3	0	3	16	15	10	49	5.31[a]	1.53	1
Per cent	4	6	0	6	33	31	20	10			
							Sector		**[2]4.55**		
DAIRY											
Convention											
Frequency	2	5	12	29	24	16	5	93	4.46[b]	1.33	2
Per cent	2	5	13	31	26	17	5	10			
Modified											
Frequency	0	2	0	8	6	5	7	28	[1]5.18[a]	1.47	2
Per cent	0	7	0	29	21	18	25	10			
Organic											
Frequency	2	2	2	6	11	8	8	39	[2]5.00	1.65	1
Per cent	5	5	5	15	28	21	21	10			
							Sector		**4.82**		
CV avg.	**4.55**										
Mod avg.	**4.66**						**Interaction**				
Org avg.	**5.33**										

B3h - Importance of the number of native plant or tree species in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Convention											
Frequency	2	2	3	15	11	20	10	63	[1]5.08	1.48	5
Per cent	3	3	5	24	17	32	16	10			
Modified											
Frequency	2	2	2	2	5	3	11	27	[1]5.19	2.02	0
Per cent	7	7	7	7	19	11	41	10			
Organic											
Frequency	0	4	2	5	6	12	18	47	[1]5.57	1.60	0
Per cent	0	9	4	11	13	26	38	10			
							Sector		**[1]5.26**		
HORTICULTURE											
Convention											
Frequency	1	1	3	9	10	2	1	27	[2]4.33	1.24	5
Per cent	4	4	11	33	37	7	4	10			
Modified											
Frequency	5	5	12	8	10	11	4	55	[2]4.13[b]	1.75	7
Per cent	9	9	22	15	18	20	7	10			
Organic											
Frequency	2	4	3	5	12	12	9	47	4.98[a]	1.70	4
Per cent	4	9	6	11	26	26	19	10			
							Sector		**[2]4.48**		
DAIRY											
Convention											
Frequency	4	7	11	25	23	14	7	91	[2]4.38	1.50	4
Per cent	4	8	12	27	25	15	8	10			
Modified											
Frequency	0	3	0	5	13	3	7	31	[1]5.10	1.45	0
Per cent	0	10	0	16	42	10	23	10			
Organic											
Frequency	1	1	4	7	14	8	5	40	[2]4.90	1.39	0
Per cent	3	3	10	18	35	20	13	10			
							Sector		**[2]4.73**		
CV avg.	**4.59[b]**										
Mod avg.	**4.83**										
Org avg.	**5.14[a]**										

B3i - Importance of the number of plant or tree species, native or other, in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Convention											
Frequency	1	0	5	13	16	21	8	64	[1]5.16[b]	1.26	4
Per cent	2	0	8	20	25	33	13	10			
Modified											
Frequency	2	0	1	4	5	5	10	27	[1]5.41	1.76	0
Per cent	7	0	4	15	19	19	37	10			
Organic											
Frequency	0	1	3	3	11	12	17	47	5.72[a]	1.31	0
Per cent	0	2	6	6	23	26	36	10			
							Sector		**[1]5.40**		
HORTICULTURE											
Convention											
Frequency	1	0	2	9	7	4	5	28	4.89	1.45	4
Per cent	4	0	7	32	25	14	18	10			
Modified											
Frequency	5	4	9	12	10	12	5	57	[2]4.30[b]	1.73	5
Per cent	9	7	16	21	18	21	9	10			
Organic											
Frequency	2	1	3	5	11	17	10	49	5.31[a]	1.52	2
Per cent	4	2	6	10	22	35	20	10			
							Sector		**[2]4.87**		
DAIRY											
Convention											
Frequency	2	5	13	24	24	16	7	91	[2]4.53	1.40	3
Per cent	2	5	14	26	26	18	8	10			
Modified											
Frequency	0	2	1	5	12	3	7	30	[1]5.13	1.41	1
Per cent	0	7	3	17	40	10	23	10			
Organic											
Frequency	1	3	1	5	10	15	5	40	5.13	1.49	0
Per cent	3	8	3	13	25	38	13	10			
							Sector		**[2]4.88**		
CV avg.	**4.84[b]**										
Mod avg.	**4.96[b]**										
Org avg.	**5.37[a]**										

B3j - Importance of water quality in nearby streams and waterways in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Convention											
Frequency	0	0	1	4	13	22	26	66	6.03	0.99	3
Per cent	0	0	2	6	20	33	39	10			
Modified											
Frequency	2	1	0	1	2	7	14	27	[2]5.85[b]	1.81	0
Per cent	7	4	0	4	7	26	52	10			
Organic											
Frequency	0	0	0	3	6	9	29	47	6.36[a]	0.94	0
Per cent	0	0	0	6	13	19	62	10			
							Sector average		**[2]6.02**		
HORTICULTURE											
Convention											
Frequency	0	1	0	1	8	13	7	30	[2]5.77	1.07	2
Per cent	0	3	0	3	27	43	23	10			
Modified											
Frequency	1	0	2	4	9	16	28	60	6.00	1.28	2
Per cent	2	0	3	7	15	27	47	10			
Organic											
Frequency	1	0	0	1	6	17	25	50	6.24	1.08	2
Per cent	2	0	0	2	12	34	50	10			
							Sector average		**6.11**		
DAIRY											
Convention											
Frequency	0	0	0	3	10	45	36	94	[1]6.21	0.76	0
Per cent	0	0	0	3	11	48	38	10			
Modified											
Frequency	0	0	0	1	5	5	20	31	[1]6.42	0.89	0
Per cent	0	0	0	3	16	16	65	10			
Organic											
Frequency	0	0	0	0	5	14	21	40	6.40	0.71	0
Per cent	0	0	0	0	13	35	53	10			
							Sector average		**[1]6.34**		
CV avg.	**6.02[b]**										
Mod avg.	**6.11**										
Org avg.	**6.34[a]**										

B3k - Importance of the presence of both productive and non-productive species flourishing on the farm/orchard in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Convention											
Frequency	1	6	6	15	11	13	9	61	4.70[b]	1.60	6
Per cent	2	1	1	25	18	21	15	10			
Modified											
Frequency	3	1	1	3	5	7	6	26	4.96[b]	1.95	0
Per cent	12	4	4	12	19	27	23	10			
Organic											
Frequency	1	0	3	3	12	6	19	44	5.70[a]	1.46	3
Per cent	2	0	7	7	27	14	43	10			
							Sector average		**5.09**		
HORTICULTURE											
Convention											
Frequency	1	0	2	6	9	4	6	28	5.07[b]	1.46	4
Per cent	4	0	7	21	32	14	21	10			
Modified											
Frequency	3	3	4	12	13	15	6	56	4.75[b]	1.59	3
Per cent	5	5	7	21	23	27	11	10			
Organic											
Frequency	1	0	0	5	10	18	15	49	5.80[a]	1.19	3
Per cent	2	0	0	10	20	37	31	10			
							Sector average		**5.21**		
DAIRY											
Convention											
Frequency	1	6	9	31	22	14	5	88	4.47[b]	1.29	4
Per cent	1	7	1	35	25	16	6	10			
Modified											
Frequency	0	2	2	1	12	8	5	30	5.23[a]	1.36	1
Per cent	0	7	7	3	40	27	17	10			
Organic											
Frequency	0	0	2	5	12	12	8	39	5.49[a]	1.12	1
Per cent	0	0	5	13	31	31	21	10			
							Sector average		**4.99**		
CV avg.	**4.73[b]**										
Mod avg.	**5.00[b]**										
Org avg.	**5.65[a]**										

B3l - Importance of water budgeting in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Convention											
Frequency	2	5	13	11	7	8	8	54	[2]4.33	1.72	13
Per cent	4	9	24	20	13	1	15	10			
Modified											
Frequency	4	1	2	6	2	1	4	20	[2]4.00	2.10	6
Per cent	20	5	10	30	10	5	20	10			
Organic											
Frequency	3	4	3	7	4	7	6	34	4.47	1.94	13
Per cent	9	12	9	21	12	2	18	10			
							Sector		**[2]4.29**		
HORTICULTURE											
Convention											
Frequency	0	0	4	3	8	6	8	29	[1]5.38	1.37	2
Per cent	0	0	14	10	28	2	28	10			
Modified											
Frequency	6	1	4	8	9	1	12	56	[1]4.95	1.87	7
Per cent	11	2	7	14	16	2	21	10			
Organic											
Frequency	6	3	2	5	7	1	7	48	4.79	1.96	4
Per cent	13	6	4	10	15	3	15	10			
							Sector		**[1]5.08**		
DAIRY											
Convention											
Frequency	10	6	14	17	18	1	9	84	[2]4.11[b]	1.79	8
Per cent	12	7	17	20	21	1	11	10			
Modified											
Frequency	0	2	2	6	5	4	10	29	[1]5.28[a]	1.62	1
Per cent	0	7	7	21	17	1	34	10			
Organic											
Frequency	1	2	3	13	10	5	3	37	4.51	1.37	3
Per cent	3	5	8	35	27	1	8	10			
							Sector		**[2]4.45**		
CV avg.	**4.60**										
Mod avg.	**4.81**										
Org avg.	**4.60**						**Interaction**				

B3m - Importance of nutrient budgeting in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Convention											
Frequency	6	5	6	10	10	16	9	62	[2]4.56	1.88	6
Per cent	10	8	10	16	16	26	15	10			
Modified											
Frequency	4	0	2	4	4	5	6	25	[2]4.72	2.07	2
Per cent	16	0	8	16	16	20	24	10			
Organic											
Frequency	2	3	2	5	5	10	10	37	5.11	1.84	1
Per cent	5	8	5	14	14	27	27	10			
							Sector		**[2]4.77**		
HORTICULTURE											
Convention											
Frequency	0	0	4	3	13	6	6	32	5.22	1.24	0
Per cent	0	0	13	9	41	19	19	10			
Modified											
Frequency	1	3	3	4	16	20	15	62	[2]5.44	1.44	1
Per cent	2	5	5	6	26	32	24	10			
Organic											
Frequency	2	2	4	3	9	16	13	49	5.35	1.65	2
Per cent	4	4	8	6	18	33	27	10			
							Sector		**[1]5.32**		
DAIRY											
Convention											
Frequency	3	0	3	9	20	36	23	94	[1]5.59	1.33	0
Per cent	3	0	3	10	21	38	24	10			
Modified											
Frequency	0	0	1	3	2	9	15	30	[1]6.13[a]	1.14	1
Per cent	0	0	3	10	7	30	50	10			
Organic											
Frequency	0	3	4	4	13	10	6	40	5.03[b]	1.44	0
Per cent	0	8	10	10	33	25	15	10			
							Sector		**[1]5.57**		
CV avg.	**5.17**										
Mod avg.	**5.50**						**Interaction**				
Org avg.	**5.16**										

B3n - Importance of pesticide use in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Convention											
Frequency	6	8	6	12	12	12	10	66	[2]4.39[a]	1.89	4
Per cent	9	12	9	18	18	18	15	10			
Modified											
Frequency	4	0	3	2	7	4	6	26	[2]4.69[a]	2.04	1
Per cent	15	0	12	8	27	15	23	10			
Organic											
Frequency	14	1	1	1	0	0	8	25	[2]3.16[b]	2.78	22
Per cent	56	4	4	4	0	0	32	10			
							Sector		**[3]4.21**		
HORTICULTURE											
Convention											
Frequency	0	0	2	1	7	14	8	32	[1]5.78[a]	1.07	0
Per cent	0	0	6	3	22	44	25	10			
Modified											
Frequency	2	2	1	2	6	27	20	60	[1]5.82[a]	1.44	1
Per cent	3	3	2	3	10	45	33	10			
Organic											
Frequency	13	0	0	5	1	8	10	37	[1]4.22[b]	2.57	12
Per cent	35	0	0	14	3	22	27	10			
							Sector		**[1]5.45**		
DAIRY											
Convention											
Frequency	1	3	6	19	20	26	12	87	[1]5.07[a]	1.36	6
Per cent	1	3	7	22	23	30	14	10			
Modified											
Frequency	0	0	1	2	7	7	11	28	[1]5.89[a]	1.13	2
Per cent	0	0	4	7	25	25	39	10			
Organic											
Frequency	16	0	1	0	1	1	3	22	[2]2.32[b]	2.34	18
Per cent	73	0	5	0	5	5	14	10			
							Sector		**[2]4.71**		
CV avg.	**5.10[a]**										
Mod avg.	**5.50[a]**										
Org avg.	**3.22[b]**						**Interaction**				

B3o - Importance of energy use in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Conventional											
Frequency	8	4	9	14	9	13	6	63	[2]4.19[b]	1.84	5
Per cent	13	6	14	22	14	21	10	10			
Modified											
Frequency	4	0	1	3	7	3	6	24	[2]4.75	2.05	3
Per cent	17	0	4	13	29	13	25	10			
Organic											
Frequency	3	1	0	6	6	16	7	39	5.23[a]	1.66	7
Per cent	8	3	0	15	15	41	18	10			
							Sector		**[2]4.65**		
HORTICULTURE											
Conventional											
Frequency	0	1	3	4	11	7	4	30	[1]5.07	1.28	0
Per cent	0	3	10	13	37	23	13	10			
Modified											
Frequency	4	2	2	9	12	19	9	57	5.04	1.66	5
Per cent	7	4	4	16	21	33	16	10			
Organic											
Frequency	3	3	3	4	11	13	12	49	5.12	1.78	2
Per cent	6	6	6	8	22	27	24	10			
							Sector		**[1]5.08**		
DAIRY											
Conventional											
Frequency	3	2	8	16	15	36	13	93	[1]5.13	1.48	0
Per cent	3	2	9	17	16	39	14	10			
Modified											
Frequency	0	0	0	2	9	9	7	27	[1]5.78	0.93	2
Per cent	0	0	0	7	33	33	26	10			
Organic											
Frequency	3	1	1	1	14	11	8	39	5.23	1.65	1
Per cent	8	3	3	3	36	28	21	10			
							Sector		**[1]5.33**		
CV avg.	**4.83**										
Mod avg.	**5.23**										
Org avg.	**5.20**										

B3p - Importance of the amount of carbon stored (sequestered) in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Convention											
Frequency	11	7	6	14	7	3	2	50	3.32[b]	1.73	1
Per cent	22	14	12	28	14	6	4	10			
Modified											
Frequency	4	5	0	6	1	3	4	23	3.87	2.18	2
Per cent	17	22	0	26	4	13	17	10			
Organic											
Frequency	9	2	1	7	3	4	14	40	[2]4.53[a]	2.40	6
Per cent	23	5	3	18	8	10	35	10			
							Sector		**3.85**		
HORTICULTURE											
Convention											
Frequency	3	2	2	9	6	0	2	24	3.88	1.62	3
Per cent	13	8	8	38	25	0	8	10			
Modified											
Frequency	11	4	5	9	7	12	2	50	3.82	1.98	8
Per cent	22	8	10	18	14	24	4	10			
Organic											
Frequency	7	0	6	7	10	6	10	46	[2]4.54	2.00	4
Per cent	15	0	13	15	22	13	22	10			
							Sector		**4.08**		
DAIRY											
Convention											
Frequency	22	5	13	22	16	7	0	85	3.31[c]	1.67	3
Per cent	26	6	15	26	19	8	0	10			
Modified											
Frequency	2	5	1	3	7	4	2	24	4.17[b]	1.86	4
Per cent	8	21	4	13	29	17	8	10			
Organic											
Frequency	1	1	2	4	6	13	10	37	[1]5.49[a]	1.50	2
Per cent	3	3	5	11	16	35	27	10			
							Sector		**4.23**		
CV avg.	**3.49[b]**										
Mod avg.	**3.97[b]**										
Org avg.	**4.90[a]**										

B3q - Importance of a tidy, well maintained farm/orchard in environmental performance

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Convention											
Frequency	1	0	2	13	10	24	18	68	5.57	1.29	1
Per cent	1	0	3	19	15	35	26	10			
Modified											
Frequency	0	2	3	1	2	11	8	27	[2]5.52	1.60	0
Per cent	0	7	11	4	7	41	30	10			
Organic											
Frequency	1	2	1	5	8	8	16	41	[1]5.56	1.60	6
Per cent	2	5	2	12	20	20	39	10			
							Sector		**[2]5.56**		
HORTICULTURE											
Convention											
Frequency	0	1	1	2	9	11	9	33	5.67[a]	1.22	0
Per cent	0	3	3	6	27	33	27	10			
Modified											
Frequency	0	6	6	4	16	19	9	60	[2]5.05[a]	1.52	0
Per cent	0	10	10	7	27	32	15	10			
Organic											
Frequency	2	3	5	10	10	9	12	51	[2]4.92[b]	1.71	1
Per cent	4	6	10	20	20	18	24	10			
							Sector		**[2]5.28**		
DAIRY											
Convention											
Frequency	0	0	0	6	19	42	27	94	5.96	0.87	0
Per cent	0	0	0	6	20	45	29	10			
Modified											
Frequency	0	0	0	1	4	8	16	29	[1]6.34[a]	0.86	0
Per cent	0	0	0	3	14	28	55	10			
Organic											
Frequency	1	1	4	3	4	19	8	40	5.43[b]	1.50	0
Per cent	3	3	10	8	10	48	20	10			
							Sector		**[1]5.90**		
CV avg.	**5.74[a]**						**Interaction**				
Mod avg.	**5.67[a]**										
Org avg.	**5.30[b]**										

B4a – Importance children are involved in the farm or orchard

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Conventional											
Frequency	4	1	4	8	7	14	9	47	4.94	1.79	22
Per cent	9	2	9	17	15	30	19	100			
Modified											
Frequency	0	0	1	4	3	5	7	20	15.65	1.31	7
Per cent	0	0	5	20	15	25	35	100			
Organic											
Frequency	1	2	1	6	8	10	7	35	[1]5.17	1.54	11
Per cent	3	6	3	17	23	29	20	100			
							Sector average		**[1]5.19**		
HORTICULTURE											
Conventional											
Frequency	0	1	3	1	7	3	2	17	4.82	1.42	15
Per cent	0	6	18	6	41	18	12	100			
Modified											
Frequency	5	4	8	5	3	7	4	36	[2]3.94	1.97	23
Per cent	14	11	22	14	8	19	11	100			
Organic											
Frequency	6	2	2	10	8	4	7	39	[2]4.33	1.96	12
Per cent	15	5	5	26	21	10	18	100			
							Sector average		**[2]4.44**		
DAIRY											
Conventional											
Frequency	0	1	1	22	15	22	15	76	5.33	1.20	14
Per cent	0	1	1	29	20	29	20	100			
Modified											
Frequency	1	0	1	3	6	8	8	27	[1]5.56	1.45	4
Per cent	4	0	4	11	22	30	30	100			
Organic											
Frequency	0	0	1	4	15	5	8	33	[1]5.45	1.09	7
Per cent	0	0	3	12	45	15	24	100			
							Sector average		**[1]5.43**		
CV avg.	**5.07**										
Mod avg.	**5.14**										
Org avg.	**5.05**										

B4b – Importance I have enough time to participate in community activities

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Conventional											
Frequency	1	5	6	14	8	23	7	64	4.88	1.54	7
Per cent	2	8	9	22	13	36	11	100			
Modified											
Frequency	1	0	2	5	4	6	8	26	[1]5.35	1.60	1
Per cent	4	0	8	19	15	23	31	100			
Organic											
Frequency	0	2	1	8	18	9	4	42	5.02	1.16	4
Per cent	0	5	2	19	43	21	10	100			
							Sector average		**5.04**		
HORTICULTURE											
Conventional											
Frequency	1	0	3	6	13	5	3	31	4.84	1.29	1
Per cent	3	0	10	19	42	16	10	100			
Modified											
Frequency	3	2	5	13	20	11	2	56	[2]4.54	1.39	4
Per cent	5	4	9	23	36	20	4	100			
Organic											
Frequency	3	3	3	7	15	11	5	47	4.72	1.62	5
Per cent	6	6	6	15	32	23	11	100			
							Sector average		**[2]4.27**		
DAIRY											
Conventional											
Frequency	3	4	4	19	19	31	11	91	5.02	1.47	1
Per cent	3	4	4	21	21	34	12	100			
Modified											
Frequency	0	4	1	3	5	11	7	31	[1]5.26	1.63	0
Per cent	0	13	3	10	16	35	23	100			
Organic											
Frequency	0	0	3	9	13	8	6	39	5.13	1.17	1
Per cent	0	0	8	23	33	21	15	100			
							Sector average		**[1]5.12**		
CV avg.	**4.92**										
Mod avg.	**5.06**										
Org avg.	**4.97**										

B4c - Importance I have enough time to devote to family and friends

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Conventional											
Frequency	0	0	2	7	7	33	20	69	5.90	1.03	2
Per cent	0	0	3	10	10	48	29	100			
Modified											
Frequency	0	0	0	1	6	10	10	27	6.07	0.87	0
Per cent	0	0	0	4	22	37	37	100			
Organic											
Frequency	0	0	0	3	8	13	18	42	6.10	0.96	4
Per cent	0	0	0	7	19	31	43	100			
							Sector average		**6.00**		
HORTICULTURE											
Conventional											
Frequency	0	0	0	3	9	9	11	32	5.88	1.01	0
Per cent	0	0	0	9	28	28	34	100			
Modified											
Frequency	0	0	0	5	9	28	18	60	5.98	0.89	0
Per cent	0	0	0	8	15	47	30	100			
Organic											
Frequency	1	0	0	1	10	21	19	52	6.04	1.07	1
Per cent	2	0	0	2	19	40	37	100			
							Sector average		**5.95**		
DAIRY											
Conventional											
Frequency	0	1	3	4	15	37	32	92	5.96	1.08	0
Per cent	0	1	3	4	16	40	35	100			
Modified											
Frequency	0	0	0	3	5	8	15	31	6.13	1.02	0
Per cent	0	0	0	10	16	26	48	100			
Organic											
Frequency	0	0	0	4	6	15	15	40	6.03	0.97	0
Per cent	0	0	0	10	15	38	38	100			
							Sector average		**6.02**		
CV avg.	**5.91**										
Mod avg.	**6.06**										
Org avg.	**6.05**										

B4d - Importance I have enough time to participate in activities and recreation off farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Conventional											
Frequency	1	1	4	8	14	26	14	68	5.46	1.32	3
Per cent	1	1	6	12	21	38	21	100			
Modified											
Frequency	1	0	0	5	3	9	9	27	5.67	1.44	0
Per cent	4	0	0	19	11	33	33	100			
Organic											
Frequency	0	0	2	7	9	13	11	42	5.57	1.19	4
Per cent	0	0	5	17	21	31	26	100			
							Sector average		**5.55**		
HORTICULTURE											
Conventional											
Frequency	0	0	3	4	10	5	10	32	5.47	1.32	0
Per cent	0	0	9	13	31	16	31	100			
Modified											
Frequency	0	2	1	6	14	23	14	60	5.62	1.19	0
Per cent	0	3	2	10	23	38	23	100			
Organic											
Frequency	0	0	1	8	13	17	13	52	5.63	1.09	1
Per cent	0	0	2	15	25	33	25	100			
							Sector average		**5.56**		
DAIRY											
Conventional											
Frequency	0	1	5	9	19	37	21	92	5.62	1.17	0
Per cent	0	1	5	10	21	40	23	100			
Modified											
Frequency	0	2	0	3	7	9	10	31	5.65	1.38	0
Per cent	0	6	0	10	23	29	32	100			
Organic											
Frequency	0	0	1	5	9	12	12	39	5.74	1.12	1
Per cent	0	0	3	13	23	31	31	100			
							Sector average		**5.66**		
CV avg.	**5.52**										
Mod avg.	**5.64**										
Org avg.	**5.66**										

B4e – Importance my farming/orcharding helps me to develop a connection to the place where it is located

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Conventional											
Frequency	4	1	6	12	20	13	9	65	4.82[b]	1.56	4
Per cent	6	2	9	18	31	20	14	100			
Modified											
Frequency	1	3	1	3	4	6	9	27	5.22	1.87	0
Per cent	4	11	4	11	15	22	33	100			
Organic											
Frequency	0	1	2	3	10	13	12	41	5.66[a]	1.26	5
Per cent	0	2	5	7	24	32	29	100			
							Sector average		**5.18**		
HORTICULTURE											
Conventional											
Frequency	2	2	2	4	6	9	5	30	4.90	1.77	2
Per cent	7	7	7	13	20	30	17	100			
Modified											
Frequency	3	1	4	13	16	14	8	59	4.90	1.51	1
Per cent	5	2	7	22	27	24	14	100			
Organic											
Frequency	2	3	4	4	10	15	11	49	5.16	1.69	3
Per cent	4	6	8	8	20	31	22	100			
							Sector average		**4.98**		
DAIRY											
Conventional											
Frequency	0	5	8	17	24	27	10	91	4.99	1.34	1
Per cent	0	5	9	19	26	30	11	100			
Modified											
Frequency	0	1	1	4	5	11	7	29	5.55	1.30	2
Per cent	0	3	3	14	17	38	24	100			
Organic											
Frequency	0	1	1	7	11	11	9	40	5.43	1.24	0
Per cent	0	3	3	18	28	28	23	100			
							Sector average		**5.27**		
CV avg.	**4.91[b]**										
Mod avg.	**5.24**										
Org avg.	**5.41[a]**										

B4f - Importance members of my farm/orchard family will be able to find employment in this area

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Conventional											
Frequency	4	7	8	13	6	8	8	54	4.22	1.84	15
Per cent	7	13	15	24	11	15	15	100			
Modified											
Frequency	2	1	1	5	4	1	8	22	[1]4.95	1.99	5
Per cent	9	5	5	23	18	5	36	100			
Organic											
Frequency	4	1	4	10	9	5	3	36	4.28	1.67	10
Per cent	11	3	11	28	25	14	8	100			
							Sector average		**4.42**		
HORTICULTURE											
Conventional											
Frequency	2	1	4	4	8	2	3	24	4.38	1.69	8
Per cent	8	4	17	17	33	8	13	100			
Modified											
Frequency	8	4	5	11	4	12	3	47	[2]4.00	1.93	13
Per cent	17	9	11	23	9	26	6	100			
Organic											
Frequency	7	4	3	10	11	3	6	44	4.07	1.92	8
Per cent	16	9	7	23	25	7	14	100			
							Sector average		**4.19**		
DAIRY											
Conventional											
Frequency	7	11	7	24	17	14	8	88	4.22	1.71	4
Per cent	8	13	8	27	19	16	9	100			
Modified											
Frequency	0	2	1	9	5	7	2	26	4.77	1.34	5
Per cent	0	8	4	35	19	27	8	100			
Organic											
Frequency	1	3	6	8	8	8	1	35	4.34	1.45	4
Per cent	3	9	17	23	23	23	3	100			
							Sector average		**4.40**		
CV avg.	**4.27**										
Mod avg.	**4.59**										
Org avg.	**4.24**										

B4g – Importance my farming/orcharding is able to contribute to local traditions, festivals or customs

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Conventional											
Frequency	8	10	8	14	7	5	4	56	3.59	1.78	13
Per cent	14	18	14	25	13	9	7	100			
Modified											
Frequency	3	5	2	2	5	2	5	24	4.13	2.15	3
Per cent	13	21	8	8	21	8	21	100			
Organic											
Frequency	6	1	4	8	8	7	3	37	4.19	1.85	9
Per cent	16	3	11	22	22	19	8	100			
							Sector average		**3.91**		
HORTICULTURE											
Conventional											
Frequency	5	1	3	6	9	0	2	26	3.81	1.77	6
Per cent	19	4	12	23	35	0	8	100			
Modified											
Frequency	8	9	6	8	8	7	1	47	3.51	1.79	13
Per cent	17	19	13	17	17	15	2	100			
Organic											
Frequency	9	10	5	7	7	4	5	47	3.53	2.00	4
Per cent	19	21	11	15	15	9	11	100			
							Sector average		**3.64**		
DAIRY											
Conventional											
Frequency	9	18	13	23	13	6	5	87	3.59	1.65	5
Per cent	10	21	15	26	15	7	6	100			
Modified											
Frequency	1	2	6	6	7	5	1	28	4.25	1.46	3
Per cent	4	7	21	21	25	18	4	100			
Organic											
Frequency	2	6	5	12	7	5	3	40	4.08	1.61	0
Per cent	5	15	13	30	18	13	8	100			
							Sector average		**3.91**		
CV avg.	**3.66**										
Mod avg.	**3.99**										
Org avg.	**3.94**										

B4h – Importance my farm or orchard is contributing to the local community

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Convention											
Frequency	6	9	8	16	9	9	6	63	[1]4.02[b]	1.78	6
Per cent	10	14	13	25	14	14	10	10			
Modified											
Frequency	1	3	1	5	1	4	10	25	5.16[a]	1.99	2
Per cent	4	12	4	20	4	16	40	10			
Organic											
Frequency	2	1	3	8	10	11	4	39	4.85[a]	1.51	7
Per cent	5	3	8	21	26	28	10	10			
							Sector		**4.58**		
HORTICULTURE											
Convention											
Frequency	2	0	3	6	7	5	4	27	4.74	1.63	5
Per cent	7	0	11	22	26	19	15	10			
Modified											
Frequency	3	2	8	13	15	16	2	59	[2]4.54	1.45	1
Per cent	5	3	14	22	25	27	3	10			
Organic											
Frequency	2	3	5	11	16	8	5	50	4.60	1.50	1
Per cent	4	6	10	22	32	16	10	10			
							Sector		**4.64**		
DAIRY											
Convention											
Frequency	2	7	4	26	31	16	5	91	[2]4.59	1.32	1
Per cent	2	8	4	29	34	18	5	10			
Modified											
Frequency	0	0	1	6	12	10	2	31	[1]5.19	0.95	1
Per cent	0	0	3	19	39	32	6	10			
Organic											
Frequency	0	3	7	6	8	12	4	40	4.78	1.49	0
Per cent	0	8	18	15	20	30	10	10			
							Sector		**4.81**		
CV avg.	**4.47[b]**										
Mod avg.	**4.98[a]**										
Org avg.	**4.74**										

B4i - Importance my neighbours approve of my farming/orcharding practices

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Conventional											
Frequency	11	4	6	9	10	17	6	63	[2]4.24	2.01	4
Per cent	17	6	10	14	16	27	10	100			
Modified											
Frequency	4	3	6	3	2	3	5	26	3.96	2.13	1
Per cent	15	12	23	12	8	12	19	100			
Organic											
Frequency	8	0	2	13	2	14	2	41	4.24	1.92	5
Per cent	20	0	5	32	5	34	5	100			
							Sector average		**[2]4.17**		
HORTICULTURE											
Conventional											
Frequency	0	0	2	3	6	13	8	32	[1]5.69[a]	1.15	0
Per cent	0	0	6	9	19	41	25	100			
Modified											
Frequency	4	3	4	13	15	15	5	59	4.64[b]	1.59	1
Per cent	7	5	7	22	25	25	8	100			
Organic											
Frequency	7	4	5	8	9	10	8	51	4.37[b]	1.99	2
Per cent	14	8	10	16	18	20	16	100			
							Sector average		**[1]5.01**		
DAIRY											
Conventional											
Frequency	7	7	4	17	22	26	8	91	[2]4.65	1.68	0
Per cent	8	8	4	19	24	29	9	100			
Modified											
Frequency	1	5	3	1	8	5	8	31	4.84	1.92	0
Per cent	3	16	10	3	26	16	26	100			
Organic											
Frequency	5	3	3	6	4	11	8	40	4.65	2.05	0
Per cent	13	8	8	15	10	28	20	100			
							Sector average		**[1]4.70**		
CV avg.	**4.86[a]**										
Mod avg.	**4.51**										
Org avg.	**4.44[b]**										

B4j - Importance my farming/orcharding helps to create an attractive place to live

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Conventional											
Frequency	1	2	2	6	16	22	21	70	5.63[b]	1.35	0
Per cent	1	3	3	9	23	31	30	100			
Modified											
Frequency	0	0	1	1	5	4	16	27	[1]6.22[a]	1.12	0
Per cent	0	0	4	4	19	15	59	100			
Organic											
Frequency	0	1	0	4	5	14	19	43	6.05	1.15	3
Per cent	0	2	0	9	12	33	44	100			
							Sector average		**5.91**		
HORTICULTURE											
Conventional											
Frequency	0	0	1	1	8	11	11	32	5.94[a]	1.01	0
Per cent	0	0	3	3	25	34	34	100			
Modified											
Frequency	2	2	1	10	11	21	12	59	[2]5.32[b]	1.48	2
Per cent	3	3	2	17	19	36	20	100			
Organic											
Frequency	1	1	1	0	8	20	21	52	6.02[a]	1.24	1
Per cent	2	2	2	0	15	38	40	100			
							Sector average		**5.80**		
DAIRY											
Conventional											
Frequency	1	2	1	6	18	49	15	92	5.66	1.11	0
Per cent	1	2	1	7	20	53	16	100			
Modified											
Frequency	0	1	0	1	4	11	13	30	[1]6.10	1.12	1
Per cent	0	3	0	3	13	37	43	100			
Organic											
Frequency	0	1	2	2	4	19	12	40	5.85	1.21	0
Per cent	0	3	5	5	10	48	30	100			
							Sector average		**5.83**		
CV avg.	**5.74**										
Mod avg.	**5.89**						**Interaction**				
Org avg.	**5.97**										

B4k - Importance my neighbours consider me to be a good farmer/orchardist

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Conventional											
Frequency	8	6	3	10	15	10	10	62	[2]4.42	1.95	5
Per cent	13	10	5	16	24	16	16	100			
Modified											
Frequency	2	2	2	6	3	5	5	25	4.64	1.89	2
Per cent	8	8	8	24	12	20	20	100			
Organic											
Frequency	6	3	0	8	8	10	5	40	4.48	1.96	6
Per cent	15	8	0	20	20	25	13	100			
							Sector average		**[2]4.49**		
HORTICULTURE											
Conventional											
Frequency	0	1	1	4	8	10	8	32	[1]5.53	1.27	0
Per cent	0	3	3	13	25	31	25	100			
Modified											
Frequency	3	4	0	12	12	16	11	58	5.03	1.65	2
Per cent	5	7	0	21	21	28	19	100			
Organic											
Frequency	4	2	4	5	10	15	11	51	5.04	1.80	2
Per cent	8	4	8	10	20	29	22	100			
							Sector average		**[1]5.25**		
DAIRY											
Conventional											
Frequency	2	5	2	13	20	35	14	91	[1]5.25	1.43	0
Per cent	2	5	2	14	22	38	15	100			
Modified											
Frequency	1	3	0	2	6	6	10	28	5.39	1.79	3
Per cent	4	11	0	7	21	21	36	100			
Organic											
Frequency	3	3	1	8	8	9	7	39	4.79	1.79	0
Per cent	8	8	3	21	21	23	18	100			
							Sector average		**[1]5.15**		
CV avg.	**5.10**										
Mod avg.	**5.05**										
Org avg.	**4.78**										

B4l - Importance my family has a good reputation in the local community

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Conventional											
Frequency	4	2	2	7	12	19	18	64	[2]5.34	1.69	3
Per cent	6	3	3	11	19	30	28	100			
Modified											
Frequency	3	0	0	0	5	8	9	25	5.56	1.87	2
Per cent	12	0	0	0	20	32	36	100			
Organic											
Frequency	2	2	2	6	5	12	11	40	5.25	1.74	6
Per cent	5	5	5	15	13	30	28	100			
							Sector average		**5.37**		
HORTICULTURE											
Conventional											
Frequency	0	0	0	2	4	14	11	31	[1]6.10[a]	0.87	1
Per cent	0	0	0	6	13	45	35	100			
Modified											
Frequency	4	3	0	6	8	16	21	58	5.47	1.80	1
Per cent	7	5	0	10	14	28	36	100			
Organic											
Frequency	4	1	2	6	8	19	10	50	5.20[b]	1.71	3
Per cent	8	2	4	12	16	38	20	100			
							Sector average		**5.66**		
DAIRY											
Conventional											
Frequency	1	2	2	11	14	34	28	92	5.71	1.30	0
Per cent	1	2	2	12	15	37	30	100			
Modified											
Frequency	1	2	0	1	3	8	14	29	5.86	1.66	2
Per cent	3	7	0	3	10	28	48	100			
Organic											
Frequency	0	1	1	3	12	13	10	40	5.63	1.17	0
Per cent	0	3	3	8	30	33	25	100			
							Sector average		**5.72**		
CV avg.	**5.72**										
Mod avg.	**5.64**										
Org avg.	**5.38**										

B4m - Importance farm/orchard workers are treated well

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	N A
SHEEP/BEEF											
Conventional											
Frequency	0	0	1	4	6	16	16	43	[2]5.93[b]	1.22	24
Per cent	0	0	2	9	14	37	37	100			
Modified											
Frequency	0	0	0	2	1	8	13	24	6.33	0.92	3
Per cent	0	0	0	8	4	33	54	100			
Organic											
Frequency	0	0	0	1	2	12	21	36	6.47[a]	0.74	10
Per cent	0	0	0	3	6	33	58	100			
							Sector average		**[2]6.21**		
HORTICULTURE											
Conventional											
Frequency	0	0	1	0	3	11	14	29	6.28	0.92	3
Per cent	0	0	3	0	10	38	48	100			
Modified											
Frequency	0	0	0	2	4	22	31	59	6.39	0.77	1
Per cent	0	0	0	3	7	37	53	100			
Organic											
Frequency	0	0	0	1	3	21	22	47	6.36	0.70	6
Per cent	0	0	0	2	6	45	47	100			
							Sector average		**6.33**		
DAIRY											
Conventional											
Frequency	0	1	0	1	7	37	43	89	[1]6.34	0.82	3
Per cent	0	1	0	1	8	42	48	100			
Modified											
Frequency	0	0	0	0	2	9	17	28	6.54	0.64	3
Per cent	0	0	0	0	7	32	61	100			
Organic											
Frequency	0	0	0	0	3	14	19	36	6.44	0.65	4
Per cent	0	0	0	0	8	39	53	100			
							Sector average		**[1]6.43**		
CV avg.	**6.21[b]**										
Mod avg.	**6.43[a]**										
Org avg.	**6.42[a]**										

B4n - Importance that there is scope for farm succession

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.	NA
SHEEP/BEEF											
Conventional											
Frequency	6	1	3	13	3	9	15	50	4.86[b]	2.01	19
Per cent	12	2	6	26	6	18	30	10			
Modified											
Frequency	1	1	1	1	2	6	12	24	[1]5.83[a]	1.71	3
Per cent	4	4	4	4	8	25	50	10			
Organic											
Frequency	3	0	0	4	4	12	15	38	[1]5.68[a]	1.69	8
Per cent	8	0	0	11	11	32	39	10			
							Sector		**[1]5.37**		
HORTICULTURE											
Conventional											
Frequency	0	2	2	3	7	4	5	23	5.04	1.55	8
Per cent	0	9	9	13	30	17	22	10			
Modified											
Frequency	7	3	4	4	9	14	2	43	[2]4.28	1.94	13
Per cent	16	7	9	9	21	33	5	10			
Organic											
Frequency	7	5	0	7	10	10	7	46	[2]4.43	2.04	4
Per cent	15	11	0	15	22	22	15	10			
							Sector		**[2]4.66**		
DAIRY											
Conventional											
Frequency	3	4	3	12	17	26	23	88	5.34	1.57	4
Per cent	3	5	3	14	19	30	26	10			
Modified											
Frequency	1	0	0	3	5	10	8	27	[1]5.70	1.35	4
Per cent	4	0	0	11	19	37	30	10			
Organic											
Frequency	2	0	1	3	5	16	9	36	[1]5.58	1.50	3
Per cent	6	0	3	8	14	44	25	10			
							Sector		**[1]5.51**		
CV avg.	**5.11**										
Mod avg.	**5.32**										
Org avg.	**5.27**										

C1a – Frequency of considering or implementing the adoption of proven practices rather than do own experiments

	1 Never	2	3	4	5	6	7 Always	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	0	0	4	22	21	18	4	69	[2]4.94[a]	1.03
Per cent	0	0	6	32	30	26	6	100		
Modified										
Frequency	0	2	5	6	12	1	1	27	[2]4.30[b]	1.17
Per cent	0	7	19	22	44	4	4	100		
Organic										
Frequency	3	7	8	17	7	1	1	44	[2]3.57[c]	1.32
Per cent	7	16	18	39	16	2	2	100		
							Sector	**average**	**[2]4.36**	
HORTICULTURE										
Conventional										
Frequency	0	0	4	10	8	5	6	33	4.97[a]	1.31
Per cent	0	0	12	30	24	15	18	100		
Modified										
Frequency	0	0	8	14	18	14	7	61	[1]4.97[a]	1.21
Per cent	0	0	13	23	30	23	11	100		
Organic										
Frequency	1	5	9	11	18	8	0	52	[1]4.23[b]	1.29
Per cent	2	10	17	21	35	15	0	100		
							Sector	**average**	**[1]4.75**	
DAIRY										
Conventional										
Frequency	0	1	3	12	35	31	11	93	[1]5.34[a]	1.03
Per cent	0	1	3	13	38	33	12	100		
Modified										
Frequency	0	2	5	3	7	10	5	32	[1]5.03[a]	1.51
Per cent	0	6	16	9	22	31	16	100		
Organic										
Frequency	1	1	6	22	6	3	1	40	[1]4.10[b]	1.08
Per cent	3	3	15	55	15	8	3	100		
							Sector	**average**	**[1]4.89**	
CV. avg.	**5.10[a]**									
Mod. Avg.	**4.78[b]**									
Org. avg.	**3.98[c]**									

C1b - Frequency of considering or implementing paying close attention to changes in plants/animals/insects on my farm

	1 Never	2	3	4	5	6	7 Always	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	1	1	3	12	12	27	14	70	[2]5.43[b]	1.31
Per cent	1	1	4	17	17	39	20	100		
Modified										
Frequency	0	0	0	1	3	15	7	26	6.08[a]	0.74
Per cent	0	0	0	4	12	58	27	100		
Organic										
Frequency	0	0	0	3	7	17	17	44	6.09[a]	0.91
Per cent	0	0	0	7	16	39	39	100		
							Sector	**average**	**[2]5.80**	
HORTICULTURE										
Conventional										
Frequency	0	0	0	3	5	10	14	32	[1]6.09	1.00
Per cent	0	0	0	9	16	31	44	100		
Modified										
Frequency	0	0	1	4	8	27	21	61	6.03	0.95
Per cent	0	0	2	7	13	44	34	100		
Organic										
Frequency	0	0	1	1	7	19	24	52	6.23	0.90
Per cent	0	0	2	2	13	37	46	100		
							Sector	**average**	**[1]6.12**	
DAIRY										
Conventional										
Frequency	0	1	3	10	26	37	16	93	[2]5.54	1.07
Per cent	0	1	3	11	28	40	17	100		
Modified										
Frequency	0	1	0	2	7	11	11	32	5.88	1.16
Per cent	0	3	0	6	22	34	34	100		
Organic										
Frequency	0	0	0	2	11	18	9	40	5.85	0.83
Per cent	0	0	0	5	28	45	23	100		
							Sector	**average**	**[2]5.72**	
CV. avg.	**5.68[b]**									
Mod. Avg.	**5.99[a]**									
Org. avg.	**6.05[a]**									

C1c - Frequency of considering or implementing paying close attention to money in the bank and good financial returns from each part of my business

	1 Never	2	3	4	5	6	7 Always	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	2	3	2	13	9	23	18	70	[2]5.36	1.55
Per cent	3	4	3	19	13	33	26	100		
Modified										
Frequency	0	1	1	1	7	10	7	27	5.67	1.24
Per cent	0	4	4	4	26	37	26	100		
Organic										
Frequency	1	0	1	5	13	18	6	44	5.43	1.17
Per cent	2	0	2	11	30	41	14	100		
							Sector	**average**	**[2]5.46**	
HORTICULTURE										
Conventional										
Frequency	0	1	0	1	8	12	10	32	[1]5.88[a]	1.10
Per cent	0	3	0	3	25	38	31	100		
Modified										
Frequency	0	0	1	1	15	22	22	61	6.03[a]	0.91
Per cent	0	0	2	2	25	36	36	100		
Organic										
Frequency	2	1	2	7	13	14	12	51	5.31[b]	1.50
Per cent	4	2	4	14	25	27	24	100		
							Sector	**average**	**5.75**	
DAIRY										
Conventional										
Frequency	0	0	0	5	24	41	24	94	[1]5.89	0.85
Per cent	0	0	0	5	26	44	26	100		
Modified										
Frequency	0	1	0	5	5	7	14	32	5.84	1.32
Per cent	0	3	0	16	16	22	44	100		
Organic										
Frequency	0	0	1	8	9	15	7	40	5.48	1.09
Per cent	0	0	3	20	23	38	18	100		
							Sector	**average**	**[1]5.76**	
CV. avg.	**5.72[a]**									
Mod. Avg.	**5.85[a]**									
Org. avg.	**5.41[b]**									

C1d - Frequency of considering or implementing paying close attention to what is going on in New Zealand and the world

	1 Never	2	3	4	5	6	7 Always	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	1	1	1	11	20	25	11	70	[2]5.39[b]	1.20
Per cent	1	1	1	16	29	36	16	100		
Modified										
Frequency	0	1	0	0	3	15	8	27	6.04[a]	1.02
Per cent	0	4	0	0	11	56	30	100		
Organic										
Frequency	0	0	0	5	11	17	11	44	5.77	0.96
Per cent	0	0	0	11	25	39	25	100		
							Sector	**average**	**5.68**	
HORTICULTURE										
Conventional										
Frequency	0	0	0	1	10	12	9	32	[1]5.91	0.86
Per cent	0	0	0	3	31	38	28	100		
Modified										
Frequency	0	1	0	5	12	19	24	61	5.97	1.09
Per cent	0	2	0	8	20	31	39	100		
Organic										
Frequency	1	0	2	2	9	20	18	52	5.88	1.23
Per cent	2	0	4	4	17	38	35	100		
							Sector	**average**	**5.92**	
DAIRY										
Conventional										
Frequency	0	0	1	7	21	40	25	94	[1]5.86	0.93
Per cent	0	0	1	7	22	43	27	100		
Modified										
Frequency	0	1	0	1	7	12	11	32	5.94	1.11
Per cent	0	3	0	3	22	38	34	100		
Organic										
Frequency	0	0	0	6	8	14	12	40	5.80	1.04
Per cent	0	0	0	15	20	35	30	100		
							Sector	**average**	**5.86**	
CV. avg.	**5.73**									
Mod. Avg.	**5.98**									
Org. avg.	**5.82**									

C1e - Frequency of considering or implementing focusing on a limited number of income sources

	1 Never	2	3	4	5	6	7 Always	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	3	4	4	10	20	18	11	70	[2]4.97	1.58
Per cent	4	6	6	14	29	26	16	100		
Modified										
Frequency	0	1	2	3	4	10	7	27	5.52[a]	1.40
Per cent	0	4	7	11	15	37	26	100		
Organic										
Frequency	1	0	3	15	10	11	4	44	4.8b[6]	1.27
Per cent	2	0	7	34	23	25	9	100		
							Sector	**average**	**5.09**	
HORTICULTURE										
Conventional										
Frequency	2	1	2	5	9	5	8	32	5.03	1.71
Per cent	6	3	6	16	28	16	25	100		
Modified										
Frequency	3	2	7	6	13	19	11	61	5.05	1.65
Per cent	5	3	11	10	21	31	18	100		
Organic										
Frequency	3	3	3	7	15	13	5	49	4.78	1.61
Per cent	6	6	6	14	31	27	10	100		
							Sector	**average**	**4.96**	
DAIRY										
Conventional										
Frequency	0	1	2	17	18	37	16	91	[1]5.49	1.12
Per cent	0	1	2	19	20	41	18	100		
Modified										
Frequency	2	1	0	9	5	8	6	31	5.00	1.65
Per cent	6	3	0	29	16	26	19	100		
Organic										
Frequency	0	2	7	5	8	12	6	40	4.98	1.49
Per cent	0	5	18	13	20	30	15	100		
							Sector	**average**	**5.21**	
CV. avg.	**5.18**									
Mod. Avg.	**5.18**									
Org. avg.	**4.88**									

C1f - Frequency of considering or implementing keeping unused resources (e.g., machines, buildings) in case they are needed in the future

	1 Never	2	3	4	5	6	7 Always	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	7	4	3	14	17	14	10	69	4.62	1.79
Per cent	10	6	4	20	25	20	14	100		
Modified										
Frequency	2	3	3	3	5	7	4	27	4.59	1.89
Per cent	7	11	11	11	19	26	15	100		
Organic										
Frequency	3	3	2	10	17	5	4	44	4.50	1.55
Per cent	7	7	5	23	39	11	9	100		
							Sector	**average**	**4.58**	
HORTICULTURE										
Conventional										
Frequency	3	2	1	9	6	8	3	32	4.53	1.72
Per cent	9	6	3	28	19	25	9	100		
Modified										
Frequency	6	4	5	14	12	11	9	61	4.49	1.81
Per cent	10	7	8	23	20	18	15	100		
Organic										
Frequency	5	6	4	7	12	11	6	51	4.41	1.87
Per cent	10	12	8	14	24	22	12	100		
							Sector	**average**	**4.48**	
DAIRY										
Conventional										
Frequency	6	6	10	24	23	18	7	94	4.43	1.57
Per cent	6	6	11	26	24	19	7	100		
Modified										
Frequency	1	1	3	7	8	8	4	32	4.88	1.48
Per cent	3	3	9	22	25	25	13	100		
Organic										
Frequency	3	4	4	8	6	13	2	40	4.43	1.72
Per cent	8	10	10	20	15	33	5	100		
							Sector	**average**	**4.54**	
CV. avg.	**4.52**									
Mod. Avg.	**4.66**									
Org. avg.	**4.44**									

C1g - Frequency of considering or implementing seldom deviating from established farm plans

	1 Never	2	3	4	5	6	7 Always	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	1	3	6	24	19	15	1	69	4.54[a]	1.18
Per cent	1	4	9	35	28	22	1	100		
Modified										
Frequency	3	5	6	7	5	1	0	27	[2]3.33[c]	1.39
Per cent	11	19	22	26	19	4	0	100		
Organic										
Frequency	1	6	6	19	7	3	2	44	3.95[b]	1.33
Per cent	2	14	14	43	16	7	5	100		
							Sector	**average**	**4.04**	
HORTICULTURE										
Conventional										
Frequency	0	2	1	10	8	6	4	31	4.87[a]	1.34
Per cent	0	6	3	32	26	19	13	100		
Modified										
Frequency	5	7	9	12	18	7	3	61	[1]4.05[b]	1.61
Per cent	8	11	15	20	30	11	5	100		
Organic										
Frequency	4	5	6	14	16	2	2	49	3.96[b]	1.47
Per cent	8	10	12	29	33	4	4	100		
							Sector	**average**	**4.38**	
DAIRY										
Conventional										
Frequency	2	3	13	25	29	16	5	93	4.55[a]	1.29
Per cent	2	3	14	27	31	17	5	100		
Modified										
Frequency	3	2	3	10	5	7	2	32	4.28	1.67
Per cent	9	6	9	31	16	22	6	100		
Organic										
Frequency	2	7	9	9	7	6	0	40	3.75[b]	1.46
Per cent	5	18	23	23	18	15	0	100		
							Sector	**average**	**4.24**	
CV. avg.	**4.65[a]**									
Mod. Avg.	**3.91[b]**									
Org. avg.	**3.88[b]**									

C1h - Frequency of considering or implementing learning new things by talking to a wide variety of people

	1 Never	2	3	4	5	6	7 Always	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	2	2	5	14	12	26	9	70	[2]5.09[c]	1.45
Per cent	3	3	7	20	17	37	13	100		
Modified										
Frequency	0	0	1	1	3	9	13	27	6.19[a]	1.04
Per cent	0	0	4	4	11	33	48	100		
Organic										
Frequency	0	2	1	4	11	14	12	44	5.59[b]	1.30
Per cent	0	5	2	9	25	32	27	100		
							Sector	**average**	**5.53**	
HORTICULTURE										
Conventional										
Frequency	1	1	1	3	6	14	6	32	5.44[b]	1.44
Per cent	3	3	3	9	19	44	19	100		
Modified										
Frequency	0	0	0	4	10	26	20	60	6.03[a]	0.88
Per cent	0	0	0	7	17	43	33	100		
Organic										
Frequency	0	0	4	1	8	23	16	52	5.88	1.11
Per cent	0	0	8	2	15	44	31	100		
							Sector	**average**	**5.73**	
DAIRY										
Conventional										
Frequency	0	1	1	6	27	39	19	93	[1]5.71	0.97
Per cent	0	1	1	6	29	42	20	100		
Modified										
Frequency	1	0	0	2	3	14	12	32	6.00	1.24
Per cent	3	0	0	6	9	44	38	100		
Organic										
Frequency	0	0	3	5	5	18	9	40	5.63	1.19
Per cent	0	0	8	13	13	45	23	100		
							Sector	**average**	**5.76**	
CV. avg.	**5.43[c]**									
Mod. Avg.	**6.07[a]**									
Org. avg.	**5.70[b]**									

C2 – Difference your farm or orchard will be in ten years time compared to the present time

	1 Exactly the same	2	3	4	5	6	7 Very different	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	2	3	8	9	20	13	14	69	4.99	1.58
Per cent	3	4	12	13	29	19	20	100		
Modified										
Frequency	0	2	0	4	10	7	2	25	5.04	1.24
Per cent	0	8	0	16	40	28	8	100		
Organic										
Frequency	0	0	3	7	14	9	11	44	[1]5.41	1.23
Per cent	0	0	7	16	32	20	25	100		
							Sector	**average**	**5.13**	
HORTICULTURE										
Conventional										
Frequency	1	0	1	5	8	10	6	31	5.35[a]	1.36
Per cent	3	0	3	16	26	32	19	100		
Modified										
Frequency	2	6	5	6	17	17	6	59	4.78	1.61
Per cent	3	10	8	10	29	29	10	100		
Organic										
Frequency	0	11	6	2	15	10	8	52	[2]4.60[b]	1.76
Per cent	0	21	12	4	29	19	15	100		
							Sector	**average**	**4.97**	
DAIRY										
Conventional										
Frequency	1	3	11	15	34	17	11	92	4.88	1.33
Per cent	1	3	12	16	37	18	12	100		
Modified										
Frequency	0	1	3	5	8	9	6	32	5.22	1.36
Per cent	0	3	9	16	25	28	19	100		
Organic										
Frequency	2	3	4	4	13	8	6	40	[2]4.78	1.67
Per cent	5	8	10	10	33	20	15	100		
							Sector	**average**	**4.94**	
CV. avg.	**5.06**									
Mod. Avg.	**5.02**									
Org. avg.	**4.92**									

D1a – Agreement that farm/orchard and my management of it are closely related to the wellbeing of myself and my family

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	0	4	1	6	11	21	28	71	5.80[b]	1.38
Per cent	0	6	1	8	15	30	39	100		
Modified										
Frequency	0	0	1	1	4	7	14	27	6.19	1.08
Per cent	0	0	4	4	15	26	52	100		
Organic										
Frequency	0	0	0	1	4	11	28	44	6.50[a]	0.76
Per cent	0	0	0	2	9	25	64	100		
							Sector	**average**	**6.11**	
HORTICULTURE										
Conventional										
Frequency	0	1	1	3	6	10	12	33	5.79[b]	1.29
Per cent	0	3	3	9	18	30	36	100		
Modified										
Frequency	0	0	3	4	9	27	20	63	5.90	1.07
Per cent	0	0	5	6	14	43	32	100		
Organic										
Frequency	0	0	0	0	4	18	27	49	6.47[a]	0.65
Per cent	0	0	0	0	8	37	55	100		
							Sector	**average**	**6.02**	
DAIRY										
Conventional										
Frequency	1	0	3	4	17	37	33	95	5.94[b]	1.12
Per cent	1	0	3	4	18	39	35	100		
Modified										
Frequency	0	0	0	3	3	10	16	32	6.22	0.97
Per cent	0	0	0	9	9	31	50	100		
Organic										
Frequency	0	0	0	2	2	16	20	40	6.35[a]	0.80
Per cent	0	0	0	5	5	40	50	100		
							Sector	**average**	**6.13**	
CV. avg.	**5.85[c]**									
Mod. Avg.	**6.11[b]**									
Org. avg.	**6.44[a]**									

D1b - Agreement that farm/orchard and my management of it are closely related to the wellbeing of the local community

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	6	9	9	20	16	6	4	70	[2]3.93[b]	1.59
Per cent	9	13	13	29	23	9	6	100		
Modified										
Frequency	1	1	5	6	5	5	4	27	4.63[a]	1.62
Per cent	4	4	19	22	19	19	15	100		
Organic										
Frequency	2	2	1	11	8	10	10	44	5.07[a]	1.63
Per cent	5	5	2	25	18	23	23	100		
							Sector	**average**	**4.45**	
HORTICULTURE										
Conventional										
Frequency	1	3	6	6	8	4	4	32	4.41[b]	1.62
Per cent	3	9	19	19	25	13	13	100		
Modified										
Frequency	2	5	4	14	17	17	4	63	4.68	1.47
Per cent	3	8	6	22	27	27	6	100		
Organic										
Frequency	1	1	4	6	16	10	11	49	5.22[a]	1.43
Per cent	2	2	8	12	33	20	22	100		
							Sector	**average**	**4.72**	
DAIRY										
Conventional										
Frequency	3	6	9	25	32	16	4	95	[1]4.48	1.34
Per cent	3	6	9	26	34	17	4	100		
Modified										
Frequency	2	1	2	7	10	6	4	32	4.75	1.57
Per cent	6	3	6	22	31	19	13	100		
Organic										
Frequency	0	3	2	9	9	12	5	40	5.00	1.40
Per cent	0	8	5	23	23	30	13	100		
							Sector	**average**	**4.71**	
CV. avg.	**4.29[c]**									
Mod. Avg.	**4.69[b]**									
Org. avg.	**5.09[a]**									

D1c - Agreement that farm/orchard and my management of it are closely related to the wellbeing of the nation and the world

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	10	9	7	20	8	8	7	69	[2]3.86[b]	1.86
Per cent	14	13	10	29	12	12	10	100		
Modified										
Frequency	2	2	3	6	3	6	5	27	4.63[a]	1.86
Per cent	7	7	11	22	11	22	19	100		
Organic										
Frequency	2	0	2	8	9	13	10	44	5.30[a]	1.50
Per cent	5	0	5	18	20	30	23	100		
							Sector	**average**	**[2]4.49**	
HORTICULTURE										
Conventional										
Frequency	2	2	4	7	8	4	5	32	[1]4.53[b]	1.70
Per cent	6	6	13	22	25	13	16	100		
Modified										
Frequency	4	6	5	20	11	12	4	62	[2]4.29[b]	1.59
Per cent	6	10	8	32	18	19	6	100		
Organic										
Frequency	1	2	2	6	11	16	12	50	5.40[a]	1.46
Per cent	2	4	4	12	22	32	24	100		
							Sector	**average**	**4.72**	
DAIRY										
Conventional										
Frequency	2	8	10	26	31	16	2	95	[1]4.39[b]	1.30
Per cent	2	8	11	27	33	17	2	100		
Modified										
Frequency	2	1	0	4	13	7	5	32	[1]5.06[a]	1.52
Per cent	6	3	0	13	41	22	16	100		
Organic										
Frequency	0	3	1	4	10	10	12	40	5.48[a]	1.47
Per cent	0	8	3	10	25	25	30	100		
							Sector	**average**	**[1]4.89**	
CV. avg.	**4.27[c]**									
Mod. Avg.	**4.68[b]**									
Org. avg.	**5.40[a]**									

D2a - Agreement that my farm/orchard management affects the environment primarily within the productive areas of the property

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	3	3	5	8	17	22	12	70	5.10	1.58
Per cent	4	4	7	11	24	31	17	100		
Modified										
Frequency	3	2	1	3	4	7	7	27	[2]4.93	2.04
Per cent	11	7	4	11	15	26	26	100		
Organic										
Frequency	4	1	0	4	7	9	19	44	5.55	1.86
Per cent	9	2	0	9	16	20	43	100		
							Sector	**average**	**5.18**	
HORTICULTURE										
Conventional										
Frequency	2	1	3	5	5	8	8	32	5.06[b]	1.78
Per cent	6	3	9	16	16	25	25	100		
Modified										
Frequency	1	0	4	5	11	25	16	62	[1]5.65	1.28
Per cent	2	0	6	8	18	40	26	100		
Organic										
Frequency	2	2	0	4	5	15	21	49	5.80[a]	1.59
Per cent	4	4	0	8	10	31	43	100		
							Sector	**average**	**5.43**	
DAIRY										
Conventional										
Frequency	4	7	5	10	23	30	16	95	5.05	1.63
Per cent	4	7	5	11	24	32	17	100		
Modified										
Frequency	4	1	3	5	0	11	8	32	[2]4.91	2.07
Per cent	13	3	9	16	0	34	25	100		
Organic										
Frequency	4	1	2	3	2	10	17	39	5.46	2.01
Per cent	10	3	5	8	5	26	44	100		
							Sector	**average**	**5.13**	
CV. avg.	**5.07[b]**									
Mod. Avg.	**5.15[b]**									
Org. avg.	**5.59[a]**									

D2b - Agreement that my farm/orchard management affects the environment in the region where my property is located

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	7	5	6	17	21	6	7	69	4.25[b]	1.68
Per cent	10	7	9	25	30	9	10	100		
Modified										
Frequency	3	2	4	5	3	5	5	27	4.41[b]	1.99
Per cent	11	7	15	19	11	19	19	100		
Organic										
Frequency	4	1	2	6	6	11	14	44	5.23[a]	1.88
Per cent	9	2	5	14	14	25	32	100		
							Sector	**average**	**4.58**	
HORTICULTURE										
Conventional										
Frequency	4	4	3	6	6	5	5	33	4.24[b]	1.97
Per cent	12	12	9	18	18	15	15	100		
Modified										
Frequency	2	7	8	6	19	13	7	62	4.61[b]	1.64
Per cent	3	11	13	10	31	21	11	100		
Organic										
Frequency	1	1	3	6	13	16	9	49	5.31[a]	1.37
Per cent	2	2	6	12	27	33	18	100		
							Sector	**average**	**4.65**	
DAIRY										
Conventional										
Frequency	5	6	7	28	20	17	12	95	4.59[b]	1.59
Per cent	5	6	7	29	21	18	13	100		
Modified										
Frequency	3	0	4	6	0	12	7	32	5.00	1.88
Per cent	9	0	13	19	0	38	22	100		
Organic										
Frequency	1	3	1	4	8	14	8	39	5.28[a]	1.57
Per cent	3	8	3	10	21	36	21	100		
							Sector	**average**	**4.90**	
CV. avg.	**4.37[b]**									
Mod. Avg.	**4.69[b]**									
Org. avg.	**5.27[a]**									

D2c - Agreement that my farm/orchard management affects the environment on a global scale

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	21	9	7	13	9	4	4	67	3.12[b]	1.91
Per cent	31	13	10	19	13	6	6	100		
Modified										
Frequency	6	6	3	4	3	3	2	27	3.33[b]	1.98
Per cent	22	22	11	15	11	11	7	100		
Organic										
Frequency	9	4	0	5	10	8	8	44	4.34[a]	2.19
Per cent	20	9	0	11	23	18	18	100		
							Sector	**average**	**3.54**	
HORTICULTURE										
Conventional										
Frequency	13	5	2	8	3	0	1	32	2.59[b]	1.68
Per cent	41	16	6	25	9	0	3	100		
Modified										
Frequency	16	9	9	12	8	5	3	62	3.23[b]	1.84
Per cent	26	15	15	19	13	8	5	100		
Organic										
Frequency	4	5	5	7	10	11	9	51	4.63[a]	1.88
Per cent	8	10	10	14	20	22	18	100		
							Sector	**average**	**3.37**	
DAIRY										
Conventional										
Frequency	26	20	7	20	16	3	3	95	3.01[b]	1.74
Per cent	27	21	7	21	17	3	3	100		
Modified										
Frequency	5	1	5	13	0	5	3	32	3.91[a]	1.80
Per cent	16	3	16	41	0	16	9	100		
Organic										
Frequency	6	4	4	4	7	10	5	40	4.30[a]	2.04
Per cent	15	10	10	10	18	25	13	100		
							Sector	**average**	**3.64**	
CV. avg.	**2.91[c]**									
Mod. Avg.	**3.51[b]**									
Org. avg.	**4.42[a]**									

E1a – Level of involvement in voting in national elections

	1 Little or no involvement	2	3	4	5	6	7 Heavily involved	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	1	2	0	7	13	15	33	71	5.90	1.36
Per cent	1	3	0	10	18	21	46	100		
Modified										
Frequency	0	2	0	3	4	3	15	27	5.89	1.55
Per cent	0	7	0	11	15	11	56	100		
Organic										
Frequency	1	1	1	6	13	3	19	44	5.59	1.51
Per cent	2	2	2	14	30	7	43	100		
							Sector	**average**	**5.80**	
HORTICULTURE										
Conventional										
Frequency	0	0	0	0	6	8	18	32	6.38[a]	0.79
Per cent	0	0	0	0	19	25	56	100		
Modified										
Frequency	2	1	1	2	3	17	36	62	6.19[a]	1.40
Per cent	3	2	2	3	5	27	58	100		
Organic										
Frequency	3	3	1	3	11	12	19	52	5.46[b]	1.77
Per cent	6	6	2	6	21	23	37	100		
							Sector	**average**	**6.05**	
DAIRY										
Conventional										
Frequency	1	4	1	3	7	29	50	95	6.14	1.33
Per cent	1	4	1	3	7	31	53	100		
Modified										
Frequency	4	0	0	2	2	11	13	32	5.59	1.95
Per cent	13	0	0	6	6	34	41	100		
Organic										
Frequency	0	1	0	5	9	11	14	40	5.78	1.21
Per cent	0	3	0	13	23	28	35	100		
							Sector	**average**	**5.88**	
CV avg.	**6.14[a]**									
Mod avg.	**5.88**									
Org avg.	**5.62[b]**									

E1b - Level of involvement in voting in local body elections

	1 Little or no involvement	2	3	4	5	6	7 Heavily involved	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	2	2	2	9	12	18	26	71	5.61	1.53
Per cent	3	3	3	13	17	25	37	100		
Modified										
Frequency	0	3	1	1	6	5	11	27	5.56	1.67
Per cent	0	11	4	4	22	19	41	100		
Organic										
Frequency	1	1	0	10	11	8	13	44	5.39	1.43
Per cent	2	2	0	23	25	18	30	100		
							Sector	**average**	**5.53**	
HORTICULTURE										
Conventional										
Frequency	0	1	1	0	7	8	15	32	6.03[a]	1.23
Per cent	0	3	3	0	22	25	47	100		
Modified										
Frequency	3	2	3	5	8	19	22	62	5.55	1.68
Per cent	5	3	5	8	13	31	35	100		
Organic										
Frequency	4	2	1	7	11	16	11	52	5.13[b]	1.73
Per cent	8	4	2	13	21	31	21	100		
							Sector	**average**	**5.64**	
DAIRY										
Conventional										
Frequency	1	6	5	6	16	22	39	95	5.65	1.58
Per cent	1	6	5	6	17	23	41	100		
Modified										
Frequency	4	1	0	3	2	13	9	32	5.28	1.99
Per cent	13	3	0	9	6	41	28	100		
Organic										
Frequency	1	2	1	7	10	10	9	40	5.23	1.51
Per cent	3	5	3	18	25	25	23	100		
							Sector	**average**	**5.43**	
CV avg.	**5.76[a]**									
Mod avg.	**5.45**									
Org avg.	**5.25[b]**									

E1c - Level of involvement in submitting comments on local government plans and policy

	1 Little or no involvement	2	3	4	5	6	7 Heavily involved	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	22	9	7	12	11	6	4	71	3.21	1.96
Per cent	31	13	10	17	15	8	6	100		
Modified										
Frequency	7	3	3	6	2	5	1	27	3.44	1.97
Per cent	26	11	11	22	7	19	4	100		
Organic										
Frequency	11	3	5	10	9	1	1	40	3.25	1.72
Per cent	28	8	13	25	23	3	3	100		
							Sector	**average**	**3.28**	
HORTICULTURE										
Conventional										
Frequency	11	7	2	5	4	1	2	32	2.84	1.90
Per cent	34	22	6	16	13	3	6	100		
Modified										
Frequency	16	10	6	14	7	5	4	62	3.27	1.90
Per cent	26	16	10	23	11	8	6	100		
Organic										
Frequency	8	12	4	14	9	4	1	52	3.38	1.65
Per cent	15	23	8	27	17	8	2	100		
							Sector	**average**	**3.12**	
DAIRY										
Conventional										
Frequency	23	22	12	21	12	1	4	95	2.96	1.65
Per cent	24	23	13	22	13	1	4	100		
Modified										
Frequency	6	6	9	3	6	2	0	32	3.09	1.55
Per cent	19	19	28	9	19	6	0	100		
Organic										
Frequency	6	7	5	12	4	5	0	39	3.41	1.60
Per cent	15	18	13	31	10	13	0	100		
							Sector	**average**	**3.13**	
CV avg.	**3.00**									
Mod avg.	**3.26**									
Org avg.	**3.35**									

E1d - Level of involvement in school or educational groups e.g., PTA, school committees

	1 Little or no involvement	2	3	4	5	6	7 Heavily involved	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	36	5	0	3	8	12	4	68	2.91[b]	2.30
Per cent	53	7	0	4	12	18	6	100		
Modified										
Frequency	7	4	3	4	3	5	1	27	3.41	2.00
Per cent	26	15	11	15	11	19	4	100		
Organic										
Frequency	10	2	4	7	5	9	3	40	3.85[a]	2.08
Per cent	25	5	10	18	13	23	8	100		
							Sector	**average**	**3.32**	
HORTICULTURE										
Conventional										
Frequency	18	2	3	2	1	1	4	31	2.52	2.20
Per cent	58	6	10	6	3	3	13	100		
Modified										
Frequency	29	7	2	2	5	9	6	60	[2]2.97	2.34
Per cent	48	12	3	3	8	15	10	100		
Organic										
Frequency	18	8	2	7	3	7	7	52	3.35	2.29
Per cent	35	15	4	13	6	13	13	100		
							Sector	**average**	**[2]2.88**	
DAIRY										
Conventional										
Frequency	32	9	5	9	8	15	14	92	3.58	2.36
Per cent	35	10	5	10	9	16	15	100		
Modified										
Frequency	4	5	6	2	3	7	5	32	[1]4.13	2.11
Per cent	13	16	19	6	9	22	16	100		
Organic										
Frequency	10	4	2	6	5	8	4	39	3.82	2.17
Per cent	26	10	5	15	13	21	10	100		
							Sector	**average**	**[1]3.80**	
CV avg.	**3.03[b]**									
Mod avg.	**3.53**									
Org avg.	**3.68[a]**									

E1e - Level of involvement in church groups and/or care agencies

	1 Little or no involvement	2	3	4	5	6	7 Heavily involved	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	40	8	4	4	5	4	3	68	2.26	1.89
Per cent	59	12	6	6	7	6	4	100		
Modified										
Frequency	10	7	3	2	2	2	1	27	2.59	1.82
Per cent	37	26	11	7	7	7	4	100		
Organic										
Frequency	23	2	2	6	4	2	1	40	2.40	1.86
Per cent	58	5	5	15	10	5	3	100		
							Sector	**average**	**2.39**	
HORTICULTURE										
Conventional										
Frequency	18	5	2	2	1	1	2	31	2.16	1.85
Per cent	58	16	6	6	3	3	6	100		
Modified										
Frequency	33	3	2	1	7	5	10	61	3.02	2.48
Per cent	54	5	3	2	11	8	16	100		
Organic										
Frequency	28	3	1	8	2	2	8	52	2.83	2.32
Per cent	54	6	2	15	4	4	15	100		
							Sector	**average**	**2.59**	
DAIRY										
Conventional										
Frequency	37	21	5	5	4	10	11	93	2.91	2.22
Per cent	40	23	5	5	4	11	12	100		
Modified										
Frequency	13	5	4	0	5	3	2	32	2.88	2.09
Per cent	41	16	13	0	16	9	6	100		
Organic										
Frequency	19	1	2	7	6	3	1	39	2.82	1.99
Per cent	49	3	5	18	15	8	3	100		
							Sector	**average**	**2.88**	
CV avg.	**2.47**									
Mod avg.	**2.84**									
Org avg.	**2.69**									

E1f - Level of involvement in sports/athletic/recreational groups

	1 Little or no involvement	2	3	4	5	6	7 Heavily involved	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	18	4	2	7	6	21	12	70	4.29	2.32
Per cent	26	6	3	10	9	30	17	100		
Modified										
Frequency	5	2	2	3	7	5	3	27	4.19	2.04
Per cent	19	7	7	11	26	19	11	100		
Organic										
Frequency	10	0	3	10	7	6	4	40	3.95	2.02
Per cent	25	0	8	25	18	15	10	100		
							Sector	**average**	**4.16**	
HORTICULTURE										
Conventional										
Frequency	7	2	3	2	7	4	7	32	4.25	2.26
Per cent	22	6	9	6	22	13	22	100		
Modified										
Frequency	18	2	4	11	13	7	5	60	[2]3.67	2.07
Per cent	30	3	7	18	22	12	8	100		
Organic										
Frequency	16	6	5	9	1	7	8	52	3.50	2.26
Per cent	31	12	10	17	2	13	15	100		
							Sector	**average**	**3.88**	
DAIRY										
Conventional										
Frequency	11	10	11	13	18	23	9	95	4.28	1.88
Per cent	12	11	12	14	19	24	9	100		
Modified										
Frequency	6	2	2	2	4	10	6	32	[1]4.56	2.21
Per cent	19	6	6	6	13	31	19	100		
Organic										
Frequency	6	3	4	9	6	8	3	39	4.08	1.88
Per cent	15	8	10	23	15	21	8	100		
							Sector	**average**	**4.30**	
CV avg.	**4.27**									
Mod avg.	**4.16**									
Org avg.	**3.85**									

E1g - Level of involvement in civic organizations e.g., Rotary, Lions

	1 Little or no involvement	2	3	4	5	6	7 Heavily involved	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	53	4	3	4	0	5	1	70	1.76	1.58
Per cent	76	6	4	6	0	7	1	100		
Modified										
Frequency	12	5	3	3	2	0	0	25	2.12	1.36
Per cent	48	20	12	12	8	0	0	100		
Organic										
Frequency	26	4	4	4	0	1	1	40	1.88	1.49
Per cent	65	10	10	10	0	3	3	100		
							Sector	**average**	**1.89**	
HORTICULTURE										
Conventional										
Frequency	23	1	1	2	1	3	2	33	2.21	2.07
Per cent	70	3	3	6	3	9	6	100		
Modified										
Frequency	38	9	0	4	3	3	3	60	2.10	1.86
Per cent	63	15	0	7	5	5	5	100		
Organic										
Frequency	35	5	0	10	0	1	1	52	1.88	1.50
Per cent	67	10	0	19	0	2	2	100		
							Sector	**average**	**2.09**	
DAIRY										
Conventional										
Frequency	55	17	4	4	6	2	7	95	2.19	1.88
Per cent	58	18	4	4	6	2	7	100		
Modified										
Frequency	20	5	2	0	0	4	1	32	2.09	1.89
Per cent	63	16	6	0	0	13	3	100		
Organic										
Frequency	25	4	3	2	1	0	4	39	2.13	1.95
Per cent	64	10	8	5	3	0	10	100		
							Sector	**average**	**2.15**	
CV avg.	**2.07**									
Mod avg.	**2.10**									
Org avg.	**1.97**									

E1h - Level of involvement in festivals, shows e.g., A&P

	1 Little or no involvement	2	3	4	5	6	7 Heavily involved	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	32	5	5	10	5	8	6	71	[1]2.99	2.17
Per cent	45	7	7	14	7	11	8	100		
Modified										
Frequency	10	5	1	6	1	1	3	27	2.93	2.07
Per cent	37	19	4	22	4	4	11	100		
Organic										
Frequency	15	5	4	6	4	2	4	40	3.03	2.08
Per cent	38	13	10	15	10	5	10	100		
							Sector	**average**	**[1]2.98**	
HORTICULTURE										
Conventional										
Frequency	18	4	1	3	2	1	3	32	2.44	2.08
Per cent	56	13	3	9	6	3	9	100		
Modified										
Frequency	27	11	6	2	7	3	3	59	2.53	1.91
Per cent	46	19	10	3	12	5	5	100		
Organic										
Frequency	24	8	4	8	5	1	2	52	2.48	1.77
Per cent	46	15	8	15	10	2	4	100		
							Sector	**average**	**[2]2.47**	
DAIRY										
Conventional										
Frequency	45	19	10	12	4	4	1	95	[2]2.23	1.54
Per cent	47	20	11	13	4	4	1	100		
Modified										
Frequency	15	8	2	2	2	1	1	31	2.19	1.66
Per cent	48	26	6	6	6	3	3	100		
Organic										
Frequency	15	6	9	5	3	0	1	39	2.46	1.52
Per cent	38	15	23	13	8	0	3	100		
							Sector	**average**	**[2]2.29**	
CV avg.	**2.53**									
Mod avg.	**2.53**									
Org avg.	**2.64**									

E1i - Level of involvement in fire service, ambulance, search and rescue

	1 Little or no involvement	2	3	4	5	6	7 Heavily involved	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	41	6	3	3	7	6	3	69	2.41	2.02
Per cent	59	9	4	4	10	9	4	100		
Modified										
Frequency	10	6	0	3	3	0	4	26	2.96	2.24
Per cent	38	23	0	12	12	0	15	100		
Organic										
Frequency	23	3	2	6	2	2	1	39	2.26	1.79
Per cent	59	8	5	15	5	5	3	100		
							Sector	**average**	**2.51**	
HORTICULTURE										
Conventional										
Frequency	19	1	3	3	2	2	2	32	2.44	2.03
Per cent	59	3	9	9	6	6	6	100		
Modified										
Frequency	36	10	5	1	2	3	4	61	2.15	1.87
Per cent	59	16	8	2	3	5	7	100		
Organic										
Frequency	30	4	3	7	2	2	4	52	2.40	1.99
Per cent	58	8	6	13	4	4	8	100		
							Sector	**average**	**2.35**	
DAIRY										
Conventional										
Frequency	52	17	7	6	7	3	3	95	2.16	1.68
Per cent	55	18	7	6	7	3	3	100		
Modified										
Frequency	17	4	2	4	0	2	3	32	2.50	2.08
Per cent	53	13	6	13	0	6	9	100		
Organic										
Frequency	24	3	4	2	2	3	1	39	2.18	1.82
Per cent	62	8	10	5	5	8	3	100		
							Sector	**average**	**2.26**	
CV avg.	**2.32**									
Mod avg.	**2.52**									
Org avg.	**2.28**									

E1j - Level of involvement in providing cash financial support to community activities

	1 Little or no involvement	2	3	4	5	6	7 Heavily involved	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	13	8	11	10	14	13	2	71	3.72[b]	1.85
Per cent	18	11	15	14	20	18	3	100		
Modified										
Frequency	2	1	1	3	6	9	5	27	[1]5.11[a]	1.72
Per cent	7	4	4	11	22	33	19	100		
Organic										
Frequency	5	4	2	12	12	4	1	40	3.95[b]	1.60
Per cent	13	10	5	30	30	10	3	100		
							Sector	**average**	**[1]4.16**	
HORTICULTURE										
Conventional										
Frequency	2	6	5	8	6	4	1	32	3.81	1.57
Per cent	6	19	16	25	19	13	3	100		
Modified										
Frequency	14	9	6	6	12	9	5	61	[2]3.66	2.06
Per cent	23	15	10	10	20	15	8	100		
Organic										
Frequency	10	8	8	7	11	6	2	52	3.52	1.83
Per cent	19	15	15	13	21	12	4	100		
							Sector	**average**	**[2]3.68**	
DAIRY										
Conventional										
Frequency	9	9	8	22	22	19	6	95	4.26	1.70
Per cent	9	9	8	23	23	20	6	100		
Modified										
Frequency	2	3	3	3	8	9	4	32	[1]4.72	1.76
Per cent	6	9	9	9	25	28	13	100		
Organic										
Frequency	4	5	3	11	8	7	1	39	4.00	1.65
Per cent	10	13	8	28	21	18	3	100		
							Sector	**average**	**[1]4.31**	
CV avg.	**3.95[b]**									
Mod avg.	**4.50[a]**									
Org avg.	**3.83[b]**									

E1k - Level of involvement in hospital/medical organization/trusts

	1 Little or no involvement	2	3	4	5	6	7 Heavily involved	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	40	7	3	6	5	9	1	71	2.44	1.95
Per cent	56	10	4	8	7	13	1	100		
Modified										
Frequency	10	2	2	4	4	2	2	26	3.15	2.11
Per cent	38	8	8	15	15	8	8	100		
Organic										
Frequency	19	6	2	8	2	2	0	39	2.33	1.61
Per cent	49	15	5	21	5	5	0	100		
							Sector	**average**	**2.60**	
HORTICULTURE										
Conventional										
Frequency	14	1	1	7	4	4	1	32	3.06	2.06
Per cent	44	3	3	22	13	13	3	100		
Modified										
Frequency	31	7	6	5	4	5	4	62	2.60	2.03
Per cent	50	11	10	8	6	8	6	100		
Organic										
Frequency	22	9	3	9	5	2	2	52	2.62	1.82
Per cent	42	17	6	17	10	4	4	100		
							Sector	**average**	**2.81**	
DAIRY										
Conventional										
Frequency	42	19	9	7	6	8	4	95	2.54	1.88
Per cent	44	20	9	7	6	8	4	100		
Modified										
Frequency	15	2	2	3	4	4	2	32	2.97	2.19
Per cent	47	6	6	9	13	13	6	100		
Organic										
Frequency	17	6	3	8	2	2	1	39	2.54	1.74
Per cent	44	15	8	21	5	5	3	100		
							Sector	**average**	**2.65**	
CV avg.	**2.68**									
Mod avg.	**2.90**									
Org avg.	**2.50**									

E2 – Level of attachment towards the area where you live

	1 Very negative connection	2	3	4	5	6	7 Very positive connection	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	1	0	4	8	10	22	25	70	5.74	1.34
Per cent	1	0	6	11	14	31	36	100		
Modified										
Frequency	0	1	0	3	4	8	11	27	5.89	1.28
Per cent	0	4	0	11	15	30	41	100		
Organic										
Frequency	0	1	0	1	7	13	18	40	6.13	1.07
Per cent	0	3	0	3	18	33	45	100		
							Sector	**average**	**5.89**	
HORTICULTURE										
Conventional										
Frequency	0	0	1	3	6	10	13	33	5.94	1.12
Per cent	0	0	3	9	18	30	39	100		
Modified										
Frequency	1	0	3	7	8	18	24	61	5.80	1.35
Per cent	2	0	5	11	13	30	39	100		
Organic										
Frequency	0	0	2	6	7	19	18	52	5.87	1.14
Per cent	0	0	4	12	13	37	35	100		
							Sector	**average**	**5.88**	
DAIRY										
Conventional										
Frequency	0	2	3	9	22	29	29	94	5.70	1.22
Per cent	0	2	3	10	23	31	31	100		
Modified										
Frequency	0	1	1	3	2	11	14	32	5.97	1.31
Per cent	0	3	3	9	6	34	44	100		
Organic										
Frequency	0	0	1	4	4	10	20	39	6.13	1.13
Per cent	0	0	3	10	10	26	51	100		
							Sector	**average**	**5.90**	
CV avg.	**5.79**									
Mod avg.	**5.82**									
Org avg.	**6.04**									

F1a – Importance of customer requirements

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	2	1	1	8	11	22	25	70	[2]5.73[b]	1.41
Per cent	3	1	1	11	16	31	36	100		
Modified										
Frequency	0	1	0	0	5	6	15	27	6.22[a]	1.15
Per cent	0	4	0	0	19	22	56	100		
Organic										
Frequency	0	0	0	0	5	9	26	40	6.53	0.72
Per cent	0	0	0	0	13	23	65	100		
							Sector	**average**	**[2]6.09**	
HORTICULTURE										
Conventional										
Frequency	0	0	0	0	3	11	18	32	[1]6.47	0.67
Per cent	0	0	0	0	9	34	56	100		
Modified										
Frequency	0	0	0	1	1	17	43	62	6.65	0.60
Per cent	0	0	0	2	2	27	69	100		
Organic										
Frequency	2	0	0	1	3	16	28	50	6.26	1.29
Per cent	4	0	0	2	6	32	56	100		
							Sector	**average**	**[1]6.46**	
DAIRY										
Conventional										
Frequency	1	0	4	6	17	37	30	95	[2]5.83[b]	1.17
Per cent	1	0	4	6	18	39	32	100		
Modified										
Frequency	1	0	0	1	2	12	16	32	6.22	1.21
Per cent	3	0	0	3	6	38	50	100		
Organic										
Frequency	0	1	0	1	4	11	22	39	6.31[a]	1.06
Per cent	0	3	0	3	10	28	56	100		
							Sector	**average**	**[2]6.07**	
CV avg.	**6.00[b]**									
Mod avg.	**6.36[a]**						**Interaction**			
Org avg.	**6.36[a]**									

F1b - Importance of customer satisfaction

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	2	1	2	5	10	24	25	69	[2]5.78[b]	1.41
Per cent	3	1	3	7	14	35	36	100		
Modified										
Frequency	0	1	0	0	2	7	17	27	6.41[a]	1.08
Per cent	0	4	0	0	7	26	63	100		
Organic										
Frequency	0	0	0	0	3	11	26	40	6.58[a]	0.64
Per cent	0	0	0	0	8	28	65	100		
							Sector	**average**	**[2]6.18**	
HORTICULTURE										
Conventional										
Frequency	0	0	0	0	2	11	19	32	[1]6.53	0.62
Per cent	0	0	0	0	6	34	59	100		
Modified										
Frequency	0	0	0	1	1	12	48	62	6.73	0.58
Per cent	0	0	0	2	2	19	77	100		
Organic										
Frequency	1	0	0	1	5	11	33	51	6.41	1.08
Per cent	2	0	0	2	10	22	65	100		
							Sector	**average**	**[1]6.55**	
DAIRY										
Conventional										
Frequency	1	0	3	6	15	37	33	95	[2]5.92[b]	1.15
Per cent	1	0	3	6	16	39	35	100		
Modified										
Frequency	1	0	0	0	1	12	18	32	6.38[a]	1.13
Per cent	3	0	0	0	3	38	56	100		
Organic										
Frequency	0	1	0	1	5	7	25	39	6.36[a]	1.09
Per cent	0	3	0	3	13	18	64	100		
							Sector	**average**	**[2]6.17**	
CV avg.	**6.08[b]**									
Mod avg.	**6.50[a]**									
Org avg.	**6.44[a]**									

F1c - Importance of family needs

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	2	0	1	2	7	17	41	70	6.24[b]	1.27
Per cent	3	0	1	3	10	24	59	100		
Modified										
Frequency	0	0	0	0	1	5	21	27	6.74[a]	0.53
Per cent	0	0	0	0	4	19	78	100		
Organic										
Frequency	1	0	0	0	2	6	31	40	6.60	1.06
Per cent	3	0	0	0	5	15	78	100		
							Sector	**average**	**6.48**	
HORTICULTURE										
Conventional										
Frequency	0	0	0	3	2	9	18	32	6.31	0.97
Per cent	0	0	0	9	6	28	56	100		
Modified										
Frequency	0	0	0	1	7	15	37	60	6.47	0.77
Per cent	0	0	0	2	12	25	62	100		
Organic										
Frequency	1	0	0	0	5	11	34	51	6.47	1.03
Per cent	2	0	0	0	10	22	67	100		
							Sector	**average**	**6.40**	
DAIRY										
Conventional										
Frequency	1	0	0	3	6	30	55	95	6.42	0.83
Per cent	1	0	0	3	6	32	58	100		
Modified										
Frequency	0	0	0	1	3	6	22	32	6.53	0.80
Per cent	0	0	0	3	9	19	69	100		
Organic										
Frequency	0	0	0	1	3	14	21	39	6.41	0.75
Per cent	0	0	0	3	8	36	54	100		
							Sector	**average**	**6.45**	
CV avg.	**6.33[b]**									
Mod avg.	**6.58[a]**									
Org avg.	**6.49**									

F1d - Importance of the farm environment as a place to live

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	0	1	0	1	8	30	30	70	6.23[b]	0.89
Per cent	0	1	0	1	11	43	43	100		
Modified										
Frequency	0	0	0	1	0	9	17	27	[1]6.56	0.70
Per cent	0	0	0	4	0	33	63	100		
Organic										
Frequency	0	0	0	1	3	7	29	40	6.60[a]	0.74
Per cent	0	0	0	3	8	18	73	100		
							Sector	**average**	**6.42**	
HORTICULTURE										
Conventional										
Frequency	0	0	0	1	1	12	18	32	6.47[a]	0.72
Per cent	0	0	0	3	3	38	56	100		
Modified										
Frequency	2	0	2	1	5	25	27	62	[2]6.06[b]	1.30
Per cent	3	0	3	2	8	40	44	100		
Organic										
Frequency	1	0	0	0	3	16	31	51	6.45[a]	0.99
Per cent	2	0	0	0	6	31	61	100		
							Sector	**average**	**6.35**	
DAIRY										
Conventional										
Frequency	1	0	0	0	11	35	48	95	6.36	0.77
Per cent	1	0	0	0	12	37	51	100		
Modified										
Frequency	0	0	0	0	1	9	22	32	[1]6.66	0.55
Per cent	0	0	0	0	3	28	69	100		
Organic										
Frequency	0	0	0	0	3	11	25	39	6.56	0.64
Per cent	0	0	0	0	8	28	64	100		
							Sector	**average**	**6.50**	
CV avg.	**6.35**									
Mod avg.	**6.43**							**Interaction**		
Org avg.	**6.54**									

F1e - Importance of farm environmental health

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	1	0	2	3	16	24	24	70	[2]5.87[b]	1.17
Per cent	1	0	3	4	23	34	34	100		
Modified										
Frequency	0	0	0	2	0	9	16	27	6.44[a]	0.85
Per cent	0	0	0	7	0	33	59	100		
Organic										
Frequency	0	0	0	0	2	6	31	39	6.74[a]	0.55
Per cent	0	0	0	0	5	15	79	100		
							Sector	**average**	**6.27**	
HORTICULTURE										
Conventional										
Frequency	0	0	0	0	4	11	16	31	[1]6.39	0.72
Per cent	0	0	0	0	13	35	52	100		
Modified										
Frequency	0	0	0	1	8	24	29	62	6.31	0.76
Per cent	0	0	0	2	13	39	47	100		
Organic										
Frequency	1	0	0	1	1	13	30	46	6.48	1.05
Per cent	2	0	0	2	2	28	65	100		
							Sector	**average**	**6.39**	
DAIRY										
Conventional										
Frequency	1	0	0	2	16	34	42	95	[1]6.20[b]	0.87
Per cent	1	0	0	2	17	36	44	100		
Modified										
Frequency	0	0	0	0	0	13	19	32	6.59[a]	0.50
Per cent	0	0	0	0	0	41	59	100		
Organic										
Frequency	0	0	0	0	1	9	26	36	6.69[a]	0.52
Per cent	0	0	0	0	3	25	72	100		
							Sector	**average**	**6.44**	
CV avg.	**6.16[b]**									
Mod avg.	**6.46[a]**							**Interaction**		
Org avg.	**6.64[a]**									

F1f - Importance of future generations/succession

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	8	4	7	13	11	10	15	68	[2]4.54[b]	1.97
Per cent	12	6	10	19	16	15	22	100		
Modified										
Frequency	1	3	1	3	2	5	12	27	[1]5.41[a]	1.95
Per cent	4	11	4	11	7	19	44	100		
Organic										
Frequency	3	1	0	3	4	8	20	39	[1]5.77[a]	1.81
Per cent	8	3	0	8	10	21	51	100		
							Sector	**average**	**[2]5.12**	
HORTICULTURE										
Conventional										
Frequency	4	1	2	8	6	7	4	32	[2]4.50	1.83
Per cent	13	3	6	25	19	22	13	100		
Modified										
Frequency	10	3	4	10	14	12	7	60	[2]4.32[b]	1.95
Per cent	17	5	7	17	23	20	12	100		
Organic										
Frequency	2	3	5	9	5	8	14	46	[2]5.00[a]	1.84
Per cent	4	7	11	20	11	17	30	100		
							Sector	**average**	**[3]4.59**	
DAIRY										
Conventional										
Frequency	1	3	3	9	26	28	25	95	[1]5.53	1.33
Per cent	1	3	3	9	27	29	26	100		
Modified										
Frequency	3	1	1	1	4	10	12	32	[1]5.50	1.90
Per cent	9	3	3	3	13	31	38	100		
Organic										
Frequency	1	1	1	3	6	13	11	36	5.64	1.46
Per cent	3	3	3	8	17	36	31	100		
							Sector	**average**	**[1]5.55**	
25.89CV avg.	**4.90[b]**									
Mod avg.	**5.10**									
Org avg.	**5.48[a]**									

F1g - Importance of off-farm product quality

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	3	2	2	11	4	20	24	66	[2]5.53[b]	1.68
Per cent	5	3	3	17	6	30	36	100		
Modified										
Frequency	1	0	0	2	4	5	13	25	6.00	1.44
Per cent	4	0	0	8	16	20	52	100		
Organic										
Frequency	0	0	0	2	5	9	23	39	6.36[a]	0.90
Per cent	0	0	0	5	13	23	59	100		
							Sector	**average**	**[2]5.89**	
HORTICULTURE										
Conventional										
Frequency	0	0	1	0	3	9	18	31	[1]6.39	0.92
Per cent	0	0	3	0	10	29	58	100		
Modified										
Frequency	0	0	0	2	4	23	31	60	6.38	0.76
Per cent	0	0	0	3	7	38	52	100		
Organic										
Frequency	1	0	1	3	2	12	26	45	6.22	1.28
Per cent	2	0	2	7	4	27	58	100		
							Sector	**average**	**[1]6.34**	
DAIRY										
Conventional										
Frequency	2	0	1	10	14	34	33	94	[1]5.85	1.24
Per cent	2	0	1	11	15	36	35	100		
Modified										
Frequency	2	0	0	0	2	12	16	32	6.13	1.48
Per cent	6	0	0	0	6	38	50	100		
Organic										
Frequency	1	0	0	3	4	10	18	36	6.08	1.30
Per cent	3	0	0	8	11	28	50	100		
							Sector	**average**	**[2]5.99**	
CV avg.	**5.92**									
Mod avg.	**6.17**									
Org avg.	**6.21**									

F1h - Importance of personal satisfaction

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	0	0	0	1	8	17	43	69	6.48	0.76
Per cent	0	0	0	1	12	25	62	100		
Modified										
Frequency	0	0	0	0	1	6	20	27	6.70	0.54
Per cent	0	0	0	0	4	22	74	100		
Organic										
Frequency	0	0	0	0	1	11	27	39	6.67	0.53
Per cent	0	0	0	0	3	28	69	100		
							Sector	**average**	**6.59**	
HORTICULTURE										
Conventional										
Frequency	0	0	1	0	3	9	20	33	6.42	0.90
Per cent	0	0	3	0	9	27	61	100		
Modified										
Frequency	0	0	1	1	3	20	37	62	6.47	0.80
Per cent	0	0	2	2	5	32	60	100		
Organic										
Frequency	1	0	0	0	3	15	27	46	6.41	1.02
Per cent	2	0	0	0	7	33	59	100		
							Sector	**average**	**6.43**	
DAIRY										
Conventional										
Frequency	0	0	0	2	7	32	54	95	6.45	0.73
Per cent	0	0	0	2	7	34	57	100		
Modified										
Frequency	1	0	0	1	1	6	23	32	6.53	0.95
Per cent	3	0	0	3	3	19	72	100		
Organic										
Frequency	0	0	0	0	1	11	24	36	6.64	0.54
Per cent	0	0	0	0	3	31	67	100		
							Sector	**average**	**6.53**	
CV avg.	**6.45**									
Mod avg.	**6.56**									
Org avg.	**6.58**									

F1i - Importance of stream health

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	1	1	0	2	9	27	27	67	6.07	1.13
Per cent	1	1	0	3	13	40	40	100		
Modified										
Frequency	0	1	0	0	2	6	18	27	[1]6.44	1.09
Per cent	0	4	0	0	7	22	67	100		
Organic										
Frequency	1	0	0	0	5	9	24	39	6.36	1.14
Per cent	3	0	0	0	13	23	62	100		
							Sector	**average**	**6.25**	
HORTICULTURE										
Conventional										
Frequency	0	0	1	1	4	11	11	28	6.07	1.02
Per cent	0	0	4	4	14	39	39	100		
Modified										
Frequency	1	0	3	4	3	22	21	54	[2]5.93	1.32
Per cent	2	0	6	7	6	41	39	100		
Organic										
Frequency	1	0	0	1	6	13	21	42	6.19	1.15
Per cent	2	0	0	2	14	31	50	100		
							Sector	**average**	**6.06**	
DAIRY										
Conventional										
Frequency	0	0	0	7	8	36	41	92	6.21	0.90
Per cent	0	0	0	8	9	39	45	100		
Modified										
Frequency	0	0	0	0	4	11	17	32	[1]6.41	0.71
Per cent	0	0	0	0	13	34	53	100		
Organic										
Frequency	1	0	0	0	6	12	16	35	6.14	1.17
Per cent	3	0	0	0	17	34	46	100		
							Sector	**average**	**6.24**	
CV avg.	**6.12**									
Mod avg.	**6.28**									
Org avg.	**6.23**									

F1j - Ticked the box if farm/orchard does not have streams (scored as 1)

	1 Very unimportant	n	Mean	Std. Dev.
Conventional				
Frequency	12	12	1.00	0.00
Per cent	100	100		
Modified				
Frequency	1	1	1.00	.
Per cent	100	100		
Organic				
Frequency	13	13	1.00	0.00
Per cent	100	100		
	Sector	**average**		
Conventional				
Frequency	17	17	1.00	0.00
Per cent	100	100		
Modified				
Frequency	27	27	1.00	0.00
Per cent	100	100		
Organic				
Frequency	18	19	1.00	0.00
Per cent	95	100		
	Sector	**average**		
Conventional				
Frequency	14	14	1.00	0.00
Per cent	100	100		
Modified				
Frequency	5	5	1.00	0.00
Per cent	100	100		
Organic				
Frequency	7	7	1.00	0.00
Per cent	100	100		
	Sector	**average**		
CV avg. **Mod avg.** **Org avg.**				

G1a – Agreement that NZ farmers contribute to climate change and should take responsibility for reducing emissions

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	20	10	8	11	7	9	4	69	[1]3.26	1.99
Per cent	29	14	12	16	10	13	6	100		
Modified										
Frequency	10	3	2	3	6	2	1	27	3.07	2.00
Per cent	37	11	7	11	22	7	4	100		
Organic										
Frequency	9	8	2	5	3	4	7	38	3.66	2.28
Per cent	24	21	5	13	8	11	18	100		
							Sector	**average**	**3.32**	
HORTICULTURE										
Conventional										
Frequency	7	4	5	9	3	2	2	32	3.34	1.79
Per cent	22	13	16	28	9	6	6	100		
Modified										
Frequency	16	2	6	13	14	7	4	62	3.71	1.95
Per cent	26	3	10	21	23	11	6	100		
Organic										
Frequency	9	3	5	5	7	11	4	44	4.07	2.07
Per cent	20	7	11	11	16	25	9	100		
							Sector	**average**	**3.64**	
DAIRY										
Conventional										
Frequency	32	12	11	20	13	4	2	94	[2]2.89[b]	1.73
Per cent	34	13	12	21	14	4	2	100		
Modified										
Frequency	8	4	4	5	5	2	4	32	3.53[b]	2.08
Per cent	25	13	13	16	16	6	13	100		
Organic										
Frequency	7	2	0	4	9	6	8	36	4.56[a]	2.17
Per cent	19	6	0	11	25	17	22	100		
							Sector	**average**	**3.52**	
CV avg.	**3.15[b]**									
Mod avg.	**3.45[b]**									
Org avg.	**4.12[a]**									

G1b – Agreement that NZ farmers should take responsibility only to the same extent as farmers elsewhere

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	5	0	4	13	6	18	22	68	5.31[a]	1.76
Per cent	7	0	6	19	9	26	32	100		
Modified										
Frequency	5	4	1	3	3	2	9	27	4.37[b]	2.40
Per cent	19	15	4	11	11	7	33	100		
Organic										
Frequency	4	0	4	7	7	5	10	37	4.84	1.91
Per cent	11	0	11	19	19	14	27	100		
							Sector	**average**	**4.92**	
HORTICULTURE										
Conventional										
Frequency	2	0	2	4	4	8	13	33	5.55[a]	1.72
Per cent	6	0	6	12	12	24	39	100		
Modified										
Frequency	5	7	1	7	9	12	21	62	5.06	2.02
Per cent	8	11	2	11	15	19	34	100		
Organic										
Frequency	4	7	1	5	9	10	8	44	4.59[b]	1.99
Per cent	9	16	2	11	20	23	18	100		
							Sector	**average**	**5.16**	
DAIRY										
Conventional										
Frequency	6	5	7	13	7	23	35	96	5.28[a]	1.88
Per cent	6	5	7	14	7	24	36	100		
Modified										
Frequency	6	2	3	4	3	6	8	32	4.44[b]	2.26
Per cent	19	6	9	13	9	19	25	100		
Organic										
Frequency	4	6	3	3	7	3	10	36	4.44	2.17
Per cent	11	17	8	8	19	8	28	100		
							Sector	**average**	**4.82**	
CV avg.	**5.37[a]**									
Mod avg.	**4.62[b]**									
Org avg.	**4.61[b]**									

G1c – Agreement that within New Zealand, farmers are being asked to assume more than their fair share of responsibility for emissions

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	0	1	2	9	7	17	34	70	5.99	1.27
Per cent	0	1	3	13	10	24	49	100		
Modified										
Frequency	2	1	1	3	3	3	14	27	5.56	1.95
Per cent	7	4	4	11	11	11	52	100		
Organic										
Frequency	2	0	1	4	2	7	21	37	[1]5.95	1.65
Per cent	5	0	3	11	5	19	57	100		
							Sector	**average**	**5.86**	
HORTICULTURE										
Conventional										
Frequency	0	0	2	5	2	9	14	32	5.88[a]	1.31
Per cent	0	0	6	16	6	28	44	100		
Modified										
Frequency	4	2	3	6	4	13	29	61	5.61[a]	1.86
Per cent	7	3	5	10	7	21	48	100		
Organic										
Frequency	5	3	2	7	5	12	11	45	[2]4.87[b]	2.01
Per cent	11	7	4	16	11	27	24	100		
							Sector	**average**	**5.53**	
DAIRY										
Conventional										
Frequency	3	1	2	12	8	22	48	96	5.91	1.49
Per cent	3	1	2	13	8	23	50	100		
Modified										
Frequency	3	0	1	2	4	9	13	32	5.59	1.83
Per cent	9	0	3	6	13	28	41	100		
Organic										
Frequency	2	1	1	2	7	8	15	36	[1]5.64	1.69
Per cent	6	3	3	6	19	22	42	100		
							Sector	**average**	**5.75**	
CV avg.	**5.92**									
Mod avg.	**5.59**									
Org avg.	**5.49**									

G1d – Agreement that technological solutions are needed to decrease agricultural greenhouse gas emissions

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	5	3	7	11	8	14	20	68	5.00[a]	1.89
Per cent	7	4	10	16	12	21	29	100		
Modified										
Frequency	3	5	1	1	3	5	9	27	[2]4.74	2.30
Per cent	11	19	4	4	11	19	33	100		
Organic										
Frequency	8	3	3	6	5	3	9	37	4.14[b]	2.26
Per cent	22	8	8	16	14	8	24	100		
							Sector	**average**	**[2]4.69**	
HORTICULTURE										
Conventional										
Frequency	2	0	1	5	5	10	8	31	5.35[a]	1.62
Per cent	6	0	3	16	16	32	26	100		
Modified										
Frequency	4	1	4	9	7	18	18	61	5.30[a]	1.74
Per cent	7	2	7	15	11	30	30	100		
Organic										
Frequency	6	2	1	14	5	9	6	43	4.42[b]	1.89
Per cent	14	5	2	33	12	21	14	100		
							Sector	**average**	**5.09**	
DAIRY										
Conventional										
Frequency	5	2	2	15	16	17	38	95	5.51[a]	1.68
Per cent	5	2	2	16	17	18	40	100		
Modified										
Frequency	1	1	0	5	3	9	13	32	[1]5.72[a]	1.55
Per cent	3	3	0	16	9	28	41	100		
Organic										
Frequency	8	1	4	7	5	5	6	36	4.08[b]	2.13
Per cent	22	3	11	19	14	14	17	100		
							Sector	**average**	**[1]5.18**	
CV avg.	**5.30[a]**									
Mod avg.	**5.29[a]**									
Org avg.	**4.29[b]**									

G1e – Agreement that higher market returns will balance the costs of reduction efforts

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	18	10	4	12	3	11	9	67	3.61	2.22
Per cent	27	15	6	18	4	16	13	100		
Modified										
Frequency	7	4	1	2	5	2	5	26	3.77	2.34
Per cent	27	15	4	8	19	8	19	100		
Organic										
Frequency	9	8	6	5	0	5	4	37	3.27	2.08
Per cent	24	22	16	14	0	14	11	100		
							Sector	**average**	**3.56**	
HORTICULTURE										
Conventional										
Frequency	9	3	2	4	5	4	3	30	3.57	2.18
Per cent	30	10	7	13	17	13	10	100		
Modified										
Frequency	15	7	6	9	7	8	7	59	3.64	2.13
Per cent	25	12	10	15	12	14	12	100		
Organic										
Frequency	6	9	7	8	6	4	4	44	3.61	1.86
Per cent	14	20	16	18	14	9	9	100		
							Sector	**average**	**3.60**	
DAIRY										
Conventional										
Frequency	26	20	8	20	7	5	6	92	3.01	1.85
Per cent	28	22	9	22	8	5	7	100		
Modified										
Frequency	8	5	2	8	2	4	3	32	3.47	2.05
Per cent	25	16	6	25	6	13	9	100		
Organic										
Frequency	9	4	5	6	3	5	3	35	3.49	2.05
Per cent	26	11	14	17	9	14	9	100		
							Sector	**average**	**3.27**	
CV avg.	**3.37**									
Mod avg.	**3.62**									
Org avg.	**3.46**									

H1Aa – Agreement with not liking more native birds on my farm

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	24	5	3	7	6	7	15	67	3.70	2.47
Per cent	36	7	4	10	9	10	22	100		
Modified										
Frequency	9	2	0	5	1	1	9	27	3.96	2.59
Per cent	33	7	0	19	4	4	33	100		
Organic										
Frequency	17	3	2	1	0	4	11	38	3.53	2.72
Per cent	45	8	5	3	0	11	29	100		
							Sector	**average**	**3.72**	
HORTICULTURE										
Conventional										
Frequency	9	1	3	6	4	4	4	31	3.74	2.18
Per cent	29	3	10	19	13	13	13	100		
Modified										
Frequency	23	6	5	10	3	3	11	61	3.28	2.30
Per cent	38	10	8	16	5	5	18	100		
Organic										
Frequency	16	6	2	2	2	3	14	45	3.73	2.64
Per cent	36	13	4	4	4	7	31	100		
							Sector	**average**	**3.61**	
DAIRY										
Conventional										
Frequency	34	13	5	11	11	9	12	95	3.28	2.23
Per cent	36	14	5	12	12	9	13	100		
Modified										
Frequency	8	5	1	3	3	4	5	29	3.69	2.35
Per cent	28	17	3	10	10	14	17	100		
Organic										
Frequency	19	3	2	1	2	5	4	36	2.86	2.37
Per cent	53	8	6	3	6	14	11	100		
							Sector	**average**	**3.28**	
CV avg.	**3.56**									
Mod avg.	**3.64**									
Org avg.	**3.34**									

H1Ab – Agreement with farms that have more native birds are also more likely to cope with drought and climate stress

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	24	9	4	17	5	2	2	63	2.75[b]	1.74
Per cent	38	14	6	27	8	3	3	100		
Modified										
Frequency	9	1	1	9	4	1	2	27	3.33	1.96
Per cent	33	4	4	33	15	4	7	100		
Organic										
Frequency	4	6	3	9	4	3	8	37	4.19[a]	2.04
Per cent	11	16	8	24	11	8	22	100		
							Sector	**average**	**3.31**	
HORTICULTURE										
Conventional										
Frequency	11	0	5	8	3	1	2	30	3.10[b]	1.90
Per cent	37	0	17	27	10	3	7	100		
Modified										
Frequency	25	10	4	13	4	4	1	61	2.62[b]	1.74
Per cent	41	16	7	21	7	7	2	100		
Organic										
Frequency	7	4	3	11	5	7	5	42	4.05[a]	1.97
Per cent	17	10	7	26	12	17	12	100		
							Sector	**average**	**3.23**	
DAIRY										
Conventional										
Frequency	24	19	10	26	8	3	1	91	2.87[b]	1.54
Per cent	26	21	11	29	9	3	1	100		
Modified										
Frequency	10	3	1	7	2	4	0	27	3.00[b]	1.90
Per cent	37	11	4	26	7	15	0	100		
Organic										
Frequency	5	3	5	10	5	6	2	36	3.92[a]	1.76
Per cent	14	8	14	28	14	17	6	100		
							Sector	**average**	**3.20**	
CV avg.	**2.90[b]**									
Mod avg.	**2.98[b]**									
Org avg.	**4.04[a]**									

H1Ac – Agreement native birds provide important services on my farm (pollination, pest control or nutrient (cycling)

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	7	6	7	18	14	7	7	66	[1]4.14[b]	1.74
Per cent	11	9	11	27	21	11	11	100		
Modified										
Frequency	4	3	2	6	4	7	1	27	4.04[b]	1.87
Per cent	15	11	7	22	15	26	4	100		
Organic										
Frequency	0	1	2	2	7	11	15	38	[1]5.84[a]	1.31
Per cent	0	3	5	5	18	29	39	100		
							Sector	**average**	**[1]4.58**	
HORTICULTURE										
Conventional										
Frequency	8	5	3	10	3	3	0	32	[2]3.13[b]	1.66
Per cent	25	16	9	31	9	9	0	100		
Modified										
Frequency	20	9	2	9	8	8	5	61	[2]3.33[b]	2.14
Per cent	33	15	3	15	13	13	8	100		
Organic										
Frequency	3	3	6	4	5	14	9	44	[2]4.89[a]	1.88
Per cent	7	7	14	9	11	32	20	100		
							Sector	**average**	**[2]3.67**	
DAIRY										
Conventional										
Frequency	9	14	10	27	15	12	7	94	[1]3.95[b]	1.71
Per cent	10	15	11	29	16	13	7	100		
Modified										
Frequency	3	2	4	5	5	5	6	30	[1]4.53	1.94
Per cent	10	7	13	17	17	17	20	100		
Organic										
Frequency	0	3	1	10	4	7	11	36	5.22[a]	1.61
Per cent	0	8	3	28	11	19	31	100		
							Sector	**average**	**[1]4.46**	
CV avg.	**3.74[b]**									
Mod avg.	**4.00[b]**									
Org avg.	**5.30[a]**									

H1Ad – Agreement with it is not my responsibility as a landowner to encourage native birds on my farm

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	21	8	9	16	5	3	4	66	3.02[a]	1.84
Per cent	32	12	14	24	8	5	6	100		
Modified										
Frequency	10	4	2	5	1	4	1	27	2.96[a]	2.01
Per cent	37	15	7	19	4	15	4	100		
Organic										
Frequency	24	6	2	4	0	1	2	39	[2]2.00[b]	1.69
Per cent	62	15	5	10	0	3	5	100		
							Sector	**average**	**[2]2.70**	
HORTICULTURE										
Conventional										
Frequency	12	1	4	9	3	0	2	31	2.94	1.84
Per cent	39	3	13	29	10	0	6	100		
Modified										
Frequency	15	9	9	9	8	3	8	61	3.44	2.05
Per cent	25	15	15	15	13	5	13	100		
Organic										
Frequency	15	7	5	7	3	7	5	49	[1]3.35	2.16
Per cent	31	14	10	14	6	14	10	100		
							Sector	**average**	**[1]3.19**	
DAIRY										
Conventional										
Frequency	22	18	11	20	13	7	3	94	3.18[a]	1.75
Per cent	23	19	12	21	14	7	3	100		
Modified										
Frequency	8	7	3	3	3	4	1	29	3.07	1.94
Per cent	28	24	10	10	10	14	3	100		
Organic										
Frequency	19	6	7	3	0	1	3	39	[2]2.33[b]	1.81
Per cent	49	15	18	8	0	3	8	100		
							Sector	**average**	**2.90**	
CV avg.	**3.05[a]**									
Mod avg.	**3.16[a]**									
Org avg.	**2.56[b]**									

H1Ae – Agreement with interest in participating in a market accreditation scheme in the form of a "bird tick" that certifies my production as native bird friendly

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	25	9	3	13	4	3	5	62	2.85[c]	2.00
Per cent	40	15	5	21	6	5	8	100		
Modified										
Frequency	6	3	0	9	0	2	6	26	[1]3.92[b]	2.26
Per cent	23	12	0	35	0	8	23	100		
Organic										
Frequency	4	0	1	9	7	6	12	39	5.08[a]	1.86
Per cent	10	0	3	23	18	15	31	100		
							Sector	**average**	**3.80**	
HORTICULTURE										
Conventional										
Frequency	15	1	4	5	4	1	1	31	2.65[b]	1.85
Per cent	48	3	13	16	13	3	3	100		
Modified										
Frequency	26	8	5	8	4	4	5	60	[2]2.80[b]	2.06
Per cent	43	13	8	13	7	7	8	100		
Organic										
Frequency	7	3	1	9	5	12	11	48	4.71[a]	2.08
Per cent	15	6	2	19	10	25	23	100		
							Sector	**average**	**3.30**	
DAIRY										
Conventional										
Frequency	32	13	7	19	8	8	2	89	2.89[b]	1.83
Per cent	36	15	8	21	9	9	2	100		
Modified										
Frequency	5	5	1	5	3	5	4	28	[1]3.96[a]	2.15
Per cent	18	18	4	18	11	18	14	100		
Organic										
Frequency	5	3	2	13	2	5	8	38	4.34[a]	2.00
Per cent	13	8	5	34	5	13	21	100		
							Sector	**average**	**3.61**	
CV avg.	**2.80[c]**									
Mod avg.	**3.57[b]**									
Org avg.	**4.68[a]**									

H1Af – Agreement that some native birds cause damage to my farm operation

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	26	11	3	9	3	2	10	64	[2]2.97	2.23
Per cent	41	17	5	14	5	3	16	100		
Modified										
Frequency	12	3	0	1	3	3	4	26	[2]3.19	2.48
Per cent	46	12	0	4	12	12	15	100		
Organic										
Frequency	16	9	1	1	6	3	2	38	[2]2.71	2.04
Per cent	42	24	3	3	16	8	5	100		
							Sector	**average**	**[3]2.95**	
HORTICULTURE										
Conventional										
Frequency	9	1	4	2	1	3	10	30	[1]4.13	2.57
Per cent	30	3	13	7	3	10	33	100		
Modified										
Frequency	13	4	1	5	7	11	18	59	[1]4.59	2.37
Per cent	22	7	2	8	12	19	31	100		
Organic										
Frequency	14	4	5	4	5	6	9	47	[1]3.77	2.35
Per cent	30	9	11	9	11	13	19	100		
							Sector	**average**	**[1]4.15**	
DAIRY										
Conventional										
Frequency	22	10	9	12	9	17	13	92	[1]3.86	2.20
Per cent	24	11	10	13	10	18	14	100		
Modified										
Frequency	10	3	1	7	2	2	4	29	[2]3.34	2.21
Per cent	34	10	3	24	7	7	14	100		
Organic										
Frequency	14	4	3	4	6	5	2	38	3.18	2.10
Per cent	37	11	8	11	16	13	5	100		
							Sector	**average**	**[2]3.52**	
CV avg.	**3.68**									
Mod avg.	**3.70**									
Org avg.	**3.23**									

H1Ba – Agreement that would not like more introduced birds on my farm

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	11	5	4	14	4	7	17	62	4.35	2.22
Per cent	18	8	6	23	6	11	27	100		
Modified										
Frequency	8	2	0	4	1	3	7	25	4.00	2.55
Per cent	32	8	0	16	4	12	28	100		
Organic										
Frequency	7	7	1	5	5	7	5	37	3.95	2.17
Per cent	19	19	3	14	14	19	14	100		
							Sector	**average**	**[1]4.14**	
HORTICULTURE										
Conventional										
Frequency	11	0	1	4	6	3	5	30	3.77	2.36
Per cent	37	0	3	13	20	10	17	100		
Modified										
Frequency	11	6	4	11	5	3	20	60	[1]4.37	2.31
Per cent	18	10	7	18	8	5	33	100		
Organic										
Frequency	12	8	5	7	5	2	9	48	3.56	2.21
Per cent	25	17	10	15	10	4	19	100		
							Sector	**average**	**3.87**	
DAIRY										
Conventional										
Frequency	16	12	12	19	7	9	12	87	3.74	2.01
Per cent	18	14	14	22	8	10	14	100		
Modified										
Frequency	6	6	5	7	2	2	0	28	[2]2.96	1.53
Per cent	21	21	18	25	7	7	0	100		
Organic										
Frequency	12	2	4	8	3	2	7	38	3.58	2.25
Per cent	32	5	11	21	8	5	18	100		
							Sector	**average**	**[2]3.48**	
CV avg.	**3.93**									
Mod avg.	**3.74**									
Org avg.	**3.68**									

H1Bb – Agreement with farms that have more introduced birds are also more likely to cope with drought and climate stresses

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	23	9	2	16	2	3	1	56	2.61[b]	1.70
Per cent	41	16	4	29	4	5	2	100		
Modified										
Frequency	12	1	0	7	5	0	0	25	2.68[b]	1.75
Per cent	48	4	0	28	20	0	0	100		
Organic										
Frequency	6	5	5	6	2	4	7	35	3.94[a]	2.17
Per cent	17	14	14	17	6	11	20	100		
							Sector	**average**	**3.02**	
HORTICULTURE										
Conventional										
Frequency	12	1	4	6	4	1	1	29	2.86[b]	1.85
Per cent	41	3	14	21	14	3	3	100		
Modified										
Frequency	28	10	3	12	3	3	1	60	2.42[b]	1.69
Per cent	47	17	5	20	5	5	2	100		
Organic										
Frequency	7	4	0	14	8	5	4	42	4.02[a]	1.87
Per cent	17	10	0	33	19	12	10	100		
							Sector	**average**	**3.08**	
DAIRY										
Conventional										
Frequency	25	16	9	24	6	0	0	80	2.63[b]	1.39
Per cent	31	20	11	30	8	0	0	100		
Modified										
Frequency	9	3	2	7	2	2	0	25	2.84[b]	1.72
Per cent	36	12	8	28	8	8	0	100		
Organic										
Frequency	6	2	2	15	5	5	2	37	3.92[a]	1.72
Per cent	16	5	5	41	14	14	5	100		
							Sector	**average**	**3.06**	
CV avg.	**2.70[b]**									
Mod avg.	**2.65[b]**									
Org avg.	**3.96[a]**									

H1Bc – Agreement that introduced birds provide important services on my farm (pollination, pest control, or nutrient cycling)

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	8	7	9	19	7	6	4	60	[1]3.73[b]	1.71
Per cent	13	12	15	32	12	10	7	100		
Modified										
Frequency	6	1	2	6	3	7	0	25	3.80[b]	1.94
Per cent	24	4	8	24	12	28	0	100		
Organic										
Frequency	4	2	2	4	5	6	13	36	5.06[a]	2.08
Per cent	11	6	6	11	14	17	36	100		
							Sector	**average**	**[1]4.14**	
HORTICULTURE										
Conventional										
Frequency	12	5	3	7	1	3	0	31	[2]2.65[b]	1.70
Per cent	39	16	10	23	3	10	0	100		
Modified										
Frequency	21	8	4	10	5	8	4	60	3.17[b]	2.08
Per cent	35	13	7	17	8	13	7	100		
Organic										
Frequency	4	3	4	7	6	12	9	45	4.78[a]	1.91
Per cent	9	7	9	16	13	27	20	100		
							Sector	**average**	**[2]3.41**	
DAIRY										
Conventional										
Frequency	12	11	7	26	11	13	3	83	[1]3.77[b]	1.73
Per cent	14	13	8	31	13	16	4	100		
Modified										
Frequency	2	5	6	4	5	3	2	27	3.81[b]	1.73
Per cent	7	19	22	15	19	11	7	100		
Organic										
Frequency	0	1	1	15	6	4	10	37	5.11[a]	1.41
Per cent	0	3	3	41	16	11	27	100		
							Sector	**average**	**[1]4.17**	
CV avg.	**3.38[b]**									
Mod avg.	**3.59[b]**									
Org avg.	**4.98[a]**									

H1Bd – Agreement that it is not my responsibility as a landowner to encourage introduced birds on my farm

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	15	5	6	15	4	4	8	57	3.56[a]	2.08
Per cent	26	9	11	26	7	7	14	100		
Modified										
Frequency	5	4	1	5	1	5	3	24	3.83[a]	2.18
Per cent	21	17	4	21	4	21	13	100		
Organic										
Frequency	20	5	2	5	0	2	2	36	[2]2.28[b]	1.86
Per cent	56	14	6	14	0	6	6	100		
							Sector	**average**	**3.26**	
HORTICULTURE										
Conventional										
Frequency	11	1	5	8	2	1	2	30	3.00	1.88
Per cent	37	3	17	27	7	3	7	100		
Modified										
Frequency	16	8	9	8	9	1	9	60	3.42	2.09
Per cent	27	13	15	13	15	2	15	100		
Organic										
Frequency	13	8	5	6	4	4	5	45	[1]3.27	2.10
Per cent	29	18	11	13	9	9	11	100		
							Sector	**average**	**3.19**	
DAIRY										
Conventional										
Frequency	15	18	8	20	8	7	8	84	3.49[a]	1.90
Per cent	18	21	10	24	10	8	10	100		
Modified										
Frequency	6	5	4	5	2	4	0	26	3.15	1.76
Per cent	23	19	15	19	8	15	0	100		
Organic										
Frequency	14	6	8	4	2	1	2	37	2.59[b]	1.74
Per cent	38	16	22	11	5	3	5	100		
							Sector	**average**	**3.13**	
CV avg.	**3.34[a]**									
Mod avg.	**3.44[a]**									
Org avg.	**2.73[b]**									

H1Be – Agreement that would be interested in participating in a market accreditation scheme in the form of a "bird tick" that certifies my production as introduced bird friendly

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	25	8	2	13	2	3	4	57	2.72[b]	1.96
Per cent	44	14	4	23	4	5	7	100		
Modified										
Frequency	10	2	0	8	1	1	3	25	3.12[b]	2.15
Per cent	40	8	0	32	4	4	12	100		
Organic										
Frequency	5	1	2	10	6	1	10	35	4.54[a]	2.03
Per cent	14	3	6	29	17	3	29	100		
							Sector	**average**	**[1]3.37**	
HORTICULTURE										
Conventional										
Frequency	16	1	4	5	4	0	0	30	2.33[b]	1.58
Per cent	53	3	13	17	13	0	0	100		
Modified										
Frequency	32	8	4	7	4	1	3	59	[2]2.29[b]	1.79
Per cent	54	14	7	12	7	2	5	100		
Organic										
Frequency	10	3	2	10	3	11	6	45	4.11[a]	2.16
Per cent	22	7	4	22	7	24	13	100		
							Sector	**average**	**[2]2.85**	
DAIRY										
Conventional										
Frequency	36	13	4	16	4	7	1	81	2.56[b]	1.77
Per cent	44	16	5	20	5	9	1	100		
Modified										
Frequency	5	5	2	5	4	1	2	24	[1]3.38	1.91
Per cent	21	21	8	21	17	4	8	100		
Organic										
Frequency	4	2	2	15	3	2	8	36	4.36[a]	1.88
Per cent	11	6	6	42	8	6	22	100		
							Sector	**average**	**3.32**	
CV avg.	**2.53[b]**									
Mod avg.	**2.93[b]**									
Org avg.	**4.33[a]**									

H1Bf – Agreement that some introduced birds cause damage to my farm operation

	1 Very strongly disagree	2	3	4	5	6	7 Very strongly agree	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	12	4	2	8	7	9	20	62	[2]4.63	2.31
Per cent	19	6	3	13	11	15	32	100		
Modified										
Frequency	2	4	0	1	0	5	12	24	5.33	2.28
Per cent	8	17	0	4	0	21	50	100		
Organic										
Frequency	7	1	1	2	3	11	11	36	4.94	2.28
Per cent	19	3	3	6	8	31	31	100		
							Sector	**average**	**[2]4.91**	
HORTICULTURE										
Conventional										
Frequency	2	1	1	0	5	5	15	29	[1]5.76	1.83
Per cent	7	3	3	0	17	17	52	100		
Modified										
Frequency	3	2	0	2	8	10	35	60	[1]6.00[a]	1.64
Per cent	5	3	0	3	13	17	58	100		
Organic										
Frequency	6	4	2	5	1	13	16	47	5.00[b]	2.20
Per cent	13	9	4	11	2	28	34	100		
							Sector	**average**	**[1]5.60**	
DAIRY										
Conventional										
Frequency	9	6	2	12	15	19	23	86	4.94	1.97
Per cent	10	7	2	14	17	22	27	100		
Modified										
Frequency	1	3	0	6	5	4	7	26	[2]4.96	1.80
Per cent	4	12	0	23	19	15	27	100		
Organic										
Frequency	6	5	2	2	8	7	8	38	4.42	2.19
Per cent	16	13	5	5	21	18	21	100		
							Sector	**average**	**[2]4.79**	
CV avg.	**5.12**									
Mod avg.	**5.42[a]**									
Org avg.	**4.77[b]**									

H3 - Active encouragement of birds

	Yes	No	Unsure	n
SHEEP/BEEF				
Conventional				
Frequency	32	23	13	68
Per cent	47	34	19	100
Modified				
Frequency	14	12	1	27
Per cent	52	44	4	100
Organic				
Frequency	28	7	5	40
Per cent	70	18	13	100
	Chi square	9.92	p = 0.042	Sign.
HORTICULTURE				
Conventional				
Frequency	9	18	6	33
Per cent	27	55	18	100
Modified				
Frequency	22	32	7	61
Per cent	36	53	12	100
Organic				
Frequency	33	12	5	50
Per cent	66	24	10	100
	Chi square	16.02	p = 0.003	Sign.
DAIRY				
Conventional				
Frequency	29	43	23	95
Per cent	31	45	24	100
Modified				
Frequency	13	11	6	30
Per cent	43	37	20	100
Organic				
Frequency	25	6	8	39
Per cent	64	15	21	100
	Chi square	14.7	p = 0.005	Sign.

I1Aa – Importance of generating carbon credits as a benefit from planting native trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	19	7	3	12	7	7	6	61	3.43	2.12
Per cent	31	11	5	20	11	11	10	100		
Modified										
Frequency	6	3	1	4	3	2	5	24	3.88	2.31
Per cent	25	13	4	17	13	8	21	100		
Organic										
Frequency	9	6	1	8	5	4	6	39	[2]3.77	2.17
Per cent	23	15	3	21	13	10	15	100		
							Sector	**average**	**3.64**	
HORTICULTURE										
Conventional										
Frequency	12	4	1	8	5	1	2	33	3.03	1.94
Per cent	36	12	3	24	15	3	6	100		
Modified										
Frequency	24	3	5	8	6	5	3	54	[2]2.93[b]	2.05
Per cent	44	6	9	15	11	9	6	100		
Organic										
Frequency	13	6	3	5	4	6	10	47	3.83[a]	2.38
Per cent	28	13	6	11	9	13	21	100		
							Sector	**average**	**[2]3.24**	
DAIRY										
Conventional										
Frequency	24	14	8	19	15	6	5	91	3.27[b]	1.87
Per cent	26	15	9	21	16	7	5	100		
Modified										
Frequency	6	2	1	5	7	4	5	30	[1]4.23	2.11
Per cent	20	7	3	17	23	13	17	100		
Organic										
Frequency	8	1	2	4	7	5	13	40	[1]4.70[a]	2.28
Per cent	20	3	5	10	18	13	33	100		
							Sector	**average**	**[1]3.95**	
CV avg.	**3.24[b]**									
Mod avg.	**3.71**									
Org avg.	**4.15[a]**									

I1Ab – Importance of increasing native bird diversity and abundance as a benefit from planting native trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	3	2	3	11	8	18	18	63	[1]5.30	1.67
Per cent	5	3	5	17	13	29	29	100		
Modified										
Frequency	2	0	0	3	1	4	16	26	[1]5.96	1.78
Per cent	8	0	0	12	4	15	62	100		
Organic										
Frequency	0	1	3	6	2	10	17	39	5.74	1.48
Per cent	0	3	8	15	5	26	44	100		
							Sector	**average**	**[1]5.61**	
HORTICULTURE										
Conventional										
Frequency	8	1	2	4	10	4	4	33	[2]4.06[b]	2.09
Per cent	24	3	6	12	30	12	12	100		
Modified										
Frequency	10	5	3	12	9	11	9	59	[2]4.25	2.05
Per cent	17	8	5	20	15	19	15	100		
Organic										
Frequency	3	3	0	4	6	13	20	49	5.57[a]	1.80
Per cent	6	6	0	8	12	27	41	100		
							Sector	**average**	**[3]4.56**	
DAIRY										
Conventional										
Frequency	5	2	8	22	19	25	13	94	[1]4.86[b]	1.56
Per cent	5	2	9	23	20	27	14	100		
Modified										
Frequency	2	0	2	3	9	5	9	30	[1]5.27	1.68
Per cent	7	0	7	10	30	17	30	100		
Organic										
Frequency	1	0	3	4	4	14	14	40	5.70[a]	1.45
Per cent	3	0	8	10	10	35	35	100		
							Sector	**average**	**[2]5.22**	
CV avg.	**4.73[b]**									
Mod avg.	**5.14[b]**									
Org avg.	**5.67[a]**									

I1Ac – Importance of increasing insect diversity and abundance as a benefit from planting native trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	7	6	5	12	10	10	10	60	[1]4.37[b]	1.95
Per cent	12	10	8	20	17	17	17	100		
Modified										
Frequency	2	0	1	4	3	5	10	25	[1]5.44[a]	1.83
Per cent	8	0	4	16	12	20	40	100		
Organic										
Frequency	0	1	2	6	4	11	15	39	5.72[a]	1.39
Per cent	0	3	5	15	10	28	38	100		
							Sector	**average**	**[1]5.06**	
HORTICULTURE										
Conventional										
Frequency	11	2	3	7	2	4	3	32	[2]3.34[b]	2.13
Per cent	34	6	9	22	6	13	9	100		
Modified										
Frequency	17	4	1	10	7	9	9	57	[2]3.86[b]	2.29
Per cent	30	7	2	18	12	16	16	100		
Organic										
Frequency	2	3	1	2	7	10	23	48	5.73[a]	1.73
Per cent	4	6	2	4	15	21	48	100		
							Sector	**average**	**[2]4.20**	
DAIRY										
Conventional										
Frequency	9	9	11	21	19	16	6	91	[1]4.14[b]	1.71
Per cent	10	10	12	23	21	18	7	100		
Modified										
Frequency	2	0	0	8	9	5	6	30	[1]5.03[a]	1.54
Per cent	7	0	0	27	30	17	20	100		
Organic										
Frequency	1	0	2	5	5	12	15	40	5.73[a]	1.43
Per cent	3	0	5	13	13	30	38	100		
							Sector	**average**	**[1]4.86**	
CV avg.	**3.95[c]**									
Mod avg.	**4.77[b]**									
Org avg.	**5.72[a]**									

I1Ad – Importance of enhancing stream health by planting along riparian zones as a benefit from planting native trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	7	4	4	9	8	14	16	62	[1]4.82[b]	2.02
Per cent	11	6	6	15	13	23	26	100		
Modified										
Frequency	0	1	0	5	2	4	13	25	[1]5.88[a]	1.45
Per cent	0	4	0	20	8	16	52	100		
Organic										
Frequency	1	3	1	4	3	9	18	39	[1]5.67[a]	1.74
Per cent	3	8	3	10	8	23	46	100		
							Sector	**average**	**[1]5.35**	
HORTICULTURE										
Conventional										
Frequency	8	0	1	4	7	3	1	24	[2]3.63[b]	2.06
Per cent	33	0	4	17	29	13	4	100		
Modified										
Frequency	12	0	2	9	7	13	10	53	[2]4.47	2.18
Per cent	23	0	4	17	13	25	19	100		
Organic										
Frequency	11	1	0	2	4	11	14	43	[2]4.77[a]	2.45
Per cent	26	2	0	5	9	26	33	100		
							Sector	**average**	**[2]4.18**	
DAIRY										
Conventional										
Frequency	6	3	6	6	21	27	22	91	[1]5.22	1.71
Per cent	7	3	7	7	23	30	24	100		
Modified										
Frequency	3	0	2	2	7	7	9	30	5.23	1.85
Per cent	10	0	7	7	23	23	30	100		
Organic										
Frequency	1	0	3	2	4	10	15	35	[1]5.80	1.51
Per cent	3	0	9	6	11	29	43	100		
							Sector	**average**	**[1]5.39**	
CV avg.	**4.62[b]**									
Mod avg.	**5.21[a]**									
Org avg.	**5.45[a]**									

I1Ae – Importance of enhancing shelter for stock or fruit as a benefit from planting native trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	3	2	2	9	9	21	17	63	[1]5.38[b]	1.62
Per cent	5	3	3	14	14	33	27	100		
Modified										
Frequency	0	0	0	1	2	7	15	25	[1]6.44[a]	0.82
Per cent	0	0	0	4	8	28	60	100		
Organic										
Frequency	0	0	0	3	5	8	23	39	[1]6.31[a]	0.98
Per cent	0	0	0	8	13	21	59	100		
							Sector	**average**	**[1]5.93**	
HORTICULTURE										
Conventional										
Frequency	7	4	2	5	4	4	6	32	[2]3.97[b]	2.24
Per cent	22	13	6	16	13	13	19	100		
Modified										
Frequency	14	2	1	4	2	17	14	54	[2]4.57	2.43
Per cent	26	4	2	7	4	31	26	100		
Organic										
Frequency	6	2	1	2	8	13	16	48	[2]5.23[a]	2.03
Per cent	13	4	2	4	17	27	33	100		
							Sector	**average**	**[2]4.50**	
DAIRY										
Conventional										
Frequency	2	3	4	14	18	34	16	91	[1]5.30[b]	1.41
Per cent	2	3	4	15	20	37	18	100		
Modified										
Frequency	0	0	2	3	4	15	6	30	[1]5.67	1.12
Per cent	0	0	7	10	13	50	20	100		
Organic										
Frequency	0	0	0	3	1	14	21	39	[1]6.36[a]	0.87
Per cent	0	0	0	8	3	36	54	100		
							Sector	**average**	**[1]5.71**	
CV avg.	**4.90[c]**									
Mod avg.	**5.55[b]**									
Org avg.	**5.98[a]**									

I1Af – Importance of managing erosion as a benefit from planting native trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	10	4	4	8	11	13	13	63	[1]4.54[b]	2.09
Per cent	16	6	6	13	17	21	21	100		
Modified										
Frequency	1	1	0	4	2	3	14	25	[1]5.80[a]	1.73
Per cent	4	4	0	16	8	12	56	100		
Organic										
Frequency	3	0	0	4	8	11	13	39	[1]5.54[a]	1.65
Per cent	8	0	0	10	21	28	33	100		
							Sector	**average**	**[1]5.16**	
HORTICULTURE										
Conventional										
Frequency	10	3	3	2	5	4	4	31	[2]3.55[b]	2.28
Per cent	32	10	10	6	16	13	13	100		
Modified										
Frequency	16	1	3	4	4	12	10	50	[2]4.10	2.44
Per cent	32	2	6	8	8	24	20	100		
Organic										
Frequency	11	2	0	2	10	9	12	46	[2]4.59[a]	2.33
Per cent	24	4	0	4	22	20	26	100		
							Sector	**average**	**[2]4.00**	
DAIRY										
Conventional										
Frequency	9	7	7	12	18	23	13	89	[1]4.62	1.87
Per cent	10	8	8	13	20	26	15	100		
Modified										
Frequency	4	1	0	2	3	10	10	30	[1]5.30	2.05
Per cent	13	3	0	7	10	33	33	100		
Organic										
Frequency	2	3	4	3	2	11	12	37	5.19	1.94
Per cent	5	8	11	8	5	30	32	100		
							Sector	**average**	**[1]4.96**	
CV avg.	**4.26[b]**									
Mod avg.	**5.08[a]**									
Org avg.	**5.11[a]**									

I1Ag – Importance of making my farm/orchard look attractive as a benefit from planting native trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	3	2	2	10	11	18	17	63	[1]5.32	1.62
Per cent	5	3	3	16	17	29	27	100		
Modified										
Frequency	0	1	0	3	1	9	12	26	[1]6.04	1.28
Per cent	0	4	0	12	4	35	46	100		
Organic										
Frequency	0	3	0	2	10	14	10	39	5.59	1.35
Per cent	0	8	0	5	26	36	26	100		
							Sector	**average**	**[1]5.59**	
HORTICULTURE										
Conventional										
Frequency	6	1	3	2	5	10	5	32	[2]4.53	2.14
Per cent	19	3	9	6	16	31	16	100		
Modified										
Frequency	9	5	2	7	9	15	10	57	[2]4.53[b]	2.10
Per cent	16	9	4	12	16	26	18	100		
Organic										
Frequency	3	3	0	4	16	9	14	49	5.24[a]	1.71
Per cent	6	6	0	8	33	18	29	100		
							Sector	**average**	**[2]4.74**	
DAIRY										
Conventional										
Frequency	2	1	2	17	15	31	25	93	[1]5.53	1.36
Per cent	2	1	2	18	16	33	27	100		
Modified										
Frequency	2	0	0	3	4	10	11	30	[1]5.70	1.60
Per cent	7	0	0	10	13	33	37	100		
Organic										
Frequency	2	0	0	6	6	13	13	40	5.63	1.50
Per cent	5	0	0	15	15	33	33	100		
							Sector	**average**	**[1]5.60**	
CV avg.	**5.14**									
Mod avg.	**5.42**									
Org avg.	**5.49**									

I1Ah – Importance of providing fodder for stock as a benefit from planting native trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	S. D.
SHEEP/BEEF										
Conventional										
Frequency	25	12	1	13	6	1	3	61	2.64[b]	1.8
Per cent	41	20	2	21	10	2	5	100		
Modified										
Frequency	6	3	1	6	4	3	2	25	[1]3.64[a]	2.0
Per cent	24	12	4	24	16	12	8	100		
Organic										
Frequency	8	4	4	9	5	5	4	39	[1]3.77[a]	1.9
Per cent	21	10	10	23	13	13	10	100		
							Sector	**average**	**[1]3.24**	
HORTICULTURE										
Conventional										
Frequency	18	3	4	3	1	1	1	31	2.13	1.6
Per cent	58	10	13	10	3	3	3	100		
Modified										
Frequency	36	5	1	3	0	1	2	48	[2]1.69[b]	1.5
Per cent	75	10	2	6	0	2	4	100		
Organic										
Frequency	25	4	2	5	5	1	5	47	[2]2.66[a]	2.1
Per cent	53	9	4	11	11	2	11	100		
							Sector	**average**	**[2]2.18**	
DAIRY										
Conventional										
Frequency	41	19	6	10	5	4	5	90	2.46[b]	1.8
Per cent	46	21	7	11	6	4	6	100		
Modified										
Frequency	10	2	0	6	4	2	6	30	[1]3.73[a]	2.3
Per cent	33	7	0	20	13	7	20	100		
Organic										
Frequency	7	4	3	7	8	4	7	40	[1]4.13[a]	2.0
Per cent	18	10	8	18	20	10	18	100		
							Sector	**average**	**[1]3.29**	
CV avg.	**2.41[b]**									
Mod avg.	**3.08[a]**						**Interaction**			
Org avg.	**3.57[a]**									

I1Ai – Importance of providing logs/timber as a benefit from planting native trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	30	7	3	7	4	4	5	60	[1]2.67	2.10
Per cent	50	12	5	12	7	7	8	100		
Modified										
Frequency	8	2	2	6	2	3	2	25	[1]3.36	2.08
Per cent	32	8	8	24	8	12	8	100		
Organic										
Frequency	14	2	2	8	6	4	3	39	[1]3.36	2.11
Per cent	36	5	5	21	15	10	8	100		
							Sector	**average**	**[1]3.06**	
HORTICULTURE										
Conventional										
Frequency	25	1	1	2	2	0	0	31	[2]1.55[b]	1.23
Per cent	81	3	3	6	6	0	0	100		
Modified										
Frequency	31	5	2	6	3	3	0	50	[2]2.08	1.64
Per cent	62	10	4	12	6	6	0	100		
Organic										
Frequency	26	6	3	4	5	1	3	48	[2]2.40[a]	1.92
Per cent	54	13	6	8	10	2	6	100		
							Sector	**average**	**[2]1.95**	
DAIRY										
Conventional										
Frequency	42	16	7	6	8	6	0	85	2.29[b]	1.67
Per cent	49	19	8	7	9	7	0	100		
Modified										
Frequency	6	2	7	4	5	3	3	30	[1]3.70[a]	1.95
Per cent	20	7	23	13	17	10	10	100		
Organic										
Frequency	9	6	5	6	9	1	4	40	[1]3.48[a]	1.95
Per cent	23	15	13	15	23	3	10	100		
							Sector	**average**	**[1]3.02**	
CV avg.	**2.17[b]**									
Mod avg.	**3.08[a]**									
Org avg.	**3.10[a]**									

I1Ba – Importance of generating carbon credits as a benefit from planting exotic trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	17	9	1	13	6	7	5	58	3.40	2.09
Per cent	29	16	2	22	10	12	9	100		
Modified										
Frequency	6	2	1	3	1	5	3	21	3.86	2.35
Per cent	29	10	5	14	5	24	14	100		
Organic										
Frequency	9	1	2	9	5	7	5	38	4.08	2.11
Per cent	24	3	5	24	13	18	13	100		
							Sector	**average**	**3.72**	
HORTICULTURE										
Conventional										
Frequency	12	3	2	8	2	2	2	31	2.97	1.97
Per cent	39	10	6	26	6	6	6	100		
Modified										
Frequency	22	3	4	10	4	8	2	53	[2]3.06	2.06
Per cent	42	6	8	19	8	15	4	100		
Organic										
Frequency	12	5	4	7	6	4	6	44	[2]3.59	2.16
Per cent	27	11	9	16	14	9	14	100		
							Sector	**average**	**[2]3.18**	
DAIRY										
Conventional										
Frequency	23	11	6	21	13	6	3	83	3.24[b]	1.83
Per cent	28	13	7	25	16	7	4	100		
Modified										
Frequency	6	0	1	6	8	5	4	30	[1]4.37[a]	1.99
Per cent	20	0	3	20	27	17	13	100		
Organic										
Frequency	7	2	3	2	9	5	10	38	[1]4.55[a]	2.21
Per cent	18	5	8	5	24	13	26	100		
							Sector	**average**	**[1]3.93**	
CV avg.	**3.20[b]**									
Mod avg.	**3.79[a]**									
Org avg.	**4.10[a]**									

I1Bb – Importance of increasing native bird diversity and abundance as a benefit from planting exotic trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	5	5	5	11	9	9	11	55	[1]4.55[b]	1.91
Per cent	9	9	9	20	16	16	20	100		
Modified										
Frequency	4	1	0	5	1	3	8	22	[1]4.77	2.31
Per cent	18	5	0	23	5	14	36	100		
Organic										
Frequency	1	2	0	7	5	10	12	37	5.46[a]	1.59
Per cent	3	5	0	19	14	27	32	100		
							Sector	**average**	**[1]4.88**	
HORTICULTURE										
Conventional										
Frequency	10	3	1	7	6	2	2	31	[2]3.32[b]	2.01
Per cent	32	10	3	23	19	6	6	100		
Modified										
Frequency	15	9	4	9	7	8	4	56	[2]3.43[b]	2.05
Per cent	27	16	7	16	13	14	7	100		
Organic										
Frequency	7	2	2	3	8	8	16	46	4.98[a]	2.18
Per cent	15	4	4	7	17	17	35	100		
							Sector	**average**	**[2]3.85**	
DAIRY										
Conventional										
Frequency	7	5	9	24	17	17	4	83	[1]4.28[b]	1.59
Per cent	8	6	11	29	20	20	5	100		
Modified										
Frequency	2	0	2	7	9	3	6	29	[1]4.86	1.62
Per cent	7	0	7	24	31	10	21	100		
Organic										
Frequency	0	1	3	5	10	12	6	37	5.27[a]	1.28
Per cent	0	3	8	14	27	32	16	100		
							Sector	**average**	**[1]4.74**	
CV avg.	**4.03[b]**									
Mod avg.	**4.36[b]**									
Org avg.	**5.23[a]**									

I1Bc – Importance of increasing insect diversity and abundance as a benefit from planting exotic trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	8	7	7	13	10	5	6	56	3.88[b]	1.86
Per cent	14	13	13	23	18	9	11	100		
Modified										
Frequency	4	0	1	4	3	4	6	22	[1]4.73	2.16
Per cent	18	0	5	18	14	18	27	100		
Organic										
Frequency	1	1	2	7	3	12	11	37	5.43[a]	1.57
Per cent	3	3	5	19	8	32	30	100		
							Sector	**average**	**[1]4.58**	
HORTICULTURE										
Conventional										
Frequency	10	2	3	7	3	4	1	30	3.23[b]	1.96
Per cent	33	7	10	23	10	13	3	100		
Modified										
Frequency	19	6	1	8	7	8	8	57	[2]3.60[b]	2.31
Per cent	33	11	2	14	12	14	14	100		
Organic										
Frequency	2	2	2	2	10	8	19	45	5.58[a]	1.71
Per cent	4	4	4	4	22	18	42	100		
							Sector	**average**	**[2]4.04**	
DAIRY										
Conventional										
Frequency	10	9	11	23	12	15	1	81	3.83[b]	1.64
Per cent	12	11	14	28	15	19	1	100		
Modified										
Frequency	2	0	0	10	9	3	4	28	[1]4.75[a]	1.48
Per cent	7	0	0	36	32	11	14	100		
Organic										
Frequency	1	1	1	9	6	10	8	36	5.22[a]	1.49
Per cent	3	3	3	25	17	28	22	100		
							Sector	**average**	**4.50**	
CV avg.	**3.64[c]**									
Mod avg.	**4.36[b]**									
Org avg.	**5.40[a]**									

I1Bd – Importance of enhancing stream health by planting along riparian zones as a benefit from planting exotic trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	7	5	7	9	7	12	10	57	[1]4.40[a]	2.01
Per cent	12	9	12	16	12	21	18	100		
Modified										
Frequency	4	1	1	4	3	2	7	22	4.59	2.26
Per cent	18	5	5	18	14	9	32	100		
Organic										
Frequency	1	2	1	7	8	6	12	37	[1]5.30[b]	1.63
Per cent	3	5	3	19	22	16	32	100		
							Sector	**average**	**[1]4.72**	
HORTICULTURE										
Conventional										
Frequency	7	1	2	4	6	1	1	22	[2]3.36	1.94
Per cent	32	5	9	18	27	5	5	100		
Modified										
Frequency	12	2	1	10	8	10	8	51	4.22	2.17
Per cent	24	4	2	20	16	20	16	100		
Organic										
Frequency	12	1	0	6	8	4	10	41	[2]4.20	2.37
Per cent	29	2	0	15	20	10	24	100		
							Sector	**average**	**[2]3.84**	
DAIRY										
Conventional										
Frequency	10	2	5	7	20	26	12	82	[1]4.84	1.85
Per cent	12	2	6	9	24	32	15	100		
Modified										
Frequency	4	0	4	3	7	4	6	28	4.61	1.99
Per cent	14	0	14	11	25	14	21	100		
Organic										
Frequency	1	2	4	4	4	10	8	33	[1]5.12	1.73
Per cent	3	6	12	12	12	30	24	100		
							Sector	**average**	**[1]4.86**	
CV avg.	**4.25[b]**									
Mod avg.	**4.48**									
Org avg.	**4.89[a]**									

I1Be – Importance of enhancing shelter for stock or fruit as a benefit from planting exotic trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	1	1	2	8	11	20	17	60	[1]5.58[b]	1.36
Per cent	2	2	3	13	18	33	28	100		
Modified										
Frequency	2	0	0	1	3	4	13	23	[1]5.91	1.78
Per cent	9	0	0	4	13	17	57	100		
Organic										
Frequency	1	0	0	0	5	10	21	37	[1]6.30[a]	1.15
Per cent	3	0	0	0	14	27	57	100		
							Sector	**average**	**[1]5.98**	
HORTICULTURE										
Conventional										
Frequency	5	1	2	2	5	8	7	30	[2]4.77[b]	2.14
Per cent	17	3	7	7	17	27	23	100		
Modified										
Frequency	10	1	1	3	5	15	20	55	[2]5.13	2.24
Per cent	18	2	2	5	9	27	36	100		
Organic										
Frequency	3	1	1	3	9	9	19	45	[2]5.60[a]	1.74
Per cent	7	2	2	7	20	20	42	100		
							Sector	**average**	**[2]5.11**	
DAIRY										
Conventional										
Frequency	4	1	2	13	16	32	16	84	5.33[b]	1.48
Per cent	5	1	2	15	19	38	19	100		
Modified										
Frequency	0	1	2	3	4	14	4	28	5.43[b]	1.29
Per cent	0	4	7	11	14	50	14	100		
Organic										
Frequency	0	0	0	4	1	15	18	38	6.24[a]	0.94
Per cent	0	0	0	11	3	39	47	100		
							Sector	**average**	**[1]5.63**	
CV avg.	**5.22[b]**									
Mod avg.	**5.48[b]**									
Org avg.	**6.05[a]**									

I1Bf – Importance of managing erosion as a benefit from planting exotic trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	8	5	3	7	12	13	13	61	4.66[b]	2.04
Per cent	13	8	5	11	20	21	21	100		
Modified										
Frequency	1	1	0	2	2	4	13	23	5.91[a]	1.70
Per cent	4	4	0	9	9	17	57	100		
Organic										
Frequency	3	1	0	3	5	10	12	34	5.47	1.83
Per cent	9	3	0	9	15	29	35	100		
							Sector	**average**	**[1]5.22**	
HORTICULTURE										
Conventional										
Frequency	9	2	3	2	5	3	5	29	3.72	2.33
Per cent	31	7	10	7	17	10	17	100		
Modified										
Frequency	17	1	3	4	3	11	11	50	4.04	2.50
Per cent	34	2	6	8	6	22	22	100		
Organic										
Frequency	11	1	0	3	10	8	11	44	4.55	2.32
Per cent	25	2	0	7	23	18	25	100		
							Sector	**average**	**[2]4.04**	
DAIRY										
Conventional										
Frequency	12	5	7	11	17	19	10	81	4.40	1.95
Per cent	15	6	9	14	21	23	12	100		
Modified										
Frequency	4	2	1	3	4	7	8	29	4.86	2.13
Per cent	14	7	3	10	14	24	28	100		
Organic										
Frequency	2	4	3	3	1	8	12	33	5.09	2.08
Per cent	6	12	9	9	3	24	36	100		
							Sector	**average**	**[1]4.72**	
CV avg.	**4.26[b]**									
Mod avg.	**4.92[a]**									
Org avg.	**5.03[a]**									

I1Bg – Importance of making my farm/orchard look attractive as a benefit from planting exotic trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	2	3	3	10	13	17	11	59	[1]5.10	1.56
Per cent	3	5	5	17	22	29	19	100		
Modified										
Frequency	2	1	1	3	1	7	7	22	[1]5.23	1.97
Per cent	9	5	5	14	5	32	32	100		
Organic										
Frequency	2	2	0	2	7	13	8	34	5.38	1.67
Per cent	6	6	0	6	21	38	24	100		
							Sector	**average**	**[1]5.22**	
HORTICULTURE										
Conventional										
Frequency	6	2	3	2	6	8	4	31	[2]4.29	2.13
Per cent	19	6	10	6	19	26	13	100		
Modified										
Frequency	10	5	1	11	9	9	10	55	[2]4.29[b]	2.11
Per cent	18	9	2	20	16	16	18	100		
Organic										
Frequency	3	2	0	8	14	9	9	45	5.02[a]	1.64
Per cent	7	4	0	18	31	20	20	100		
							Sector	**average**	**[2]4.50**	
DAIRY										
Conventional										
Frequency	7	1	2	12	16	29	17	84	5.19	1.68
Per cent	8	1	2	14	19	35	20	100		
Modified										
Frequency	2	0	0	4	5	9	9	29	[1]5.52	1.62
Per cent	7	0	0	14	17	31	31	100		
Organic										
Frequency	2	0	0	8	4	12	9	35	5.40	1.56
Per cent	6	0	0	23	11	34	26	100		
							Sector	**average**	**[1]5.34**	
CV avg.	**4.86**									
Mod avg.	**5.02**									
Org avg.	**5.27**									

I1Bh – Importance of providing fodder for stock as a benefit from planting exotic trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	20	10	2	13	8	1	5	59	[1]3.03[b]	1.96
Per cent	34	17	3	22	14	2	8	100		
Modified										
Frequency	4	1	1	5	3	4	4	22	[1]4.36[a]	2.11
Per cent	18	5	5	23	14	18	18	100		
Organic										
Frequency	7	4	3	7	4	5	4	34	[2]3.82	2.07
Per cent	21	12	9	21	12	15	12	100		
							Sector	**avg.**	**[1]3.61**	
HORTICULTURE										
Conventional										
Frequency	17	3	4	3	1	1	0	29	[2]2.00	1.44
Per cent	59	10	14	10	3	3	0	100		
Modified										
Frequency	34	6	0	3	0	1	2	46	[2]1.70[b]	1.55
Per cent	74	13	0	7	0	2	4	100		
Organic										
Frequency	22	5	1	5	5	1	5	44	[3]2.75[a]	2.18
Per cent	50	11	2	11	11	2	11	100		
							Sector	**avg.**	**[2]2.14**	
DAIRY										
Conventional										
Frequency	38	17	5	12	4	3	3	82	2.37[c]	1.72
Per cent	46	21	6	15	5	4	4	100		
Modified										
Frequency	9	3	0	6	5	1	5	29	[1]3.62[b]	2.26
Per cent	31	10	0	21	17	3	17	100		
Organic										
Frequency	2	2	3	5	12	3	8	35	[1]4.83[a]	1.72
Per cent	6	6	9	14	34	9	23	100		
							Sector	**avg.**	**[1]3.42**	
CV avg.	**2.45[c]**									
Mod avg.	**3.24[b]**						**Interaction**			
Org avg.	**3.87[a]**									

I1Bi – Importance of providing logs/timber as a benefit from planting exotic trees and shrubs on your farm

	1 Very unimportant	2	3	4	5	6	7 Very important	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	22	7	3	8	5	11	7	63	3.44[b]	2.28
Per cent	35	11	5	13	8	17	11	100		
Modified										
Frequency	3	2	0	7	2	6	3	23	[1]4.43[a]	1.95
Per cent	13	9	0	30	9	26	13	100		
Organic										
Frequency	3	2	2	3	8	10	6	34	[1]4.91[a]	1.83
Per cent	9	6	6	9	24	29	18	100		
							Sector	**average**	**[1]4.13**	
HORTICULTURE										
Conventional										
Frequency	16	1	2	3	4	2	1	29	2.59	2.01
Per cent	55	3	7	10	14	7	3	100		
Modified										
Frequency	25	5	2	6	3	7	1	49	[2]2.63[b]	2.02
Per cent	51	10	4	12	6	14	2	100		
Organic										
Frequency	15	4	4	4	4	10	4	45	[2]3.53[a]	2.26
Per cent	33	9	9	9	9	22	9	100		
							Sector	**average**	**[3]2.87**	
DAIRY										
Conventional										
Frequency	36	13	7	8	10	8	2	84	2.70[b]	1.91
Per cent	43	15	8	10	12	10	2	100		
Modified										
Frequency	6	1	5	4	6	5	2	29	[1]3.90[a]	1.95
Per cent	21	3	17	14	21	17	7	100		
Organic										
Frequency	4	1	5	6	8	5	6	35	4.49[a]	1.87
Per cent	11	3	14	17	23	14	17	100		
							Sector	**average**	**[2]3.53**	
CV avg.	**2.89[c]**									
Mod avg.	**3.66[b]**									
Org avg.	**4.32[a]**									

I2a – Number of natives below 3m planted

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Total	3	8000	341	1129.5	59
HORTICULTURE					
Total	1	6000	284	888.3	57
DAIRY					
Total	1	7500	426	1052.3	71

I2b - Number of natives below 3m removed

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Total	2	100	40	46.1	4
HORTICULTURE					
Total	1	5000	836	2039.6	6
DAIRY					
Total					0

I2c - Number of natives below 3m which replaced those removed in last five years

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Total	8	2500	724	990.8	9
HORTICULTURE					
Total	1	1500	231	470.3	10
DAIRY					
Total	10	7000	1016	1976.3	12

I2d - Number of natives 3m or taller planted

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Total	2	1800	172	371.5	27
HORTICULTURE					
Total	1	1000	70	183.2	32
DAIRY					
Total	2	5000	522	1213.3	31

I2e - Number of natives 3m or taller removed

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Total	1	150	32	54.5	7
HORTICULTURE					
Total	1	15	4	4.2	9
DAIRY					
Total	2	50	11	17.4	7

I2f - Number of natives 3m or taller which replaced those removed in last five years

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Total	9	1000	433	442.0	5
HORTICULTURE					
Total	1	40	12	17.7	6
DAIRY					
Total	5	5000	947	1820.8	7

I2g - Number of exotics below 3m planted

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Total	5	1200	183	268.8	38
HORTICULTURE					
Total	1	1700	174	371.8	42
DAIRY					
Total	3	4000	364	911.0	39

I2h - Number of exotics below 3m removed

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Total	2	120	19	40.7	8
HORTICULTURE					
Total	1	300	49	88.3	11
DAIRY					
Total	2	50	12	18.5	6

I2i - Number of exotics below 3m which replaced those removed in last five years

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Total	5	5500	831	1584.9	12
HORTICULTURE					
Total	1	600	80	168.1	13
DAIRY					
Total	5	1000	187	332.8	15

I2j – Number of exotics 3m or taller planted

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Total	1	1600	142	316.8	35
HORTICULTURE					
Total	1	2500	225	458.1	37
DAIRY					
Total	5	5000	506	1193.4	32

I2k – Number of exotics 3m or taller removed

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Total	1	1200	61	206.4	38
HORTICULTURE					
Total	1	500	50	96.1	45
DAIRY					
Total	1	500	65	124.0	39

I2l – Number of exotics 3m or taller which replaced those removed in the last five years

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Total	3	2000	197	568.5	12
HORTICULTURE					
Total	1	3000	442	1040.0	15
DAIRY					
Total	5	3000	281	856.8	12

Note, for the following variables where there is quite different variability in the data within the sectors it is inappropriate to provide tests of significant difference between the means.

J1a – Total hectares

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Conventional	16	6100	434	1009	69
Modified	6	16500	1061	3179	26
Organic	20	2335	414	505	38
Total	6	16500	550	1604	133
HORTICULTURE					
Conventional	2	87	19	23	33
Modified	2	450	35	82	62
Organic	0.5	404	25	65	42
Total	0.5	450	28	67	137
DAIRY					
Conventional	37	1170	193	162	94
Modified	40	1800	257	327	29
Organic	24	1040	171	188	37
Total	24	1800	200	207	160

J1b - Effective hectares

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Conventional	10	6100	380	968	69
Modified	5	12000	819	2308	26
Organic	16	2335	357	455	37
Total	5	12000	460	1262	132
HORTICULTURE					
Conventional	0.3	70	16	19	33
Modified	1.5	420	26	61	59
Organic	0.3	385	22	62	41
Total	0.3	420	22	54	133
DAIRY					
Conventional	2	1100	175	151	93
Modified	37	1600	241	310	30
Organic	21	990	154	178	37
Total	2	1600	182	197	160

J5a – Annual gross income 2006-07

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Conventional	10000	1,600,000	204,660	303,674	60
Modified	-10000	1,500,000	342,714	384,079	21
Organic	-200000	500,000	163,356	145,691	32
Total	-200000	1,600,000	231,047	290,965	113
HORTICULTURE					
Conventional	2000	5,037,000	467,579	1,040,884	27
Modified	-20000	21,600,000	997,460	3,387,200	51
Organic	1500	6,000,000	357,324	1,020,735	34
Total	-20000	21,600,000	582,023	2,402,671	112
DAIRY					
Conventional	26000	2,500,000	647,013	557,239	73
Modified	60000	2,500,000	825,958	597,066	24
Organic	30000	3,000,000	568,782	644,484	30
Total	312	3,000,000	[1]674,481	589,017	127
CV avg.	447,916				
Mod avg.	725,325				
Org avg.	371,349				

J5b - Annual gross income 2007-08

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Conventional	10000	1,500,000	213,163	308,338	58
Modified	-10000	1,400,000	315,000	344,469	22
Organic	-270000	500,000	156,896	162,797	32
Total	-270000	1,500,000	226,127	285,700	112
HORTICULTURE					
Conventional	5000	4,852,000	443,738	1,018,681	29
Modified	-12000	28,800,000	1,170,913	4,292,115	51
Organic	1500	6,500,000	407,125	1,136,134	32
Total	-12000	28,800,000	633,271	2,984,958	112
DAIRY					
Conventional	430	3,600,000	901,387	791,316	76
Modified	65000	3,500,000	1,229,158	898,642	24
Organic	50000	3,000,000	679,325	676,062	30
Total	430	3,600,000	931,969	802,279	130
CV avg.	538,851				
Mod avg.	921,505				
Org avg.	427,550				

Note: These overall means are those predicted by a Genstat analysis.

J6 Level of debt as percentage of equity (Note: high value = low debt)

	Over 80	80-60	60-40	20-40	20-0	Debt free	n	Don't know	Mean
SHEEP/BEEF	**1**	**2**	**3**	**4**	**5**	**6**	**7**		
Conventional									
Frequency	0	2	2	6	26	32	68	0	[1]5.24[a]
Per cent	0	3	3	9	38	47	100		
Modified									
Frequency	1	3	3	5	6	9	27	0	[2]4.44[b]
Per cent	4	11	11	19	22	33	100		
Organic									
Frequency	0	0	6	10	13	8	37	0	[1]4.62[b]
Per cent	0	0	16	27	35	22	100		
Total									
Frequency	1	5	11	21	45	49	132	0	**[1]4.85**
Per cent	1	4	8	16	34	37	100		
HORTICULTURE									
Conventional									
Frequency	2	0	1	2	13	15	33	0	[1]5.09
Per cent	6	0	3	6	39	45	100		
Modified									
Frequency	0	2	6	15	9	24	56	4	[1]4.98
Per cent	0	4	11	27	16	43	100		
Organic									
Frequency	0	2	2	6	15	13	38	0	[1]4.92
Per cent	0	5	5	16	39	34	100		
Total									
Frequency	2	4	9	23	37	52	137	4	**[1]5.02**
Per cent	2	3	7	18	29	41	100		
DAIRY									
Conventional									
Frequency	1	6	16	29	24	14	90	0	[2]4.23
Per cent	1	7	18	32	27	16	100		
Modified									
Frequency	0	3	4	8	8	4	27	1	[2]4.32
Per cent	0	11	15	30	30	15	100		
Organic									
Frequency	1	2	10	12	4	6	35	1	[2]4.06
Per cent	3	6	29	34	11	17	100		
Total									
Frequency	2	11	30	49	36	24	152	2	**[2]4.21**
Per cent	1	7	20	32	24	16	100		
CV avg.	**4.82[a]**								
Mod avg.	**4.57**								
Org avg.	**4.51[b]**								

J7 – Satisfaction with your current level of economic viability

	1 Very unsatisfied	2	3	4	5	6	7 Very satisfied	n	Mean	Std. Dev.
SHEEP/BEEF										
Conventional										
Frequency	8	12	9	10	16	10	1	66	[3]3.73	1.71
Per cent	12	18	14	15	24	15	2	100		
Modified										
Frequency	5	7	1	4	4	3	2	26	[2]3.46	2.01
Per cent	19	27	4	15	15	12	8	100		
Organic										
Frequency	9	4	7	10	3	3	3	39	[3]3.38	1.86
Per cent	23	10	18	26	8	8	8	100		
							Sector	**average**	**[3]3.56**	
HORTICULTURE										
Conventional										
Frequency	0	5	4	7	6	9	2	33	[2]4.48[a]	1.54
Per cent	0	15	12	21	18	27	6	100		
Modified										
Frequency	8	5	14	17	11	4	1	60	[2]3.57[b]	1.50
Per cent	13	8	23	28	18	7	2	100		
Organic										
Frequency	1	6	7	11	8	6	2	41	[2]4.10	1.50
Per cent	2	15	17	27	20	15	5	100		
							Sector	**average**	**[2]4.13**	
DAIRY										
Conventional										
Frequency	2	1	4	9	28	32	14	90	[1]5.36	1.27
Per cent	2	1	4	10	31	36	16	100		
Modified										
Frequency	1	2	4	1	7	9	4	28	[1]4.93	1.68
Per cent	4	7	14	4	25	32	14	100		
Organic										
Frequency	2	1	1	3	14	8	7	36	[1]5.17	1.54
Per cent	6	3	3	8	39	22	19	100		
							Sector	**average**	**[1]5.19**	
CV avg.	**4.57[a]**									
Mod avg.	**4.03[b]**									
Org avg.	**4.23**									

J8 – Years managed, owned or been associated with your current farm or orchard

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Conventional	2	70	22.0	15.6	70
Modified	1	70	22.6	18.6	27
Organic	0	70	21.3	17.1	40
Total	1	70	**22.0**	16.5	136
HORTICULTURE					
Conventional	3	43	21.6	10.8	33
Modified	2	46	19.2	10.4	61
Organic	1	44	16.1	9.0	42
Total	1	46	**19.4**	10.2	136
DAIRY					
Conventional	1	64	20.9	15.5	95
Modified	3	55	23.2	14.8	29
Organic	3	50	19.3	11.9	36
Total	1	64	**21.0**	14.6	160
CV avg.	**21.50**				
Mod avg.	**21.81**				
Org avg.	**18.98**				

J9 – Years farming or orcharding

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Conventional	8	62	32.4[a]	12.8	71
Modified	4	78	29.4	17.1	27
Organic	0	54	[1]24.2[b]	13.2	40
Total	0	78	**[1]29.39**	14.0	138
HORTICULTURE					
Conventional	6	50	27.7[a]	11.4	33
Modified	4	53	26.9[a]	11.4	61
Organic	1	48	[2]18.1[b]	11.5	42
Total	1	53	**[2]24.9**	12.1	136
DAIRY					
Conventional	2	51	29.8	12.2	33
Modified	10	55	31.8	12.6	61
Organic	3	64	[1]26.6	12.0	42
Total	1	53	**[1]29.5**	12.1	136
CV avg.	**30.0[a]**				
Mod avg.	**29.5[a]**				
Org avg.	**23.2[b]**				

J10 – Years expect to be in farming/orcharding

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Conventional	0	50	19.1	9.9	59
Modified	1	40	15.9	9.4	20
Organic	0	66	17.6	14.3	35
Total	0	66	**15.4**	11.5	121
HORTICULTURE					
Conventional	2	40	11.0	8.5	28
Modified	1	50	13.5	9.4	52
Organic	5	50	14.4	8.1	38
Total	1	50	**12.6**	8.8	118
DAIRY					
Conventional	1	60	13.8	10.3	82
Modified	2	50	13.7	10.8	24
Organic	4	70	15.6	12.3	33
Total	1	70	**14.3**	10.8	139
CV avg.	**12.87[a]**				
Mod avg.	**14.33**				
Org avg.	**15.85[b]**				

J11 – In ten years time do you think you will be living in your present community?

	Yes	No	Unsure	n
SHEEP/BEEF				
Conventional				
Frequency	45	10	14	69
Per cent	65	15	20	100
Modified				
Frequency	15	6	6	27
Per cent	56	22	22	100
Organic				
Frequency	25	6	8	39
Per cent	64	15	21	100
Total				
Frequency	85	22	28	135
Per cent	63	16	21	100
	Chi-	square	1.08	N. S.
HORTICULTURE				
Conventional				
Frequency	22	6	5	33
Per cent	67	18	15	100
Modified				
Frequency	38	6	17	61
Per cent	62	10	28	100
Organic				
Frequency	28	4	10	42
Per cent	67	10	24	100
Total				
Frequency	88	16	32	136
Per cent	65	12	24	100
	Chi-	square	3.10	N. S.
DAIRY				
Conventional				
Frequency	51	24	21	96
Per cent	53	25	22	100
Modified				
Frequency	10	10	11	31
Per cent	32	32	36	100
Organic				
Frequency	23	2	11	36
Per cent	64	6	31	100
Total				
Frequency	84	36	43	163
Per cent	52	22	26	100
	Chi-	square	11.58	Sign.

J12 – Farmer or spouse of farmer

	Farmer	Spouse/partner	n
SHEEP/BEEF			
Conventional			
Frequency	65	5	70
Per cent	93	7	100
Modified			
Frequency	26	1	27
Per cent	96	4	100
Organic			
Frequency	34	5	39
Per cent	87	13	100
Total			
Frequency	125	11	136
Per cent	92	8	100
		Chi-square 1.96	N. S.
HORTICULTURE			
Conventional			
Frequency	26	7	33
Per cent	79	21	100
Modified			
Frequency	57	3	60
Per cent	95	5	100
Organic			
Frequency	39	3	42
Per cent	93	7	100
Total			
Frequency	122	13	135
Per cent	90	10	100
		Chi-square 6.86	Sign.
DAIRY			
Conventional			
Frequency	87	9	96
Per cent	91	9	100
Modified			
Frequency	25	6	31
Per cent	81	19	100
Organic			
Frequency	31	4	35
Per cent	89	11	100
Total			
Frequency	143	19	162
Per cent	88	12	100
		Chi-square 2.26	N. S.

J13 - Age

	Minimum	Maximum	Mean	Std. Dev.	n
SHEEP/BEEF					
Conventional	35	78	[2]55.7[a]	9.2	71
Modified	28	85	53.5	13.5	26
Organic	30	74	50.4[b]	8.9	39
Total	28	85	**[2]53.6**	10.3	136
HORTICULTURE					
Conventional	34	79	[1]59.4[a]	9.9	33
Modified	34	74	55.0[b]	8.9	58
Organic	26	66	51.9[b]	7.8	40
Total	26	79	**[1]56.2**	9.2	131
DAIRY					
Conventional	30	74	[2]52.5	9.8	93
Modified	32	81	52.6	11.2	31
Organic	32	74	50.0	8.7	36
Total	30	81	**[2]51.6**	9.9	160
CV avg.	**55.61[a]**				
Mod avg.	**53.63[a]**				
Org avg.	**50.31[b]**				

J14 – Gender

	Male	Female	n
SHEEP/BEEF			
Conventional			
Frequency	62	9	71
Per cent	87	13	100
Modified			
Frequency	24	3	27
Per cent	89	11	100
Organic			
Frequency	30	9	39
Per cent	77	23	100
Total			
Frequency	116	21	137
Per cent	85	15	100
	Chi-square	2.56	N. S.
HORTICULTURE			
Conventional			
Frequency	27	6	33
Per cent	82	18	100
Modified			
Frequency	53	8	61
Per cent	87	13	100
Organic			
Frequency	29	11	40
Per cent	73	28	100
Total			
Frequency	109	25	134
Per cent	81	19	100
	Chi-square	3.30	N. S.
DAIRY			
Conventional			
Frequency	82	14	96
Per cent	85	15	100
Modified			
Frequency	21	10	31
Per cent	68	32	100
Organic			
Frequency	27	9	36
Per cent	75	25	100
Total			
Frequency	130	33	163
Per cent	80	20	100
	Chi-square	5.18	N. S.

J15 - Highest level of education completed

	Attended secondary school	Trade cert or similar	Diploma or certificate	University degree	n
SHEEP/BEEF					
Conventional					
Frequency	41	8	12	10	71
Per cent	58	11	17	14	100
Modified					
Frequency	11	3	7	6	27
Per cent	41	11	26	22	100
Organic					
Frequency	14	9	9	8	40
Per cent	35	23	23	20	100
Total					
Frequency	66	20	28	24	138
Per cent	48	15	20	17	100
			Chi-square	7.50	N. S.
HORTICULTURE					
Conventional					
Frequency	9	8	7	9	33
Per cent	27	24	21	27	100
Modified					
Frequency	21	10	16	13	60
Per cent	35	17	27	22	100
Organic					
Frequency	11	5	16	17	49
Per cent	22	10	33	35	100
Total					
Frequency	41	23	39	39	142
Per cent	29	16	28	28	100
			Chi-square	6.55	N. S.
DAIRY					
Conventional					
Frequency	40	21	14	21	96
Per cent	42	22	15	22	100
Modified					
Frequency	11	7	4	9	31
Per cent	36	23	13	29	100
Organic					
Frequency	16	6	9	8	39
Per cent	41	15	23	21	100
Total					
Frequency	67	34	27	38	166
Per cent	40	21	16	23	100
			Chi-square	3.02	N. S.

J16 – Type of farm

	Full-time	Part-time	n
SHEEP/BEEF			
Conventional			
Frequency	30	24	54
Per cent	56	44	100
Modified			
Frequency	13	3	16
Per cent	81	19	100
Organic			
Frequency	30	6	36
Per cent	83	17	100
Total			
Frequency	73	33	106
Per cent	69	31	100
	Chi-square	9.12	Sign.
HORTICULTURE			
Conventional			
Frequency	14	11	25
Per cent	56	44	100
Modified			
Frequency	28	13	41
Per cent	68	32	100
Organic			
Frequency	26	9	35
Per cent	74	26	100
Total			
Frequency	68	33	101
Per cent	67	33	100
	Chi-square	2.25	N. S.
DAIRY			
Conventional			
Frequency	78	2	80
Per cent	98	3	100
Modified			
Frequency	24	0	24
Per cent	100	0	100
Organic			
Frequency	31	0	31
Per cent	100	0	100
Total			
Frequency	133	2	135
Per cent	99	2	100
	Chi-square	NA	

Note, the question on corporate farming was not answered accurately since many respondents indicated that they were full-time farmers by using the corporate farm box.

Appendix 2: The Questionnaire

Lincoln University
Te Whare Wānaka o Aoraki

New Zealand Farmer and Orchardist Attitude and Opinion Survey:

Change in primary production

Winter, 2008

General instructions:

- Please tick the box or put the number for your best answer in the box provided. In some cases we ask you to write your answer.
- Most of the questions use a seven-point scale. The mid point of the scale (4) represents neutral or neither/nor.
- Please return the questionnaire to John Fairweather, AERU, PO Box 84, Lincoln University, Lincoln, 7647 using the Freepost envelope provided.

A. Farm or Orchard Management System

1. Overall, how would you classify the management system used on your farm or orchard? (Please put the number in the box):

(1) **Conventional management.** (Does not use modifications to conventional practice, nor is certified as organic, but can still aspire to best practice)

(2) **Modified conventional management.** (Integrated Management). (Accepts some constraints on inputs in order to improve environmental outcomes and to better meet market demand. These systems are also called Environmental Management Systems, usually have their own name, e.g., KiwiGreen, and are not necessarily called integrated management. We do not mean integrating your farm production practices or types of land use.)

(3) **Organic management**. (Registered or certified as officially organic or in transition to organic)

(4) **Other**, please specify _____

2. Assume you continue in farming: within the next ten years, how strong is your intention to use **each** of the following:

(Please rate each management system using the following range.)

Very strong intention not to use	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Very strong intention to use**

Conventional management	
Modified conventional management	
Organic management (registered)	
Organic methods (not registered)	
Genetically modified plants or animals, if they become available	

B. Indicators

1. What is the importance to you of **each** of the following measures when you are considering the **annual financial** performance of your farm/orchard?

Very Unimportant	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Very Important**

Gross income	
Working expenses	
Change in bank balance over the year	
Actual income versus budget income	
Cash surplus/deficit (income minus all cash expenses; the cash available for tax, drawings and reinvestment)	
Net profit/loss (income minus all cash expenses and depreciation; the taxable component of income)	
Changes in equity	
The ratio of working expenses to gross income	
Return on capital	
Money is available to cover cash needs	
I don't monitor financial performance because it just follows on from physical management	
Other, please specify _____	

2. What is the importance to you of **each** of the following measures when you are considering the **production** performance of your farm/orchard?

Very Unimportant	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Very Important**

The health of stock and/or plants	
Yields per hectare compared to other similar farmers/orchardists	
The presence of a neat and tidy landscape	
Minimum weeds	
Volume of production is at a maximum	
Quality of production is at a maximum	
The farm/orchard has a good mixture of productive uses/activities	
No potentially productive land is going to waste	
Reducing carbon emissions	
Other, please specify _____	

3. What is the importance to you of **each** of the following measures when you are considering the **environmental** performance of your farm/orchard?

Very Unimportant	1	2	3	4	5	6	7	Very Important

Please use 0 for not applicable

Soil fertility levels	
Soil biological activity	
Soil health	
The health of livestock and/or plants	
The level of biodiversity (the number and type of productive and unproductive species) on my farm/orchard	
The number of native bird species	
The number of all bird species, native and other	
The number of native plant or tree species	
The number of plant or tree species, native and other	
Water quality in nearby streams and waterways	
The presence of both productive and non-productive species flourishing on the farm/orchard	
Water budgeting	
Nutrient budgeting	
Pesticide use	
Energy use	
The amount of carbon stored (sequestered)	
A tidy, well maintained farm/orchard	
Other, please specify _____	

4. What is the importance to you of **each** of the following measures when you are considering the **social** performance of your farm/orchard?

Very Unimportant	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Very Important**

Please use 0 for not applicable

The children are involved in the farm or orchard	
I have enough time to participate in community activities	
I have enough time to devote to family and friends	
I have enough time to participate in activities and recreation off farm	
My farming/orcharding helps me to develop a connection to the place where it is located	
Members of my farm/orchard family will be able to find employment in this area	
My farming/orcharding is able to contribute to local traditions, festivals or customs	
My farm or orchard is contributing to the local community	
My neighbours approve of my farming/orcharding practices	
My farming/orcharding helps to create an attractive place to live	
My neighbours consider me to be a good farmer/orchardist	
My family has a good reputation in the local community	
Farm/orchard workers are treated well	
There is scope for farm succession	
Other, please specify _____	

C. Your approach to management

1. How often do you consider or implement **each** of the following strategies:

Never	1	2	3	4	5	6	7	Always

I adopt proven practices rather than do my own experiments	
I pay close attention to changes in plants /animals/insects on my farm	
I pay close attention to money in the bank and good financial returns from each part of my business	
I pay close attention to what is going on in NZ and in the world	
I focus on a limited number of income sources	
I keep unused resources (e.g., buildings, machines) in case they are needed in the future	
I seldom deviate from established farm plans	
I learn new things by talking with a wide variety of people	

2. How different will your farm or orchard be in ten years from now compared to the present time?

Exactly the same	1	2	3	4	5	6	7	Very different

D. Connections

1. How much do you agree or disagree with **each** of the following relationships?

Very Strongly Disagree	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Very Strongly Agree**
My farm/orchard and my management of it are closely related to the wellbeing of **myself and my family**								
My farm/orchard and my management of it are closely related to the wellbeing of **the local community**								
My farm/orchard and my management of it are closely related to the wellbeing of **the nation and the world**								

2. How much do you agree or disagree with **each** of the following statements?

Very Strongly Disagree	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Very Strongly Agree**
My farm/orchard management affects the environment **primarily within the productive areas of the property**								
My farm/orchard management affects the environment **in the region where my property is located**								
My farm/orchard management affects the environment **on a global scale**								

E. Community participation

1. How involved are you and/or your family in **each** of the following?

Little or no Involvement	1	2	3	4	5	6	7	Heavily Involved

Voting in national elections	
Voting in local body elections	
Submitting comments on local government plans and policy	
School or educational groups e.g., PTA, school committees	
Church groups and/or care agencies	
Sports/athletic/recreational groups	
Civic organisations (e.g., Rotary, Lions)	
Festivals, shows (e.g., A&P)	
Fire service, ambulance, search and rescue	
Providing cash financial support to community activities	
Hospital/medical organisations/trusts	
Other, please specify _____	

2. What is your level of attachment towards the area where you live?

Very Negative Connection	1	2	3	4	5	6	7	Very Positive Connection

F. Farming factors

1. How important or unimportant to you is **each** of the following?

Very Unimportant	1	2	3	4	5	6	7	Very Important

Customer requirements	
Customer satisfaction	
Family needs	
Farm environment as a place to live	
Farm environmental health	
Future generations/succession	
Off-farm product quality	
Personal satisfaction	
Stream health	
Please tick this box if your farm/orchard does not have streams	

G. Emissions trading

1. How much do you agree or disagree with **each** of the following views about responsibility for reducing greenhouse gas emissions?

Very Strongly disagree	1	2	3	4	5	6	7	Very Strongly agree

New Zealand farmers contribute to climate change and should take responsibility for reducing emissions	
New Zealand farmers should take responsibility only to the same extent as farmers elsewhere	
Within New Zealand, farmers are being asked to assume more than their fair share of responsibility for emissions	
Technological solutions are needed to decrease agricultural greenhouse gas emissions	
Higher market returns will balance the costs of reduction efforts	

H. Bird Diversity and Farm Management

1. How much do you agree or disagree with **each** of the following statements about the diversity **and** abundance of birds, native **and** introduced?

Very Strongly Disagree	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Very Strongly Agree**

	Native birds	**Introduced Birds**
I would not like more birds on my farm		
Farms that have more birds are also more likely to cope with drought and climate stresses		
Birds provide important services on my farm (pollination, pest control, or nutrient cycling)		
It is not my responsibility as a landowner to encourage birds on my farm		
I would be interested in participating in a market accreditation scheme in the form of a “bird tick” that certifies my production as bird friendly		
Some birds cause damage to my farm operation		

If birds are causing damage, please describe how:

_____

_____

2. Do you actively encourage birds on your farm or orchard?

(1) Yes (2) No (3) Unsure

I**f yes**, how do you do this? _____

_____

I. Trees and shrubs

1. How important or unimportant to you is **each** of the following benefits from planting native and exotic trees and shrubs on your farm (not your garden)?

Very Unimportant	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Very Important**

	Native Trees/ shrubs	**Exotic Trees/ shrubs**
Generating carbon credits		
Increasing native bird diversity and abundance		
Increasing insect diversity and abundance		
Enhancing stream health by planting along riparian zones		
Enhancing shelter for stock or fruit		
Managing erosion		
Making my farm/orchard look attractive		
Providing fodder for stock		
Providing logs/timber		

2. In the last year, approximately how many trees/shrubs have you planted and how many have you removed? Please break into those below 3m and those 3m or taller at maturity, and exclude garden plantings.

	Native below 3m	Native 3m or taller	Exotic below 3m	Exotic 3m or taller
Number planted				
Number removed				
Number which replaced those removed in last 5 years				

J. Background information

1. What is the size of your farm or orchard?

Total hectares: ☐

Effective hectares: ☐

2. What is your predominant farming activity?

(1) Dairy (4) Arable or cropping ☐

(2) Sheep/beef/deer (5) Horticulture

(3) Specialist livestock If kiwifruit, please tick this box ☐

(6) Other please specify, _____

3. For farmers with livestock, we want to calculate your total number of stock units as at June 2008. Please fill out the following table:

Sheep	Number	Cows	Number
Ewes		Max. cows milked	
Hoggets (ewe or wether)		Total milk solids (Kg)	
Other			
		Deer	
Beef		Rising 1 yr hinds	
Rising 1 yr heifers		Rising 2 yr hinds	
Rising 2 yr heifers		M/A hinds	
M/A cows		Rising 1 yr stags	
Rising 1 yr steers/bulls		Rising 2 yr stags and older	
Rising 2 yr steers and older			
Rising 2 yr and older bulls			

4. In which province is your farm located: _____

5. So that we can gauge the size of your farming operation, what was the annual gross revenue (approximate figures) from your farm for the:

2006-07 financial year? Approximate figures only: ☐

2007-08 financial year? Approximate figures only: ☐

6. What is your level of debt at present (approximate)?

(1) Debt is over 80% of equity
(2) Debt is between 60-80% of equity
(3) Debt is between 40-60% of equity
(4) Debt is between 20-40% of equity
(5) Debt is between 0-20% of equity
(6) My farm is debt free
(7) Don't know

☐

7. How satisfied are you with your current level of economic viability?

Very Unsatisfied	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Very Satisfied**

☐

8. For how many years have you managed, owned or been associated with your current farm or orchard? ☐

9. For how many years have you been farming or orcharding? ☐

10. For how many years in the future do you expect to be in farming/orcharding? ☐

$

11. In ten years time do you think you will still be living in your present community?

(1) Yes (2) No (3) Unsure

12. Are you the:

(1) Farmer (2) Spouse or partner of farmer

13. Please provide the year you were born.

14. Are you: (1) Male (2) Female

15. What is your highest level of education completed?

(1) Attended secondary school

(2) Trade technical qualification or similar

(3) Undergraduate diploma or certificate

(4) University degree

16. What type of farm do you have?

(1) Full-time farm

(2) Part-time farm

(3) Lifestyle or hobby farm

(1) Corporate farm

(2) Family farm

Thank you for giving your valuable time.

Please return the completed questionnaire in the freepost envelope.