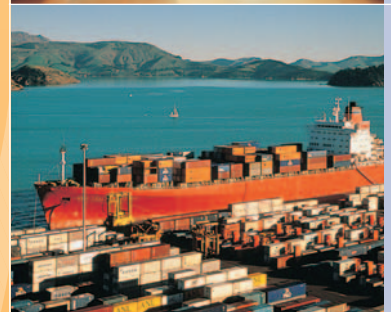




Growing Organically? Human Networks and the Quest to Expand Organic Agriculture in New Zealand

Rebecca Reider

Research Report No. 293
March 2007



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Contents

ACKNOWLEDGMENTS	I
PREFACE	III
SUMMARY.....	V
CHAPTER 1 INTRODUCTION: RESEARCH QUESTIONS AND METHOD.....	1
1.1 Research questions	1
1.2 The case studies.....	2
1.3 Research process	3
1.4 The purpose of this study	4
1.5 A guide to this report.....	4
CHAPTER 2 LITERATURE REVIEW: THE ROLE OF NETWORKS IN THE GROWTH OF ORGANIC PRODUCTION.....	7
2.1 Introduction	7
2.2 Why study networks to understand growth in organics?	7
2.3 Information flows: a key network in organic production.....	8
2.4 Market networks: the promise, and perils, of corporate organic.....	9
CHAPTER 3 RESULTS: CROPPING IN CANTERBURY	13
3.1 Introduction	13
3.2 History of organics in Canterbury	13
3.3 Choosing organic: reasons for conversion	14
3.4 Going organic: processes and practices	14
3.5 Information networks	16
3.6 Market networks.....	22
3.7 Growing organics (or not)	24
3.8 Summary of key points	27
CHAPTER 4 RESULTS: APPLES	29
4.1 History of organic apple production in New Zealand	29
4.2 Choosing organic: reasons for conversion	30
4.3 Going organic: process & practices	31
4.4 Information networks	35
4.5 Market networks.....	37
4.6 Growing organics	39
4.7 Beyond apples: Organics in Hawke's Bay	41
4.8 Summary of key points	43
CHAPTER 5 RESULTS: DAIRY	45
5.1 History of organic dairy production in New Zealand	45
5.2 Choosing organic: reasons for conversion	46
5.3 Going organic: process and practices	48
5.4 Information networks	50
5.5 Market networks: Fonterra	53
5.6 Growing organics	54
5.7 Summary of key points	58

CHAPTER 6 GENERAL CONCLUSIONS	61
6.1 Introduction	61
6.2 The importance of human networks.....	61
6.3 Going organic: process and practices.....	62
6.4 Flows of organic information.....	63
6.5 Corporate organics, pro and con	66
6.6 The organic monoculture paradox.....	68
6.7 Clean, green New Zealand agriculture?	69
CHAPTER 7 RECOMMENDATIONS	71
7.1 Introduction	71
7.2 Information transfer.....	71
7.3 Market coordination	74
7.4 Conversion support	75
7.5 Areas for further research.....	75
REFERENCES.....	77

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Preface

The AERU has published a number of reports on developments in organic farming. These reports include studies of decision making, industry developments, a review of research on the consequences of converting to organic production, and, most recently, a study of organic certification. This theme is continued in the present report with a study of recent growth in the New Zealand organic industry. This report reviews developments in three sectors by examining networks, and then discusses issues relevant to the future development of the industry. It will be of interest to all those with a stake in the organic industry.

From time to time the AERU hosts visiting researchers from many different countries. Rebecca Reider continues in this tradition. We are grateful to have the support of Fulbright New Zealand.

Professor Caroline Saunders
Director
AERU

Summary

Organic agriculture is rapidly growing worldwide. Will it expand in New Zealand, and if so, how?

This study looks at how *human networks* – specifically information networks, and market networks – are shaping organic production across New Zealand. Through case studies of three large-scale commercial organic sectors, this report examines how organic production has grown in the past, in order to make recommendations for future programs and policies.

The case studies are: mixed arable cropping in Canterbury, apple orcharding in Hawke's Bay, and dairy farming in the Waikato. All three took off in bursts, as groups of producers turned organic together. Canterbury organic cropping went through a growth spurt in the 1990s, as the Wattie's vegetable processing company helped farmers convert – but the organic sector there has stopped growing in recent years. Hawke's Bay's organic apple export business is lucrative and expanding, though some question the industry's long-term sustainability. Meanwhile, in three areas on the North Island, Fonterra is struggling to convert more dairy farmers to produce organic milk to meet international demand. Together, these three sectors illustrate the potential for growth – and ecological and economic trade-offs involved – when organic production goes big and corporate. The Canterbury and Hawke's Bay case studies also offer a glance at diverse local organic production for the domestic market.

More than 80 people were interviewed for this study: organic and conventional farmers and growers, agribusiness representatives, agricultural information providers, and others working in organics.

Organic information flows

The farmers and growers interviewed turned organic for a wide variety of reasons, ranging from deep commitment to organic farm practices, to the attraction of organic price premiums. The initial three-year conversion period is the hardest time for most new organic producers. Information exchange is critical to help them learn a new organic system. In all three cases studied, farmers and growers appreciated learning through direct contact with fellow organic producers, and discussion groups helped producers in all three sectors. Close relationships with researchers advanced organic production in some cases, as in the apple industry, where researchers have helped organic growers solve technical challenges. However, in the other sectors, farmers have more mixed opinions of academic research.

Serious barriers still impede the flow of information on organic production in New Zealand. Information flows in parallel to commercial products throughout the farming world; both conventional and organic producers receive much of their information from people selling products. This means that many vital organic farming ideas and practices – especially practices related to technique and system design, rather than the use of a particular product – do not normally circulate to farmers. Furthermore, conventional agricultural extension organisations are not always supportive of organics. Many conventional producers still hold negative perceptions about organics; some of those perceptions are based on lack of information.

Corporate organic

Large corporations have played a mixed role in growing organic production in New Zealand. Corporations have used their economic resources to increase the amount of organic land in the country. They have supported farmers in the transition to organics, by providing informational support and conversion premiums. They have also helped New Zealand producers reach international organic markets.

However, corporate support does not necessarily foster long-term stability in the organic industry. Corporate organics has grown most quickly in New Zealand in single-commodity systems – monocultures. This pattern exists for multiple reasons. Marketing is simplest for companies to organise around one organic export crop, such as apples. In contrast, marketing is more complicated for mixed crop organic producers, as Canterbury organic farmers have discovered. Information exchange is also easiest to organise when all producers are using the same system to grow one single product.

The current organic monoculture trend has multiple drawbacks. Ecologically, monocultures are vulnerable to a wide variety of problems, particularly pests and diseases. Economically, many organic farmers who depend on a single crop are currently thriving. But in the future, these producers could find themselves in a difficult position if supermarkets dominate the bargaining process and prices fluctuate the way they do for conventional crops.

Recommendations for growing organic production in New Zealand

Information transfer

Working with established growth patterns

- Invest in supporting pioneers who are the first in their area to go organic. Once a few successful organic models are in place, others follow.
- Promote farmer-to-farmer links. Create programs to make successful organic producers into visible examples and mentors. Provide formal opportunities for peer support, such as discussion groups.
- Work through existing commercial channels, such as organic input supply companies, which already provide information to organic and conventional farmers. Create other forums to teach non-product-based organic practices and farming system design.
- Promote halfway-organic systems as stepping stones to full organic production.
- Newly converting farmers need the most assistance – including information and financial support to get through the conversion period.

Diverse programs for diverse needs

- Provide individualised advice to producers outside of the big corporate organic industries; they currently receive the least information support.
- Offer a range of information sources, because different farmers and growers prefer to learn in different ways.
- Organic and synthetic-chemical-intensive farming are two extremes on a spectrum of farming styles. Offer different extension activities to get farmers onto the organic pathway, and to move them along it: from awareness, to use of some organic practices, to conversion, and finally to deeper agroecological understanding.

Beyond the farm

- More research may be needed in some organic sectors, but priorities must be determined by farmers and growers themselves.

- Work with the official levy-funded agricultural extension organisations to disseminate basic information on organics, but do not depend on them exclusively; these organisations do not always have the experience or enthusiasm to take organics forward.
- Organic agriculture could benefit greatly from an improved image in New Zealand, through increased publicity about the benefits of organic food and farming, and the problems with conventional.

Market coordination

- Encourage organic producers to diversify, resisting the trend toward organic monocultures. Help producers find market opportunities beyond the main organic commodities.
- Improve coordination among producers in the domestic fresh produce market, to ensure a more stable supply.
- Organise suppliers' bargaining power, nationally and internationally, to protect organic price premiums for the future.

Chapter 1

Introduction: Research Questions and Method

1.1 Research questions

Organic agriculture in New Zealand is at a crossroads. How will the organic sector grow? In 2006, a new national organic sector body, OANZ (Organics Aotearoa New Zealand), received \$1.5 million in government funding, to spend over three years, to coordinate and lead the organic industry. Also in 2006, following an agreement between the Labour government and the Green Party, the government allocated \$2.2 to create an Organic Advisory Service to advise farmers on converting to organics. With these developments, organic leaders had new clout and resources – and also an increased sense of urgency to grow the organic sector to a more significant position within the New Zealand economy.

Organic agriculture is growing worldwide. By 2006, there were over 31 million hectares of certified organic land on the planet, a gain of five million hectares from the previous year (Willer and Yussefi 2006). World organic food markets also continued to grow at rates of 15-30 per cent per year, reaching US\$27.8 billion in 2004 (Willer and Yussefi 2006). That growth has been particularly strong in high-income countries, in Europe and the U.S.

Will New Zealand take advantage of growing organic markets? While some leading European countries have as much as ten per cent of their agricultural land in organics, in New Zealand, that figure is closer to just one per cent, at 45,000 organic hectares, split among 820 farms (Willer and Yussefi 2006). National organic leaders hope to vastly improve on those statistics; OANZ's official goal is to increase New Zealand's organic production to \$1 billion by the year 2013.¹

If organic agriculture is to grow in New Zealand, how can it happen? That is the question this report attempts to address. Could the new national Organic Advisory Service help more farmers convert to organics, and increase organic production? That is, would increasing the flow of information promote growth in the organic industry? If so, what kinds of information do farmers most need, and what are the most effective ways to get that information out? And if more information is *not* enough to promote more conversions, then what other kinds of action are needed? In short, what can be done to grow the organic sector in New Zealand?

Such questions are complicated, because organic production evolves differently within each agricultural sector. Organic kiwifruit, organic apples, organic dairy, organic sheep and beef – each industry has its own issues around organic production and marketing. This study examines three organic sectors, in search of common patterns. It focuses in depth on *social and economic networks* – the human relationships, flows of information and exchanges of products that stitch the organic sector together. This report assesses what kinds of human networks not only spark growth in organics, but also build long-term prosperity for organic farmers and businesses.

¹ Exact statistics for current organic production in New Zealand are not presently available. Organic horticultural production has an annual value of \$76 million (OANZ 2007, personal communication). This figure includes the fruit and vegetable industries but excludes dairy, meat, and grain and seed crops.

1.2 The case studies

Organic production has not developed evenly in all sectors in New Zealand. For example, seven per cent of all pipfruit land is organic, while less than one per cent of vineyard land area is organic (OANZ 2007, personal communication). What causes organic production to grow in some sectors but not in others? Can the lessons from one sector be generalised to others? In order to understand the different paths that organic commodity production may take, this report analyses three organic industries at different points in their evolution, located in three different regions of New Zealand. The focus is on “Big Organic” – large-scale commercial organic farms and orchards, many of them producing for export.

1) Organic mixed crop/stock farms in Canterbury generally raise combinations of arable field crops (chiefly peas, linseed, and wheat), and sheep. These farms supply a variety of markets and companies, for export and domestic sales. Canterbury farmers are one of the oldest groups of large-scale commercial organic producers in the country. Many converted to organics in the mid-1990s, when vegetable processing company Wattie’s was helping farmers convert, in order to export organic peas. But growth has come to a standstill; in the last several years, very few farmers have converted to organics in Canterbury, and few people there expect the organic scene to grow. Why is this, and what can be learned from it?

2) Organic apple production in Hawke’s Bay is currently one of the most lucrative organic industries in New Zealand. Organic apple production took off in a burst in the late 1990s as a group of growers all converted together. Now, a handful of companies export the fruit, mostly to Europe and the USA. The largest organic growers are thriving economically, and converting more orchards. Yet many in the industry wonder whether current success is sustainable, both economically and ecologically. The apple industry illustrates the allures, and the dangers, of export-driven organic monoculture. What can be done to keep organic commodity production viable in the long-term?

3) Organic dairy on the North Island is one of the youngest large-scale organic sectors. After years of organisational effort by organic farmers, the New Zealand dairy co-operative, Fonterra, began making organic dairy products in 2002. The company hopes to have 200 organic suppliers by 2013. Currently it has 66 dairy farms either certified or in conversion. However, growth is coming slowly, and Fonterra managers and farmers differ in their opinions about the best way forward. What actions can bring farmers toward organics, in a big commodity industry that has long focused on maximising quantity rather than on environmental quality?

These three sectors share some common ground. In each, large corporations have helped to grow organic production. In each, organic production has expanded in bursts – that is, a group of farmers or growers, in a concentrated geographic area, have all gone organic together at roughly the same time. (There are both social and economic advantages to that pattern, which will be explained in greater detail in the discussion section.)

However, the case studies also differ in key ways. Together, their three different stories paint a fuller picture of different pathways for growing the organic sector. They exhibit three different marketing structures – in Canterbury, a diversity of companies and niche markets; in apples, a handful of companies marketing a single commodity; in dairy, a virtual monopoly by Fonterra. They also offer a comparison of issues around monoculture and diversity in organic systems, as Canterbury’s farmers raise diverse crops and animals in rotation, while the organic apple and dairy industries each produce a single product. Finally, each organic

industry is at a different point in its evolution – Canterbury cropping is longest-established and stable; pipfruit is established and still growing; dairy is in the midst of new farmer conversions. Together, the three sectors illustrate challenges that arise at different stages along the organic pathway.

1.3 Research process

Between May and December of 2006, more than 80 interviews were conducted, split among the three case study areas. About half of those interviewed were organic producers.² Interviews purposefully included a range of experience levels: from long-standing organic pioneers, to recent converts, to those currently sitting on the fence pondering conversion; and where applicable, the few who had converted organics and then switched back to conventional. A handful of conventional producers in each sector were interviewed for comparison. The rest of the interviews included other key people working in organics – agribusiness representatives, organic certification inspectors, consultants, input suppliers, and information providers.

Interviewees were selected using peer contacts and the advice of knowledgeable people in each organic industry. In each sector, the interview process continued until new interviews gave no new information – that is, when it appeared that a full picture of that sector was complete.

Interview questions

Interviews were semi-structured. They all focused on the same set of topics:

- *Reasons for conversion*: Why do producers convert (or not convert) to organics?
- *Information flows*: How do producers get organic information and ideas? How does that matter at different stages in their organic careers?
- *Market networks*: How do producers sell their products? What is their relationship with marketers? What is their outlook on profitability?
- *Farming practices*: How do producers handle specific practical issues – e.g. soil fertility and crop rotation in arable cropping; pest and disease management in apples; soil fertility and animal health issues in dairy? These questions help to track the diversity of practices in use, the level of information flows among producers, and need for more information.
- *Growing organics*: What do producers and others believe is the best way to stimulate growth in the organic sector? Do organic producers and marketers in fact want such growth to happen?

Interviewees

Totals in the lists below do not add up exactly within each sector, because some people play multiple roles; e.g. some producers are also organic certifiers or information providers.

Canterbury: 30 people were interviewed. They were selected to represent both the focus and diversity of organic production in the area. Interviews ranged throughout mid and south Canterbury, from Christchurch south into Timaru.

Interviewees included:

² The generic term “producer” refers to farmers and growers as a whole.

- 19 organic producers: mostly mixed crop/stock farmers; three horticultural growers; three livestock-only farmers
- five organic information providers: discussion group facilitator, representatives of farming organisations, organic certification auditors, researchers
- five representatives of food companies who buy farmers' organic products
- three suppliers of organic inputs and fertilisers
- five conventional farmers (four mixed crop/stock, one stock only).

Hawke's Bay: 30 people were interviewed, representing both the apple industry and the rest of the local organic/biodynamic scene.

Interviewees included:

- apple growers – ten organic (including one biodynamic), three conventional, three former organic growers
- five representatives of apple industry bodies – four export companies, and Pipfruit New Zealand
- two organic input suppliers
- three certification auditors (organic and biodynamic)
- 11 people working in organics outside the pipfruit industry: growers and distributors of other organic and biodynamic products.

Waikato: 23 people were interviewed. Fonterra gets organic milk from three main regions of the North Island: Waikato, Manawatu, and Taranaki. This study focused on the Waikato, the site of Fonterra's organic extension headquarters and organic processing facilities. Thirteen dairy farmers also were surveyed in writing at an organic field day: five organic farmers, eight conventional but considering conversion.

Interviewees included:

- 12 organic dairy farmers, ranging from long-term organic farmers to those still in conversion.
- four conventional dairy farmers, some of them considering conversion to organics.
- two Fonterra staff
- five others working closely with organic dairying: a discussion group facilitator, a consultant, a researcher, a fertiliser supplier, and a certification auditor.

1.4 The purpose of this study

This research had a specific purpose: not just to understand growth in organics, but to assess what would support that process. This report offers recommendations which may encourage organic production. That includes two key quests: achieving growth in organic production; and maintaining a robust organic economy once that growth is established. Unless stated otherwise, all generalisations in the results and discussion sections are supported by comments from the majority of people interviewed.

1.5 A guide to this report

This report is intended for multiple audiences: policymakers, farmers, organic leaders, consumers, and academics. The different sections may appeal to different readers.

- The literature review explains the reason for taking a human network approach to studying growth in organics, and explains how this research builds on past work done by others, in New Zealand and abroad.
- The results chapters describe each of the three case studies in detail. Each chapter considers background history, the decision to convert, and the processes and practices involved in conversion. Then each chapter considers information and market networks, and growth issues, before concluding with a summary. These chapters include a large number of direct quotes, in order to represent farmers' and growers' own perspectives, in their full diversity.
- General conclusions and recommendations chapters summarise and discuss the main findings.

Chapter 2

Literature Review: The Role of Networks in the Growth of Organic Production

2.1 Introduction

This chapter explains why it is important to study social and economic networks – particularly information networks, and market networks – in order to understand growth in organic production. It summarises past research on human networks in organics, in New Zealand and beyond.

2.2 Why study networks to understand growth in organics?

The organic industry grows, of course, one farm or orchard at a time, when an individual producer decides to convert. For this reason, to understand growth in organics, the natural starting place is the individual farmer or grower and his or her decision-making process. Using that approach, Fairweather (1999) identified a range of factors which influence New Zealand farmers' choices between organic and conventional methods. He found that farmers use many criteria to make that choice: philosophical beliefs, health concerns (such as ill health effects from agrichemical use), technical farm practices, and financial considerations. A study of Austrian farmers found a similarly complex list of factors that affect farmers' decisions to go organic, and concluded that farmers' deep ideological beliefs have a big influence on their decisions (Darnhofer et al. 2005).

However, farmers' decisions cannot be explained solely on the basis of individual beliefs. Instead, a "complex interplay of external and internal factors" influences each farmer's choices, as Darnhofer et al. argue. Likewise, a study of Dutch farmers identified the importance of the institutional environment around farmers; institutional support, or the lack thereof, has a major impact on farmers' decisions between organic and conventional (De Lauwere et al. (2004). Saunders et al. (1997) expressed a similar viewpoint in their assessment of the prospects of organic farming in New Zealand.

Thus, while a study of farmers' decisions may begin at the farm level, it cannot end there, if we are to understand why organics is growing or not. For this reason, this study looks at the wider social and economic context – in particular, at the human networks and relationships that influence producers' decisions.

There is no single theoretical model that fully explains organic networks and relationships. Organic agriculture does not neatly fit into some distinct category of activities; it is simultaneously an economic industry and a social movement. Therefore it must be studied as both. Hassanein and Kloppenburg (1995) argue that social movement theory can help explain the spread of sustainable agricultural practices. They emphasise the importance of studying formal and informal networks and organisations among farmers. At the same time, however, social movement theory does not offer a complete explanation, because a decision to farm organically is often a financial choice. In New Zealand, organic agriculture began as a philosophically-driven social movement, but it has more recently become an export-oriented, corporate industry as well (Campbell and Liepins 2001). For that reason, this report analyses both social and market networks in New Zealand organics.

The complex socioeconomic landscape of agriculture is today dominated by corporations, but pioneering farmers, and groups of farmers, have still played an important role in growing organics. Taking an approach in line with the “beyond Farmer First” school of research, this study looks at diversity and power within farm communities (Scoones and Thompson 1994). Such an approach asks, for example, not just “What networks spread information to farmers?” but also explores how those networks function: Where does power reside? What is producers’ position in a network of extension agencies, markets, certifying bodies and other organic organizations?

This study focuses on two aspects of organic networks: flows of information, and market relationships, especially related to corporate involvement in organics. The choice for this dual focus is explained below.

2.3 Information flows: a key network in organic production

Why study information transfer as a key indicator of organic social networks? There are multiple reasons. The best organic farms, it is often said, are *information*-intensive rather than physical-input-intensive. Proactive farm management has to take the place of quick chemical fixes, which are limited for organic farmers; and knowledge and understanding are keys to developing such a management style. Padel (2001) emphasises the particular importance of information transfer in the spread of organic agriculture. She argues that in contrast to the dissemination of conventional, technology-based agricultural innovations, in organics the spread of information is paramount, because organic production requires a whole “system change” in a farmer’s way of thinking. Information flows is vital to organic producers because so many of them must learn a new farming system when they convert. This is particularly true in the sectors in which organic production is most technically challenging.

But what *kind* of information flow is important in organics? Just circulating specific bits of information is not enough to support robust organic farms. The best agro-ecological approaches to farming are dynamic and adaptive. As Pretty (1998) writes, “*Sustainability does not equal fossilisation or continuation of a thing or practice forever*: rather it implies an enhanced capacity to adapt in the face of unexpected changes and emerging uncertainties.” To promote that kind of resilience in organic farming, a specific quality of information flow is called for – not just passing on fixed facts or technologies, but rather a dynamic flow of ever-changing information, ideas, and experimentation – in short, not mere *transfer* of information, but rather an information *network* that promotes ongoing farmer learning. As Warner (2007) writes: “Agroecology can be effectively put into action only when networks of farmers and scientists learn together about the local ecological conditions. Agroecology cannot be ‘transferred’ in the way that a chemical or mechanical technology can; it must be facilitated by social learning.” Warner describes a number of partnerships between growers and scientists in the U.S., in which well-linked, local networks, with strong participation and knowledge exchange among growers, have been key to developing and disseminating agroecological strategies.

Similarly, in the case of the reemergence of grass-fed dairying in the U.S., Hassanein and Kloppenburg (1995) describe the importance of dynamic farmer-to-farmer knowledge exchange networks, such as farmer discussion groups and organised farm visits. They point out that ecologically conscious agricultural practices must be grounded in local contexts and therefore require such “horizontal” farmer-to-farmer networks, instead of top-down dissemination of the same knowledge in all places. In Germany, “eco-farming” has similarly spread through informal, non-hierarchical networks, in which experienced farmers act as

extensionists, and personal contact and discussion groups among farmers have had central importance (Gerber and Hoffman 1998).

Having a *diversity* of information sources within such networks is also important. Different organic producers have different information needs. Padel (1994) points out that all levels of organic farmers need access to information, but that different kinds of information, from different sources, are important to organic farmers at different stages in their careers. For example, early in the conversion process, farmers may need advice from trusted individuals on the decision to convert. Later on, as farmers experiment more in their practices, they may need other information sources, including other organic farmers, friends and neighbours, and books and magazines. Elsewhere, Padel (2001) points out that there are different types of organic farmers. “Early adopters” of organics – the original organic pioneers – tend to fit the general profile of “early adopters” of all agricultural technologies, in the language of the diffusion-of-innovation model of agricultural extension. These “early adopters,” organic or otherwise, tend to be risk-takers, well-educated, and well-connected to social networks. In contrast, Padel argues, farmers currently converting to organics are “late adopters,” and therefore require different support networks. They may require more advice about organic principles, and about the financial implications of conversion.

Darnhofer et al. (2005) offer a different, but complementary, way of categorizing farmers according to the underlying motivations for their choices: “committed conventional,” “pragmatic conventional,” “environment-conscious but not organic,” “pragmatic organic,” and “committed organic.” A “committed organic” farmer goes organic for mainly philosophical reasons, while a “pragmatic organic” one does it primarily for financial or production reasons (though in practice the categories can become somewhat blurred). “Pragmatic” and “committed” organic farmers need different information during conversion, because their concerns are different. Pragmatically-motivated farmers may desire more information on the economics of conversion, and also may need more instruction in order to understand the underlying principles of organics.

This study uses the above criteria to evaluate information flows in New Zealand organics: Do organic producers’ opinions and experiences in New Zealand confirm the above theories about optimal organic information flows? To what degree have information networks facilitated dynamic learning? Do current information networks account for the diverse needs of different organic farmers?

2.4 Market networks: the promise, and perils, of corporate organic

Organics is an industry, and corporations have become a critical player in it. Indeed, one cannot address growth in large-scale organic production in New Zealand without exploring the central role that large corporate entities have played. In the 1990s, a strong upsurge in organic production in New Zealand was dominated by growth in a few organic export crops, driven by the power of large corporations. The two earliest pushes came from Heinz Wattie’s export of organic frozen vegetable mixes (Campbell 1996b), and the New Zealand Kiwifruit Marketing Board’s (NZKMB) export of organic kiwifruit (Campbell et al. 1997). Other industries have since followed suit; Fonterra is the latest corporation to encourage farmers to go organic. In these organic industries, organics is following a pattern taking shape in agriculture throughout Australia and New Zealand (and arguably, throughout the world): a rise in the power of transnational corporations, accompanied by “a new form of economic dependence—export concentration in a few key organisations” (Lawrence 1996).

Though corporations have advanced organic growth in many places, corporate-driven organic agriculture has also had drawbacks, both social and ecological. A number of critics have made this argument based on the case of corporate organics in California. Buck et al. (1997) bemoan what they term the recent “conventionalisation” of organic agriculture in the state. California was an epicenter of the grassroots organic movement in the 1970s and 1980s, but more recently, agribusiness firms have come to dominate all levels of the organic production and distribution chain. Anti-egalitarian social effects of this process include poor treatment of the labor force, concentration of capital in fewer hands, and a move away from local distribution and marketing networks. Furthermore, Guthman (2004) has argued that agribusiness’ dominance of California agriculture has created a profit-driven land economy which threatens the principles of organic farming. For example, the production-driven mentality of big business has pushed land values so high that few farmers can afford to have any land out of economic production, meaning they cannot grow non-cash crops with vital agro-ecological functions such as green manure and pest control. Industrial agribusiness, Guthman argues, “alters the conditions under which all organic growers participate in the sector by unleashing the logic of intensification.”

Corporate organic agriculture can also have negative ecological consequences. Pollan (2006) memorably described the worrisome precariousness of industrial-style organic monoculture farms, which mimic conventional-style farms without the conventional chemical tools: “Sometimes the large-scale organic farmer looks like someone trying to practice industrial agriculture with one hand tied behind his back.” Rosset and Altieri (1997) criticize corporate-led “sustainable agriculture” for its emphasis on intensive monocultures, which are inherently unstable, leaving both farmers and their farms vulnerable to ecological and economic disturbance. Agriculture faces twin social and ecological crises, which must be solved together, they argue; and, they argue, by keeping farms and farmers dependent on the corporate input and distribution chains, corporate organic solves neither.

But does this critique apply to organic agriculture in New Zealand? Not universally. For one, because the country’s agriculture is export-oriented – and because the markets for organic produce are far greater overseas than they are in New Zealand – export is an important component of organic production here. Corporations can facilitate international trade. In 1990, New Zealand organic production was around just \$1 million a year, almost all of it sold domestically. A tiny domestic market meant a tiny level of organic production. By 1997, the country’s organic agriculture had grown to \$34 million in sales, 2/3 of it destined for export (Campbell and Fairweather 1998). In the 1990s, corporate entities, chiefly Wattie’s and the New Zealand Kiwifruit Marketing Board (NZKMB, now ZESPRI), brought new resources to organics which overcame many past barriers to organic conversion, as Campbell (1996a) argues. In the absence of state support for organic agriculture, these corporate entities took on multiple roles. They acted as extension agencies providing information and advice to growers, provided a sure market for the growers’ organic products, and helped self-enforce the organic standards, because of their concern with maintaining access to foreign markets (Saunders et al. 1997). In the case of kiwifruit, Campbell et al. (1997) point out that organic development would have been impossible without the resources of the NZKMB, which was able to organize the infrastructure and critical mass of growers to make organic kiwifruit exporting economically viable.

Nonetheless, as Campbell (1996a) concedes, key questions remain unanswered about the role of corporations in creating an organic New Zealand: “What will be the potential collaboration between sustainability initiatives and TNCs [transnational corporations]? At what point will the benefits of such collaboration be outweighed by the costs?”

This study is an attempt to address such questions, ten years farther down the track. In all three of the sectors examined in this study, corporations have played an important role in the growth of organics, with a mix of effects.

Chapter 3

Results: Cropping in Canterbury

3.1 Introduction

This chapter focuses on cropping in Canterbury. It starts with a history of organic production in Canterbury, then considers the decision to convert to organic farming. It describes the process of conversion and gives an account of the information networks at work during and after conversion. It then examines market networks and the issue of growth before concluding with a summary of key points.

3.2 History of organics in Canterbury

Organic crops in Canterbury go to a range of different domestic and export markets. Over the years, many food processing companies have come and gone from the organic scene in Canterbury. Today a handful of companies deal in organic crops there, with a focus on peas, wheat, and linseed, which is processed into linseed oil. Some farmers grow other crops for niche markets, including fresh carrots, and vegetable seeds. Local meat companies also now export organic lamb. Most large-scale organic farmers in Canterbury rotate their paddocks between crops and pasture for sheep. Other organic operations in the area range from small-scale market gardens, to large livestock farms.

The first wave of Canterbury arable farmers went organic in the mid-1980s. Some were actively seeking a more natural farming system; others simply stopped using chemical inputs because they could no longer afford the cost of fertiliser after government subsidies ended in 1984. In 1987, a group of farmers formed the first organic company in the area, New Zealand BioGrains, producing grain and flour in Ashburton. The producers had to build their own markets by traveling the country to sell their product; in the words of one co-founder, “We were probably ten years before our time... when we started there was no organic market.”

The biggest wave of large-scale farmer conversions happened in the early 1990s, when food processing company Wattie’s decided to begin selling organic frozen peas to Japan, in response to demand from the company’s Japanese customers. In the words of one company representative, “We realised we had to convert some farmers to organics because there weren’t enough around.” By 1992, 18 growers were participating in the Wattie’s organic program (Campbell 1996b). To convert more farmers, the company created the Grow Organic With Wattie’s program, which included newsletters, field days, and personal visits from agronomists for prospective organic farmers. The company also co-funded an organic discussion group with support from the Sustainable Farming Fund, and supported research on organic systems in the area, in cooperation with researchers and students from Lincoln University.

In the late 1980s and early 1990s, “it was a very buoyantly exciting time” for organics in Canterbury, in the words of one local organic researcher. Lincoln University had an active organic research farm, the Biological Husbandry Unit, and hosted national and international organic conferences. The Ministry of Agriculture and Forestry (MAF) ran two organic experimental properties in Canterbury. However, when MAF and DSIR (Department of Scientific and Industrial Research) were restructured in 1992 to form the Crown Research

Institutes, the organic research program disbanded. The organic researchers had to abandon their whole-systems team approach to research, and split up to find their own specialised research topics in order to find jobs in the new system.

Meanwhile, Wattie's staff sought to increase their organic supply by converting big conventional farmers to organics, rather than doing business with existing small organic growers, who farmed organically for philosophical reasons but were often unprepared for big commodity production. In 1999, the company leased a 57-hectare block of land from Lincoln University to create Kowhai Farm – a demonstration farm which would aim to showcase large-scale organic farming and thereby attract more farmers to convert.

However, since the beginning of Kowhai Farm, Wattie's has not recruited even one new organic grower. The handful of other organic companies in the area also all report that they have trouble finding enough organic growers. The number of organic crop/stock farmers in the area has largely remained constant for the last several years. (Reasons for this will be explored below.)

3.3 Choosing organic: reasons for conversion

There is no single typical organic farmer in Canterbury as seen in the quotes below. Over the years, farmers there have gone organic for a range of reasons: ecological concerns, personal health concerns, financial incentives, “common sense” about how to farm.

Organic farming couple: *“We decided we probably needed to get more money off the farm, and organics was probably the way to go.”*

“It was a means of putting added value onto the produce sort of quite easily, and getting better price returns... We were dryland farming at that time without irrigation, wheat and barley, and growing cereal crops and clover, sheep, and at the time the returns were not good at all, so we had to look elsewhere.”

Organic farmer: *“We tended to farm this way anyway, chemical-free, and it fitted nicely with the style of farming.”*

Organic farmer: *“A bad period in New Zealand culture history called Rogernomics... Overnight all subsidies were stopped. So immediately we had to look at cutting costs. So we eliminated fertiliser and sprays for a year or so, so that was basically it for a starter. There was a market for organic produce but a very small one.”*

Organic farmer: *“There are different types of people, and some are not the type you'd expect to be in organics. They probably all have different reasons for being there. Mine was I'd just thought it was straight common sense, it seemed so logical, I just assumed that in a few years everyone would be doing it... Let nature work.”*

3.4 Going organic: processes and practices

Conversion has been the hardest time for many Canterbury organic farmers. This can be true for multiple reasons. First, if production problems occur, they often happen in the first years, when the soil biology and livestock are not yet adapted to an organic system. Second, the farmer may feel financial pressure, as yields may drop in those first years, but the farmer

receives no price premium until full organic certification is awarded after the third year of conversion. Third, the farmer has to learn a new production system while dealing with these practical and financial challenges.

For all of those reasons, many organic farmers recommend gradual conversion to organics. Farmers who converted gradually to organic management – e.g. converting a few paddocks at a time, over the course of a few years – report that this eased their transition to organics.

Organic farmer: *On converting one piece of the farm at a time: “Single best decision ever made on our farm. I would have put the whole lot into organics and gone bust, I reckon, in about four years, it would have taken me to get cleaned out.”*

Many organic producers point out that a real, deep change of mindset is necessary for conventional farmers to become successful organic farmers. Farmers must switch away from the mentality of reacting to problems with quick chemical fixes, and learn to understand and manage their system proactively, to prevent problems, from the soil up.

Organic farmer: *“For a farmer to get into organics, you’re basically stripping him bare, and starting again. That’s actually quite hard. If you spend a lot of time learning, your security in life is what you know.”*

Organic farmer: *“Changing from conventional to organic farming is like changing a job... You’re changing your life, completely different. You’ve got to be a better farmer, farming organically. You’ve got to be better because if you’ve got a problem, you can’t just pick up a can and squirt it on the paddock. It’s more planning, it’s more thinking.”*

Soil practices

Most Canterbury organic farmers use flexible crop rotations, adjusting the rotation according to the condition of their soil and shifting market demands. Organic farmers say they have little trouble maintaining soil fertility by rotating their land between cropping and pasture to restore soil health. Raising animals allows the farmers to keep their land productive while it is in pasture. In addition, most organic farmers apply RPR (reactive phosphate rock) as their main added source of fertility.

Weed management

Weeds present one of the trickiest issues for organic arable crop management. To control weeds without herbicides, organic farmers repeatedly till the soil; but this can have detrimental effects on soil structure. (In contrast, many conventional farmers in the area have switched to minimum-till systems which use large quantities of herbicide but protect the soil structure.) California thistles can be a serious problem, because they are difficult to control, and produce seeds the same size as peas, so that peas cannot be harvested from fields infested with California thistles; for that reason, a few organic farmers have stopped growing peas. Organic farmers emphasise that proactive management is key to preventing weed problems. When weeds threaten vegetable crops, last-minute hand-weeding can be expensive, and it can be difficult to find laborers to do it.

Ex-organic farmer: *“Weeds were probably one of the biggest ones. Like, you can’t go and fix anything; if you’ve got a weed problem, you’ve got a weed problem. And normally by the time*

you realise you've got a weed problem, it's normally too late. Whereas, conventionally, there's normally ways of fixing it."

Organic farmer: *"Oh, we have problems, we do, but I mean, what is a problem? It's like saying what is a weed? It might be undesirable, but we've got to work with nature. That's the thing as an organic farmer. You can't fight it... It does affect your yields but you've got to live with it."*

Organic farmer: *"We had to bring the children in, hand-weeding was massive... While you've got poor student kids it's O.K., because they'll come out and do a day's work, but we're going to run out of them."*

Animal health

Animal health, particularly in sheep, presents another big challenge for many farmers switching to organics. Some organic farmers have had animal health problems, mostly around the conversion time. However, most experienced organic farmers are able to maintain healthy animals. Again, farmers agree that the key is, rather than waiting for problems, to support good health in the first place – by growing diverse, nutritionally balanced pastures; lowering stocking rates; and putting less stress on animals.

Organic farmer: *"The hardest thing to do organically is sheep and lambs. Because once you get lambs with worms, they just do not do, and you're forever fighting... I think if you've got the right stuff in your pastures, you shouldn't have to drench at all. And if you rotate your pastures round and graze them well, then your stock are fine."*

Organic farmer: *"Sheep were the hardest to get through. And it was really a matter of getting the pastures better and culling and keeping the stress level down."*

Organic farmer: *"We came a bit of a thud really when we introduced the sheep to no inputs, no drenches... I guess the lamb thing sorting itself out had to happen by way of reducing animal numbers. It was just no fun, and it was a very poor advertisement for organic farming, to be having a lot of undernourished and unthrifty animals, and really that happened in probably the first year that we got underway. But when I look back we really resolved those issues I think, by putting less pressure on the sheep, doing different rotations, including other things into the system. We do know, because we've done these fecal egg counts and things, that stock are surviving out there and doing alright, even though they do have a certain background of parasites."*

Organic farmer: *"It was easy to go all-organic, bring my sheep into an organic system... The fittest survive, it's as simple as that. We don't have great animal health problems or whatever."*

3.5 Information networks

In the early days of organic farming in Canterbury, little information on organics was available. Pioneering organic farmers learned by experimentation and by hunting down whatever information they could find.

Organic farmer: *"There was nothing. Talk about pioneering spirit... It was at that stage, people were doing half-acre blocks behind their houses, and you didn't see the word organic*

beside any produce at the Christchurch market or anywhere. And we probably, looking back, terribly naïvely agreed to go into the organic industry knowing there was no agronomist support, no nothing... Of course all the firms we dealt with were learning organics too."

Organic farmer: *"We had virtually nobody to go to. There was no advice anywhere about what you should be doing, what you shouldn't be doing, so it was very much trial and error."*

Organic farmer: *"It was quite hard to get information in New Zealand, and that's one of the things that really shocked me, is that here we are, a nation that made our living out of agriculture, and we basically had no research on soil biology or anything like that."*

Organic farmers today have access to a greater range of information sources; they receive support from organic processing companies which buy their products. Still, general farming information sources (such as the farming press and the Foundation for Arable Research) mostly focus on conventional farming.

Farmer information-seeking strategies

Canterbury organic farmers fall into a range of different categories with respect to their information-gathering preferences:

- **Information-hungry / extensive networkers** (as described similarly by Kilpatrick and Johns 2003) will chase information from a variety of sources, including other people; they attend field days and seminars, and make connections with other growers and information providers for advice.

Organic farmer: *"It just depends on what I want to know, and what questions I have, who I'll go to. I'm the sort of person, I'll just ring up anyone... even if they live in Cape Rianga or Bluff, if they're organic and they're growing something I'm growing that I'm not sure about, I'll just ring them up."*

Organic farmer: *"We spent every bit of our spare time chasing up organics really... Just stunning the influence people can have, they challenge you, they invite you, they question you, some people have just been extraordinarily generous with what they've given or done, or time... We've always had a policy of going to as many things as we can go to. And sometimes we're rolling up at some inconvenient, uncomfortable time, thinking what are we doing this for, why are we here? And some pearl will drop out of it."*

- **Moderate networkers** may use a variety of sources on an occasional basis, including farming events, other farmers, some trialing on their own, written sources, and agribusiness company agents.

Organic farmer: *"I had been involved with Heinz Wattie's, and there was an advisor I used... He was very much into the basics, you farm the basics, and you farm basically basic, you nearly always get through."*

Organic farmer: *"I read lots. I love reading. And mainly through what comes in the mail – I adapt what information you get, what I can pull out of the information getting sent to me. So our Rural Press is probably the best one for that... The only problem is you can get swamped with information you don't need. It's always nice to know what other people are doing, but you've got to draw the limit. How much time can you spend studying, and how much information do you need?"*

- **Self-sufficient trialers** prefer to work out a farming system on their own, based on trial and error.

Organic farmer: *“I just read a bit, got the standard and read that... Just really did it myself really. There’s not a lot of sort of advisory outfits about, are there? But yeah, it’s my farm and I make decisions, I’m not really someone who sort of uses advice too much... You don’t learn anything by not having a go, do you? You’ve got to try and learn by your mistakes... There’s various discussion groups around the district, but I’ve never sort of been into those sort of things. That’s just me, I’m a private sort of person, I do my own thing.”*

Organic farmer: *“You can get advice, but if you don’t understand how to use that advice correctly, then someone coming and telling you to put in this type of pasture is a waste of time anyhow. So it’s good to get the advice, but you’ve got to have the right sort of mindset to manage that advice, and manage **your** system correctly. Because every farming system’s different too – the land, the rainfall, all these things vary right throughout the country... Until you have to do it yourself – that’s what I say is the best thing to learn about organics, is to get in there and do it yourself, and make those mistakes, because that’s when you really do the learning.”*

Conventional farmers, based on the small sample size interviewed, appear to fit into similar categories; some network extensively, others keep to themselves. Conventional farming information is more easily accessible and permeates rural culture. This means that a smaller proportion of conventional farmers tend toward the extreme categories of information-hungry and self-sufficient, as farming information is all around them. Some conventional growers report using information from FAR (Foundation for Arable Research), whereas no organic growers report using FAR.

Conventional farmer: *“Growing of the vegetable seeds, the companies with agents come round and offer advice. If they can’t do it, you can always search the Internet, or you can just scratch your head. But FAR, Foundation for Arable Research, have got a lot of stuff out of them for all the specialist crops plus conventional crops; you just pick it up, pick it up from talking to other people, and talking to researchers, and so forth.”*

Conventional farmer: *“I read a lot of these farming magazines... I do like to read about other farms and what they are doing. Sometimes you do get ideas from what other people have tried on their place.”*

Conventional farmer: *“I don’t go to many field days. You do get those FAR trials, they do come in, information. If I want to know something, I’ll ring up someone who I think might know the answer, try and find out... You’ve got to find someone – say for example you want to grow a paddock of barley in this area, you’ve got to find someone who’s growing it and talk to them about it, before you actually go and do it yourself.”*

Farmer-to-farmer learning

Many organic farmers participated in a discussion group run through the Canterbury Commercial Organic Growers (CCOG) group. Over the course of two years, farmers visited a different group member’s property every one or two months for farm walks and discussions. The group received funding from the Sustainable Farming Fund to pay a professional facilitator, which contributed to its success, say farmers. CCOG also has held occasional seminars on topics such as animal health, grazing, weed management practices, and cover crops. Most farmers report that they enjoyed visiting others’ properties, and many say they

learned specific ideas which helped them on their own farms. However, some farmers point out that because every farm is its own unique system, the lessons from one farm are not always easily transferred to others.

Organic farmer: *“Having real farmers... actual farmers who are experiencing the same problems, who say, ‘Well I do it this way.’ You might only pick up one thing out of each individual field day, but it was one thing that counted, it was a major financial count that was a help... It may have just been one thing, or the timing by a week, or ‘Oh God no, you don’t do that to corn,’ that had thousands of dollars tacked on the end of it.”*

Organic farmer: *“We’ve had some good times there I think... It was quite good. But it’s surprising how what we do doesn’t necessarily relate exactly to what other people were doing, everyone’s sort of got different agendas you know... I would be proven wrong if I said that we hadn’t learned anything, I’m sure we possibly have, but it hasn’t been a hell of a lot... We’ve worked it out pretty much ourselves, I reckon.”*

Organic farmer: *“It’s very good to see what other people are doing, a good way to learn off each other.”*

Organic farmer: *“I do go to the field days, which has been good since [facilitator] Sue Cumberworth came in and started organizing these events, I’ve sort of been trying to make the most of that... That is probably the best you can do, is going to other people’s places. It’s good to get off your own place, but it’s the comradeship, it’s the whole thing too. That’s where you glean most information, in the organic world.”*

Some organic farmers also use paid farm advisors. However, most say that the value of a good consultant comes from that person’s contact with a large number of farmers in the area; that is, the best farm consultants are really conduits for farmer-to-farmer information.

Most organic farmers in the area prefer to learn from experienced farmers and from seeing organic farms in action, not from reading academic research. The only farmers who reported research as an important information source were those farmers who had been actively involved with research activities (such as allowing researchers to conduct trials on their own farms).

Organic farmer: *“To kind of just read something isn’t particularly meaningful; it’s seeing it... I don’t necessarily learn a lot from research trials... That result might just be for that paddock at that time, but that might not translate... Research wants to have a set recipe; often there isn’t a set recipe, for example weed control.”*

Organic farmer: *“Workshops are quite good, but I think it’s really good to go and actually see... It’s good to actually get the person who’s actually doing the growing to talk. It’s good to have an expert, or someone who’s been doing some research or whatever, but it’s also good to actually have a grower, because they come at it from a much more practical point of view, don’t they. And it’s much more convincing for people if they can see... You look for other growers presenting something; if they’re not there, you’re not nearly so keen to go.”*

Since 2002, the Organic Farm New Zealand (OFNZ) certification scheme has provided small growers not only with an inexpensive route to certification, but also with a way to share information and moral support. In the OFNZ system, designed for producers who sell to the domestic market, growers are grouped into small “pods” of three to five properties which visit each others’ properties for a yearly peer audit. Producers say they enjoy exchanging

information and moral support through the OFNZ network. However, the scheme does not have a large number of growers (currently only 12 to 15 in Canterbury; there are approximately 200 OFNZ producers in the whole of New Zealand). Therefore, growers with extremely different systems may be grouped together in pods, so they may not have much in common to share in terms of actual farm practice.

Organic grower: *“It is definitely a good support system to have. Imagine if we were still with BioGro here and there is no other organic farmer really around that we would have contact with. Even psychologically it is good to know that someone is just 50 Ks down the road that you know and they are doing the same as you are, because in the kind of environment we operate a lot of it is pretty much conventional.”*

Organic grower: *“Some of my best friends are in the pods... But there is not enough members, that is really an issue.”*

Farmers and growers who do not grow the same crops as others in the area, such as specialised horticultural growers, find themselves with the least support and peer advice.

Organic grower: *“The other main way that we’ve gained information is just talking to other growers. And that’s been really important probably. There hasn’t been anyone around doing orcharding, so that’s been a bit of a problem.”*

Factors restricting the flow of organic information in Canterbury

• The link between information and products

Information flows in parallel to commercial flows, that is, in the farming world – conventional or organic – most information comes from someone who is selling something. Some agribusiness input suppliers fund their own research. Soil test recommendations come from a fertiliser company representative. Information on how to grow a crop often comes from the company marketing it; some companies send agronomists to check on their farmers over the course of the growing season, because they want a good yield. However, farming practices which are not linked to a particular product are often not widely advertised.

Organic farmer: *On soil tests: “I don’t know about any of it. And the only information you get about it is if someone comes down and does a test on it. They’ll come back and say well, this is what the test result is. Now I don’t mean to sound cynical, but I didn’t invent the test method. They invented the test method to tell you it’s either too low or too high, and they’re trying to sell a particular product, so of course they’re going to say, ‘Well, it’s no good.’... To talk to people who are selling products and stuff like that, in some ways those are not the right people to talk to... You’ve got to sell whatever product you’re producing, so you put out whatever information is required to sell that product.”*

Organic farmer: *“The people that come and advise, they’re selling it, too. They say you should be putting more on, but you can only put on as much as you can afford, can’t you?”*

Organic farmer: *“My stock have got worms. You never get rid of worms. But if you’re a drench company, you’re going to try and invent a product to try and tell farmers that they will get rid of it or do something about it... I’m sure there are good organic farmers out there that could provide some good information to these places. But they’re not going to use that information because it does not promote the buying and selling of a drench.”*

• Farmer fear of competition

Organic information flows are also restricted by the fact that niche market producers sometimes prefer *not* to share information about their crops. Because some Canterbury organic farmers produce crops for small niche markets, they see other farmers as potential competitors.

Organic farmer: *"We try and grab certain growy things as our own... If it's a good opportunity, that opportunity can go to another piece of land. Someone can borrow that opportunity, take it or copy it. And so there's not that same upside to sharing information. Whereas the dairy farmers, they produce milk. The companies want more milk."*

Organic farmer: *"Most of them [organic farmers] are fairly closeted, they keep it fairly close to them. I'm probably more open than most, but there's probably some things like the _____ [crop] and _____ [crop] that I don't say too much about, because there's only _____ [farmer] and I doing it, so we want to keep it that way. We don't want a lot of people doing it, it's not that big of a market... But there are things that you can share, there's the common crops. Like the linseed for example, you've got three or four people wanting to market the product, so why not share the information about how to grow it?"*

• Lack of organic animal health information providers

Canterbury farmers reported a lack of organised information flows about organic animal health practices. Grain and seed companies have actively supported organic farmers with advice on their crops, but the meat companies do not put the same effort into promoting organics.

Organic farmer: *"They don't have a wee pamphlet or advice on how to grow organic lambs or anything like that."*

Organic farmer: *"With the animals I'd have to say there's a large area in the livestock farming that it's not very easy to access information about. I think that's one thing that a lot of people struggle with really. Because we know we're not supposed to use this, that and the next thing, but there's not a lot of information on what actually works, the other products that are available. And then if we do get to a stage where we need to use a drench or need to use something to control the lice – you know, if it gets past the stage where you can use your organic systems – it's very difficult to figure out what product to use of the myriad of conventional drenches, because you're not used to, you have no knowledge of them."*

Organic farmer: *On his vet: "I don't think he's got any more interest in organics than anyone else really. If you've got a health problem, he just recommends the chemical treatment which he knows, basically... There's not a lot of information there to be had, really."*

• The Foundation for Arable Research (FAR)

Organic farmers also are not able to rely on information from FAR (Foundation for Arable Research) in the way that conventional farmers do. All farmers, including organic farmers, pay a levy to FAR based on their grain and seed crop sales, and FAR funds research and provides printed information and advice to all farmers. However, since a tiny proportion of levies come from organic farmers, FAR only dedicates a small proportion of its services to organics. Much of FAR's information is not relevant to organic farms; as FAR staff themselves admit, it is "hard to take bits from conventional practice because it's a whole

system.” For example, FAR’s Integrated Pest Management recommendations are meaningless without the use of specific chemicals; even FAR’s recommended sowing dates for various crops assume that farmers are using herbicides to control early weeds. FAR staff are also not particularly personally inclined toward organics.

Organic farmer: *“The FAR thing’s fine, but those guys aren’t that interested in organics. Because what pays their bills, and keeps science alive, is chemical companies, alright. They’re the ones sponsoring the projects. So that’s paying their wages... grain and seed companies, plant breeders, whatever. They’re the ones paying for the research nowadays.”*

Organic farmer: *“I’ve only ever seen one organic farmer at a FAR field day, because they think it’s all about chemicals so they don’t go.”*

FAR representative: *“Organics is not going to feed the world... Conventional production is growing but we’re not keeping up with population.”*

3.6 Market networks

A handful of companies do most of the business in organic arable crops in Canterbury:

- Heinz Wattie’s processes organic peas and small amounts of other organic vegetables for export.
- Functional Whole Foods processes linseed oil for the domestic market.
- Oil Seed Extractions Ltd., a division of Midlands Seeds, also produces linseed oil.
- New Zealand BioGrains processes flour and grains for the domestic market.

Supply and demand issues appear to be one of the biggest limitations on organic growth in Canterbury. The root problem appears to be a coordination issue. Marketers complain that there are not enough organic farmers, and that it is hard for them to get enough supply. Some farmers, in contrast, complain about a narrow selection of market options, particularly the smallness of the domestic market.

Marketers’ views of markets

From marketers’ perspective, the limiting factor is supply, not demand. All the marketers interviewed for this study report that they cannot get enough organic product from farmers, and feel that they could fill a much greater demand if they had a larger base of organic farmers. For example, New Zealand BioGrains has had to import wheat from Australia just to supply the domestic organic flour market; during Australia’s recent drought, this has meant a shortage of organic flour in New Zealand. Organic processing companies are even growing some organic crop themselves to supplement the supply from farmers.

Organic processor: *“Markets aren’t really a problem... The competition for farmers is pretty intense. Nobody’s got enough growers.”*

Organic processor: *His customers want more organic product but “Personally I can’t see how that is going to happen.” On losing organic growers: “We don’t want to lose them, because we can’t replace them that easily.”*

Organic processor: *“Continuity of supply has been an issue... Shortage of growers pushes up prices which makes it hard to push up volumes of product.”*

Farmers' views of markets

However, many farmers express frustration with current markets. From their side, the problem appears to be a lack of demand, as there are still only a handful of organic crop options. For example, one high-profile organic farmer recently switched back to conventional because he had trouble finding enough markets for his produce. Several farmers believe that a lack of market options is the main problem hindering growth in organics in Canterbury (see “Growing organics” section below). Wattie’s only takes one crop from most organic farmers – peas. But peas can only be grown once every four or five years in a particular field, to avoid disease build-up in the soil; that means that farmers have to sort out marketing for the rest of a crop rotation on their own, which can be difficult. (Wattie’s has experienced similar difficulties in Gisborne, where it converted organic farmers to grow just one crop, sweet corn, but did not help farmers with the rest of their rotation.)

Ex-organic farmer: *“We had a problem with the potatoes. We didn’t have a market for them, and we couldn’t find an organic market, so we ended up selling them on the conventional market, which sort of made us rethink things a bit really... It’s very, very hard to shift large quantities of grain, and our operation is probably more suited to grain growing than vegetable growing or anything like that. We had a few goes at the vegetable market but there’s just not enough volumes to make it worthwhile. By the time we sort of packaged little bits and pieces, well it was just a pointless exercise, really. So other than that, the Wattie’s side was profitable, but that’s only a small area... The biggest problem is just the volumes really.”*

Organic farmer: *“Often the markets are still sort of semi-struggling, they’re just kicking off, and whether they will go any more it’s hard to tell. I’ve been heavily dependent on selling to New Zealand BioGrains; they’re quite good but it’s a slow, it can be frustrating, supply. And often payment can be an issue with organic farming too. That can be an issue with conventional farming too... The problem is you’re only dealing with a few people.”*

Organic processor: *“There’s more markets for conventional crops than there are for organic... Organic pea growers can actually do really, really well on organic peas, but they need all the other crops in the rotation.”*

Hawke’s Bay organic farmer: *“Kowhai [Wattie’s demonstration farm] I think’s a good idea in the way that it’s shown a commercial venture to producers wishing to convert, but in reality it probably hasn’t helped any growers convert... perhaps that’s because the market hasn’t grown... and some guys have got out of it [organics], more than have got into it. And definitely in Gisborne, more have got out of it. Guys are growing sweet corn year after year and then getting into trouble, with not having a good rotation, so then they say, ‘Well bugger this, this doesn’t work, we’re out of here.’ So I think any time a processor is going to offer to take organic crops, they need to either work with growers that have got a systems approach to it, or they offer the system to the growers, and say ‘Here’s a five-year cropping program, you can grow for us.’ They’re not looking at a systems approach, Wattie’s; it’s a shame.”*

Organic farmers complain about the small size of the domestic market for organic produce; many big farmers prefer not to grow crops for domestic sale, as it is too easy to grow too much and accidentally flood the market. To avoid that happening, three large organic farmers (two in Canterbury, one in Hawke’s Bay) currently coordinate their supply of fresh carrots, in order to maintain a steady national supply without flooding the market.

Organic farmer: *"It doesn't take very much to saturate the market in New Zealand... if we're not careful it could just dilute itself."*

Organic farmer: *"The market in New Zealand for organic produce is not huge. And most of the growers have got their own little niche market. Other than that, you're relying solely on export."*

Finding markets

Farmers report a range of experiences with finding markets. The most well-known and centrally located farms seem to have no trouble finding crops to grow – marketers approach them directly. However, farmers on the periphery have a harder time finding markets.

Organic farmer: *"Most of the marketing, we just, I suppose, banging on doors and sort of trying to guess what people wanted, really. Once people are aware that you're organic, then we'd get approached occasionally by various agents wanting to grow various things. I've had orders and so on."*

Organic farmer: *"Eventually they find you... people come to you. Eventually people come to you. You do have to hunt for them occasionally, but there's always somebody out there wanting to export product."*

Organic farmer: *"It doesn't always come to you. I still think there's only a few people interested to buy organic crops."*

Organic farmer: *"I sometimes think it would be good if someone would come and say 'We want this, that, something else, can you grow it, what can you do, what can you grow?' If we could get something tied up with the consumers, it would be a help... Nobody has come to us, we have to push our own wheelbarrow."*

Marketing is particularly tricky for producers who do not produce the usual commodities and must find their own markets.

Organic farmer: *"When you first start doing it, like the meat chickens and eggs, the biggest thing was finding the market. And once you find the market, finding a consistent market. And that's been the hardest thing, I think. If you've got conditions right and stocking numbers right, growing good quality produce, whether it's grains or cereals or livestock... growing the produce now is not difficult. But growing the produce and finding the markets and supplying the markets, that was when I first started, the biggest problem I had, especially for meat chickens."*

3.7 Growing organics (or not)

Most Canterbury organic farmers do not enthusiastically want their organic sector to grow. Some express indifference or ambivalence; others say they actually do *not* want more farmers to convert, because they want to protect their own price premiums.

Organic farmer: *"I think we're in a reasonably good position in that the number of organic farmers, particularly large organic farmers, is not increasing, particularly here in Canterbury."*

Organic farmer: *“Probably it suits us to have less growers so they want our product, really. If there are too many around, big firms will say, or the companies will say, there’s an increase of growers of 20 per cent, we’ll drop our intake from you. And all of a sudden you’ll find our income will drop because there’s too many growers around... If there’s more growers around the price will drop.”*

Organic farmer: *“I’ll give anybody encouragement to convert to organics, because it all helps out our purchasing power or our selling power, that’s the big thing. But, in saying that, there is a but – there’s only so many people that can go organic for us to maintain our premiums. And we need those premiums to be organic because of our increased expenses, e.g. weed control, diesel, those sort of things, right, or labor. Those are the main things. There are pluses and minuses on both sides.”*

Organic farmer: *“Doesn’t worry me one way or the other. We’re in the fortunate position that our farm’s the highest around, so we don’t get any runoff water or anything like that from neighboring properties. So, live once, you do what you like, you do what you want to do.”*

Organic farmer: *Organics is “only another farming system, and its time comes and goes... I don’t see that my successes revolves around other people taking on organics.”*

Everyone in the Canterbury organic sector agrees on one thing: organics in Canterbury is not growing. There is not one single reason, but possible explanations offered by interviewees include:

- Conventional farmers are conservative and feel no need to change, especially when conventional market returns are good.
- Increasing land values are driving farmers to maximize their incomes; many Canterbury cropping farms are being converted to large-scale dairy farms, which are much more profitable than cropping farms.
- Market organisation difficulties (see above).
- There are still not enough prominent, successful organic farms to serve as models.

Even one organic company representative points out that the most profit-oriented farmers would be unwise to get into organic cropping right now, when dairy is by far the most profitable use of farmland in most of Canterbury. The majority of farms that are sold are converted to conventional dairying. When organic land is sold, it is not necessarily kept organic; and organic producers who do want to expand have trouble finding certified organic land to buy or lease.

Organic farmer: *“I certainly don’t feel like it’s a very enthusiastic point at the moment for organics in Canterbury... it’s fallen back a bit in the last two to three years, probably, as I see it. It’s probably a dreadful thing to say, but we need a food scare or something.”*

Possible reasons for lack of growth in Canterbury organics

• General farmer conservatism

Organic farmer: *“I think that we’re not going to be able to increase the organic production locally in this generation of ownership. It’s beyond their capacity to think outside the square. And they’ve still got another ten years of farming.”*

Organic farmer: *“The farmers around here that are doing it now are probably older farmers. And their sons are following in their footsteps. They are predominantly, they’re either dairy*

or sheep and beef in this local sort of area, and the sheep and beef returns that they've been getting over the past year has been excellent. So why change? ... There is no reason to change if you're getting good financial returns."

Organic processor: *"We're certainly not seeing any new conversion of large-scale farmers, in this area, of arable farms... Conventional farmers, a lot of them are quite satisfied with what they're doing and satisfied with their financial returns, believe what they're doing is better than organics... Organic farming's pretty prescriptive – there's a lot of dos and don'ts... They don't want to be too restricted by a whole set of rules."*

Conventional farmers express a range of perceptions that keep them from considering organic; these include concerns about markets for organic produce, and concerns about organic farming practices, particularly how to deal with animal parasites and weeds.

Conventional farmer: *"I suppose the other thing we don't know about organics is the yields. Some people say the yields go down. And I guess the difficulty of harvesting. If you get a wet season and you've got some clover or wheat the same height as the barley, it can be a bit tricky... I suppose it's the unknown – you know, if you do this, what's going to happen?"*

Conventional farmer: *"No... why would I want to cut in half my options for management? ... I don't understand why we can't use fertiliser, the fertilisers we use. The logic behind water solubility doesn't wash with me... A religion is the best way, I suppose, to describe it. They're entitled to their opinion, but I can't see it being a broadacre, everyone grow organics. You ought to go talk to my 81 year-old father about it. Because he can remember when they didn't have chemicals, and they had paddocks full of Calis [California thistles], and the production they were getting."*

Conventional farmer: *"You think, oh, if I got into that situation, I wouldn't be able to drench them..."*

Conventional farmer: *"I guess you always think, ah, the three year thing, you think, by the time I get there, you know, what's going to be happening by then? ... A lot of people say too, that you get a premium for your products and that, but say 15 or 20 years down the track... What happens then, there'll be more of you around, will you still get a premium for that product, because it'll become more run-of-the-mill?"*

• Rising land values / dairy conversions

Organic farmer: *"It's always going to be a battle to keep horticulture in Canterbury, it's going to be an increasing battle, and the land's getting more expensive now."*

• Markets

Organic farmer: *"The marketing is probably as big an issue as you could confront."*

Organic farmer: *"If we could have the markets that were sound and there was a premium on them, I think that would help."*

Organic farmer: *Lack of markets "actually limits your growth... there needs to be a market that could sustain it for starters."*

Organic farmer: *"It's a markets problem... Why would anybody convert if they didn't know they had a market?"*

• **Need for more successful organic farms as models:**

Organic farmer: *"Until we get an organic farm that's actually producing and run right; one, having good livestock and healthy pastures and crops; two, making some healthy returns; and three, conventional farming returns fall significantly... there's no way you're going to get anyone considering going organic."*

Organic farmer: *"I think a lot of farmers are interested. A lot of them would like to have a go, but a lot of them are just too frightened to pull the plug on the chemicals. Because we've gotten to rely on chemicals so much... If you've got one very successful organic farmer, and others think 'Oh, everything looks spot-on,' I think others would follow. I think that would be a big help, because as human beings we tend to follow each other a little bit, we look to see what the neighbor's doing."*

Conventional farmer: *"I've thought about it... I think once enough guys have jumped, then a few more will jump with them. It's just a matter of fear of change, I think."*

3.8 Summary of key points

Conversion

- There is no typical organic farmer in Canterbury; farmers have gone organic for a wide variety of reasons.
- Conversion is the hardest time for organic farmers.
- Many organic farmers recommend gradual conversion to organics, rather than switching "cold turkey" from high-input conventional to organic.
- Successful organic mixed crop/stock production requires a real, deep change of mindset, not just a new set of inputs.

Practices

- Organic farmers use flexible crop/pasture rotations, adjusting the rotation according to the condition of their soil and shifting market demands.
- Weeds present one of the trickiest issues for organic arable crop management.
- Animal health, particularly in sheep, is another big challenge for many farmers switching to organics. However, problems are avoidable through proactive management.

Information

- In the early days of organic farming in Canterbury, little information on organics was available.
- Organic farmers today express a wide variety of preferences in how they gather information. These range from information-hungry networkers, to those who prefer self-sufficient trial and error.

Farmer-to-farmer learning is key:

- Most organic farmers say they benefited from organised discussion groups at each others' properties.
- Some farmers use paid advisors, but stress that the best farm consultants are really conduits for farmer-to-farmer information, as those consultants visit a large number of farms.

- Most organic farmers in the area prefer to learn from experienced farmers, not from academic researchers.
- The Organic Farm New Zealand (OFNZ) certification scheme has provided small growers with an inexpensive route to certification, and also with a way to share information and moral support.
- Farmers and growers who do not grow the same crops as others in the area, such as specialised horticultural growers, find themselves with the least support and peer advice.

Several factors restrict the flow of organic information in Canterbury:

- Information flows parallel commercial flows. That is, most farming information comes from someone who is selling something.
- Niche market producers do not always want to share information about their crops.
- There is little institutional support providing information about organic animal health practices.
- Organic farmers do not feel supported by FAR (Foundation for Arable Research) and feel that FAR's information and research does not apply to them.

Market networks

- Organisation of supply and demand appears to be one of the biggest limitations on organic growth in Canterbury.
- Marketers say that foreign demand is soaring, but that they cannot get enough organic farmers to supply the product.
- However, many farmers express frustration with the small number of current market options.
- Many large-scale organic farmers prefer not to grow crops for the domestic market, because the market is small and too easily flooded.
- Farmers report a range of experiences with finding markets; some are often approached by marketing companies, while others are not.

Growing organics

- Organic production in Canterbury is not growing. No large-scale crop farmers have converted to organics in the last several years.
- Few people expect organic production in Canterbury to grow in the near future. Interviewees offer a range of possible reasons: lack of market options; negative perceptions on the part of conventional farmers; and rising land values accompanying a shift toward intensive dairying in the area.
- Many Canterbury organic farmers do not particularly want to see growth in local organic production, or are unconcerned; some prefer to keep niche markets to themselves

Chapter 4

Results: Apples

4.1 History of organic apple production in New Zealand

Growers first converted to organic apple production in Hawke's Bay for both environmentalist and economic reasons – and to take advantage of a legal loophole as well. In the 1990s, under the “single-desk” export system, New Zealand growers could only export their pipfruit through ENZA, the Apple and Pear Board's official export company. Though ENZA was technically a grower-owned cooperative, many growers were dissatisfied with the ENZA administration. However, other companies could export products that ENZA was not dealing in – such as organic fruit.

Up until the late 1990s, organic pipfruit orchards did exist in New Zealand, but they were scattered across the country. One Hawke's Bay export grower, John Bostock, began converting orchards in 1996. Bostock knew he needed other growers to go organic with him, so that they would have enough critical mass to export a sizable volume of apples to overseas markets. He called a meeting, and ten growers agreed to convert to organics together. They originally exported through one company, Freshco, which already was exporting low-residue pipfruit outside of ENZA.

Organic apple production grew in quick bursts; after the first group entered conversion, a second wave of growers began converting shortly afterward. Organic apple exports grew from almost nothing in 1999, to 600,000 tce (tray carton equivalent, about 18 kg) in 2003, to nearly 1,000,000 tce in 2004, and then leveled off. Today six per cent of all apples grown in New Zealand are organic, and organic apples represent ten per cent of the apple industry's financial returns.³

Markets

Market returns for organic pipfruit have been high, but prices fluctuate yearly as global supply and demand change. Last season's market was particularly strong. In 2006, growers received an average of nearly \$40/tce of organic apples, compared to less than \$20/tce for conventional apples.

Conventional apple returns have been poor in recent years; as a result the number of apple growers in the country has plummeted from 1600 growers in 1994 to 700 growers in 2006, as small growers have gone out of business. Old orchards have been converted to other uses, or bought by large, vertically integrated corporations which increasingly dominate the pipfruit industry. Outside of organics, the entire pipfruit industry has switched to an IFP (Integrated Fruit Production) program, which is based on orchard monitoring and targeted applications of specific chemicals based on observed pest and disease problems. This contrasts sharply with the past strategy of “calendar sprays” (i.e. spraying broad-spectrum pesticides, including highly toxic organophosphates, on a routine schedule, regardless of orchard conditions). IFP began as a pilot program in the 1996-97 season; within five years, the entire pipfruit industry was either IFP or organic. New Zealand fruit consistently scores well below international Maximum Residue Levels for agrichemicals. However, the IFP distinction has not helped

³ Statistics in this chapter come from pipfruit industry interviews and personal communications.

New Zealand IFP growers to win sufficiently high prices to maintain profits better prices in the international marketplace.

Pipfruit New Zealand, the industry organisation, is keen to differentiate New Zealand fruit from the rest of the world's supply. "We target the high-end affluent market; New Zealand is too expensive a production region to grow commodity crops," says one Pipfruit NZ representative. Going one step beyond IFP, Pipfruit NZ is currently running pilot trials to produce completely "residue-free" fruit. However, some in the industry question whether that will help the image of New Zealand fruit, or whether it will highlight the fact that other IFP fruit *does* contain some chemical residues. For now, only certified organic produce receives premium prices in stores.

The organic pipfruit industry remains concentrated almost entirely in Hawke's Bay. The biggest organic growers there continue to convert more orchards. A small number of growers in Central Otago – an area blessed with fewer pest and disease issues, because of its climate – are also planning to convert to organics.

Currently, four companies dominate most of the export market in organic pipfruit: Freshco, DM Palmer, Mr. Apple, and Global Organics. Of these, two (DM Palmer and Global Organics) deal in only organic pipfruit, while the other two export conventional apples as well.

4.2 Choosing organic: reasons for conversion

Organic growers express a range of motives for conversion. Of the 10 growers interviewed for this study:

- Six said financial returns were the main motive.
- Five mentioned getting out of ENZA as a motive; for three of these, it was a primary motive.
- Three said that environmental / philosophical concerns were the main motive.
- Two gave equal weight to environmental / philosophical and economic reasons.

Organic grower: *"I was really sick and tired of using chemicals, and I could see that invariably they were only short term fixes to some of the issues we were facing... We were generating our own insect problems by continuing to spray, and we were getting absolutely nowhere... Also we were becoming aware that people weren't so keen on conventional fruit, conventional returns were not looking great, ENZA was still in a monopolistic position in the industry. It was a way of escaping them, but they were becoming too controlling... very difficult to work with."*

Organic grower: *"It was really an economic and a philosophical, cultural change. I have young children, and I used to spray and they couldn't go out to the orchard for 24 hours after we'd sprayed, or the dog had to go to the kennel. So putting the two together – the returns for conventional, and what I saw as the future for conventional, and the health aspect of it – put the two together and it was really an obvious choice."*

Organic grower: *"There's two types of growers in the organic pipfruit industry – there's the philosophers, the guys who have their organic philosophy, and maybe they are the sandal-wearer, straw hat mentality... The other side is more commercialisation, guys like me who are doing it, and there's only one reason, really, why they're doing it, isn't there, and that's for the monetary gain. I can say how much it provides me great pleasure to grow quality fruit and*

everything, but if you look at the real reason at the end, what's the real reason – demand's out there, so we're supplying that demand."

A small number of growers have entered organics and then exited – either to return to conventional fruit growing, or to get out of orcharding entirely.

Conventional (ex-organic) grower: *"We decided to convert back to conventional, because the only reason we converted to organic was the money, which of course dropped right down [in the 2004 season]. But the staff weren't happy growing organics for several reasons. It's quite a stressful way to grow fruit; you're very limited in the chemicals you can use, especially for blackspot. We got some blackspot on one variety which was a bit of a worry. We decided that it was all or nothing, so we converted it back and now we're only growing conventional... Financially we were ahead, but stress-wise we were behind."*

4.3 Going organic: process & practices

In the words of one apple exporter, "Organic pipfruit is not an easy game." A host of pest and disease issues make organic apple-growing a technical challenge. Blackspot (also known as apple scab), a fungal disease, is one of the biggest risks in Hawke's Bay. In general, the reduced number of chemical control options mean that organic apple growers are more vulnerable to yearly changes in pest populations, and must take a more vigilant, proactive approach to preventing problems than their conventional neighbours do. As one organic grower puts it, pipfruit is "a risky business as it is, but organics is so much more risky." For now, at least, organic growers receive high payouts which compensate for the risks they take.

The organic apple industry in its early years has followed an "input substitution" mode of growing. That is, most growers substitute allowable, certified organic inputs in place of prohibited conventional chemical inputs, rather than totally overhauling the conventional approach to growing apples. Current organic orchards are former conventional orchards. They contain the same apple varieties and the same design: row upon row of apple trees grown in monoculture. Now that the basic technical issues around organic apple growing have been sorted out, organic growers are becoming more aware of the need to get beyond that input-substitution approach – as one grower put it, to go from "light green" to "dark green" organic growing.

Organic grower: *"My view on it is that in order to sustain what we're doing for my grandchildren, I can't keep on being an organic farmer like I am now, and hope that will be O.K."*

Organic grower: *"I wouldn't want organics to expand in its current scenario because it's not organic at all. It's not sustainable... There's lots of people who are growing organic pipfruit and raping the land, not putting anything back."*

Organic exporter: *"A lot of organic growers are still operating with a conventional mindset, thinking they can get a solution out of a drum."*

Organic certification auditor: *"Organic consumers believe that what they're eating is spray-free," but "A lot of them [growers] are in a simple substitution mode – I'm not allowed to use these insecticides, I'll use these ones; I'm not allowed to use these fungicides, I'll use these ones."*

The blackspot challenge

One of the biggest input-substitution issues – and one of the biggest sustainability issues for the industry – is the control of blackspot. Organic growers rely on one chemical option for controlling blackspot: spraying trees with lime sulphur. However, lime sulphur has serious drawbacks. The chemical only stays on the trees for a short time, and therefore must be sprayed frequently, particularly in wet weather; spraying enough and at the right time is crucial to prevent blackspot infection. Although the chemical is made of naturally occurring substances (and therefore organically permitted), it has detrimental effects on tree health – it is phytotoxic, meaning that it literally burns the tree. Spraying lime sulphur affects fruit yields, particularly in Braeburn apples, where organic yield is only 50 per cent of conventional yields (Stiefel et al. 2006). (In Royal Gala, organic yields are higher, at close to 90 per cent of conventional yields.) Some growers wonder if lime sulphur is permanently damaging their trees' health.

Organic growers are concerned about the effects of lime sulphur, but few are willing to risk trying alternatives – largely because failing at an experiment can mean losing a huge portion of their crop to blackspot. One grower already lost large amounts of crop (and money) by trying compost teas as an alternative control for blackspot. Most growers focus on perfecting the art of spraying lime sulphur just often enough, without spraying too much – a delicate balance. Some growers want to experiment with alternate methods of control, such as replanting with disease-resistant tree varieties; using irrigation to trigger blackspot spore release at hot dry times when the spores will die; intensive spraying early in season, then little spraying later on. But, as one grower says, he is hesitant to try any of these methods, because there is little room for error: in low-return years, “If you’re only making a profit of 30 to 40 grand, you don’t have much chance to play around.”

Conventional growers have a much easier time managing blackspot because they have more options. They can use multiple synthetic chemicals. These chemicals last longer on the trees, so they do not have to be sprayed as often; and some of these chemicals have a “kick-back” effect, meaning they can be sprayed after a climatic blackspot risk period and still eliminate the spores, whereas lime sulphur must be sprayed proactively, before or during wet weather.

Organic grower: *“It’s just a gamble... the first year my boss went into organics, he didn’t pick one apple – blackspot. It was absolutely devastating. Not every one of them, but probably 80 per cent of them had blackspot... The biggest issue is blackspot control... It can be devastating... In a wet year we can use so much sulphurs, lime sulphur and that, that it’s not good for the health of our trees. When I first came over, we were trying to have no blackspot at all. Which is achievable, but our trees don’t like it and show and don’t perform. So I guess the biggest learning curve is managing these things in a way so that you get a profitable, acceptable crop at the end, maybe without trying to obliterate everything else... It’s a balancing act.”*

Organic grower: *“We’ve had a couple of doozy failures. Last year we had three days of leaf wetness, for three days in a row. And although we covered in and covered back, we got inundated with blackspot, and we had to thin it out at thinning time, and lost a lot of our yield through that. I’d go so bold as to say we lost 20 per cent of our crop to blackspot.”*

Organic grower: *“I’m very conservative about change in that direction; I’d rather not be the one who tried it first. And that’s had some pretty disastrous effects for some people who have just gone ahead with different products from the norm, particularly in this area with*

blackspot... As much as you would like not to put anything on the trees, it's gonna hurt them, you reach a point at which you've just got to do it anyway, especially with the blackspot."

Pest management

Organic growers face a handful of other pest challenges as well. Many organic growers report that once they stopped using broad-spectrum conventional insecticides, they eventually saw a rebound in their orchards: natural insect predators gradually returned, and many pest problems disappeared of their own accord. However, organic sprays, if used improperly, can also upset that fine balance.

The compromises associated with the input-substitution approach to pest control can be seen around the issue of leafroller caterpillars. The U.S. market has zero tolerance for leafroller, meaning that a whole shipment can be rejected for leafroller damage. Three years ago, Dow Chemical introduced a spray called Entrust, an organic version of the company's conventional spray, Success. Because it is derived from a soil fungus, Entrust has been approved for organic use in some countries, including New Zealand. When organic apple growers adopted the product, leafroller damage levels dropped from one or two per cent of the organic apple harvest in 2003, to almost no damage in 2004 (Stiefel et al. 2006).

Dow marketed Entrust as a safe product, but it is the only organic pipfruit spray with a withholding period (14 days). Furthermore, it does not just kill leafrollers, but kills other beneficial insects as well. Most organic growers have found that Entrust upsets orchard ecological balance, leading to outbreaks of other pests, such as woolly apple aphid. Pipfruit New Zealand initially pushed all organic growers to use Entrust in order to maintain access to the U.S. market. Some growers are now trying to reduce their Entrust use and turn back to more use of Bt sprays, combined with CA (Controlled Atmosphere) fruit storage, which eliminates leafrollers over a period of several weeks. However, using CA means missing out on part of the U.S. market season while the fruit is in storage. The Entrust issue shows the danger of using strong insecticides in organic orchards; and the pressure that organic systems can come under from the influence of foreign governments and chemical companies.

Organic certifier: *"Essentially it comes from a natural source... but it seems quite good at killing insects and it has a long residual activity... Just the fact that Dow Chemical is putting up organic insecticides says a lot about what's happening in organics."*

Organic grower: *"A lot of the information we were given came from the chemical company that were selling the stuff. We used it for two years, and then this last season we didn't use it at all, because it was upsetting the balance of everything in the orchard. Instead of just dealing with the leafrollers, it killed a whole lot of other things as well. You disrupt that balance, and you've got a whole lot of other problems... so this season we just left it. It might be a natural product but that's not the idea."*

Organic grower: *"It is very good on caterpillars and everything else but it is harmful to beneficials... We use it on two of our blocks because our marketers want us to use it... so that we can get fresh organic product to the USA in May. Otherwise it has to go into CA and it won't arrive until August or July, when almost California crop's coming on. So it's too late. So from a marketing point of view they wanted us to use it. But the trouble with marketers is they're not necessarily thinking about what's happening on the orchard. And the two blocks where we did use it and used a full program, it threw our beneficials out, so we started having problems with other things like woolly apple aphid."*

Organic grower: *"There's no rule in the world that should allow it [Entrust] to be organic."*

Soil practices

One of the least-understood organic orchard issues lies below the ground: in the soil. Organic growers have been so focused on pest and disease issues that some have done little to understand or improve their soil. For pest and disease management, most growers follow all the same standard practices, but growers' approaches to the soil vary widely. They range from those who make their own compost, to those who still use a more conventional input-substitution, adding bits of nutrients according to recommendations from fertiliser company representatives. As the organic industry grows, more organic input products are on the market, but it is often hard for growers to sort through "witch doctor" manufacturers' various claims. The soil issue shows a wide gap in different growers' levels of understanding, and the fact that the industry is not yet fully "dark green" in its approach to plant nutrition.

Of the 10 organic growers interviewed:

- Six had used compost, though some actually oppose the use of compost, possibly because of past problems with poor-quality purchased compost.
- Three used compost teas.
- Two used biodynamic preparations.
- Three mainly add nutrients as recommended by fertiliser company representatives, based on soil tests. This was the main approach used by the conventional growers interviewed as well.

A few growers are now turning toward more testing methods, such as multiple kinds of soil tests, and sap and leaf tests to check whether the nutrients in the ground are actually getting up into the trees.

Organic grower: *"We always knew the problem lay with the soil, it's just that nobody knew how to kick the ball off... We've just been substituting whatever that's legal to get our organic certificate... We've always just done a quick soil test and said, 'We haven't got any of that, put some of that in.'"*

Organic grower: *"We use compost and try to get the worm activity especially up so we can break down that mineral content so it's more available. Soil's something we're looking at more and more with soil tests... Watching the soil and seeing what's happening there and analysing it is more high-profile that it was even three years ago, in that we want tree health, tree health is probably our number one target. We feed them way more than we used to."*

Organic grower: *"Soil is not something that I can see and come to a conclusion about. We can dig a hole somewhere and there generally are a terrific number of worms, so I'm satisfied that the soils in generally good shape... but all this is a bit of a mystery to me, and not too many people know much about it... Mainly I'll get soil tests done and I'll look at them with a rep of the Skelton-Ivory company I do business with in Hastings, and they'll make recommendations, and it's very clear, whenever the bar is high you don't have to worry about that chemical or element or whatever they call it. The lower ones we'll try to add."*

Organic grower: *"The truth of the thing is we only know a tiny tiny amount of what there is to know... there's an awful lot of people coming out with microbe food and bacterial this and fungal that, but I firmly believe that good compost has all these things in it... I look at it as simply a home for biology and diversity and microbiology really. It certainly helps with moisture retention and all sorts of things... You could use too much of the wrong sort of compost, but I think with good compost you can't really overdo it."*

Recently, some growers and others in the industry have begun to consider the soil more, and to trust the view of Arden Anderson⁴: the notion that healthy plants, growing in balanced soil, will not suffer pest and disease problems. Two of the organic apple export companies have recently begun experiments on their own focus orchards, along those lines. Both plan to invest in balancing the soils for a few years, and then as tree health improves, to gradually reduce and eliminate lime sulphur sprays. However, no one knows whether healthier trees will better resist blackspot – it is an experiment.

4.4 Information networks

Initially, few growers had any clue how to produce organic pipfruit. A tightly linked information network, with close communication between growers and researchers, and close communication among growers themselves, has been critical to the industry's development. During the conversion process, most growers participated in discussion groups. The organic apple industry has also illustrated the importance of leadership to keep these networks going. One key person in the industry played a crucial role in organising discussion groups and keeping growers informed. Local HortResearch scientists, led by one in particular, also committed themselves to making organics work; they have stayed in close touch with growers, and have conducted research on the challenges they face. They present their findings to growers at an annual winter seminar.

Most organic apple growers say they are keen to share information with others – as they are all producing a commodity for the same mass markets, they do not see themselves as competing with each other. Informal interaction between growers is also important for sharing information – for example, through packhouses and among neighbours. A similar attitude of openness characterises the conventional pipfruit industry. However, organic growers appear to be more actively engaged with the research side of their industry, attending meetings and seminars, hunting down information on their own, and trialing new practices.

Currently, information flows in the organic pipfruit world are shifting to become aligned more with commercial flows. A general discussion group no longer operates. Instead, two of the export companies are conducting their own separate research trials on their own growers' land, using hired consultants (though both companies claim that their field days at these properties will be open to all growers). The trials reflect that the companies are hungry for more organic fruit, and therefore want to help their growers increase and maintain yields.

Other commercial sources of information include spray company representatives, who consult on their spray and fertiliser programs. A few growers employ consultants to help them on specific issues.

Whereas once the organic pipfruit industry was oriented toward supporting new growers, today information sources cater more to the needs of established growers.

⁴ Arden Anderson has been visiting New Zealand twice yearly since 2005 to give public lectures and to provide three-day workshops for interested farmers. He is a US medical doctor and agricultural consultant who stresses the need for more broad spectrum remineralisation, biological inoculation and consideration of the energy flow aspects of agriculture.

Growers' information-seeking preferences

The organic growers interviewed tend to get information through the same ways, though some personify the “information-hungry” type and go farther than others to seek out information:

- Most mention the helpfulness of the main industry information channels: including past discussion groups, seminars, information from HortResearch, discussion group facilitator Heidi Stiefel.
- Eight mention how much they learn from other growers, often through informal contact.
- Four have attended at least one Arden Anderson course.
- Two growers are connected to the local (non-pipfruit) biodynamic information network in Hawke's Bay.
- A strong minority seek more information on their own – four do their own research and use the Internet; of these, three also use consultants.

The early days

Organic grower: *“Nobody knew what to do, really... we didn't know anything about it, except that you had to go and sign an affidavit saying you hadn't put on a spray for X amount of time, and corroborate that with your spray diary, and you had to get residue tests done. Bar that, we knew nothing about organics whatsoever... As for information, it was jolly limited and it was all anecdotal.”*

Organic grower: *“It was really a leap in those days because no one knew how to control, well they still don't to a large degree, to control the problems associated with apples. ... everyone was flying blind, pretty much.”*

Industry support

Organic grower: *“As the organic industry's grown, there's been a number of really good scientists at the local HortResearch station who've keenly taken an interest in organics. I think it was something that was interesting and new for the scientists there, and they've been really great at trying to help us. Clearly there's more questions than answers still in our world, but every time they find something they can back up with science, they present it to us, with the likes of pheromone traps and mating disruptors, Bt sprays, these new Entrusts, all biological control agents... when they learn something they're quick to tell us. And we've all made a few blunders together over the years, HortResearch and the growers, as we've discovered what might have been applicable is not now and vice versa. But they've been good at keeping in touch with us at seminars and work they're doing on it.”*

Organic grower: *“HortResearch really provided it for us. And we had a focus group. And we had Heidi. Of course the exporters were really keen for us to get it right... so we actually had a huge amount of input, we had our focus group, the exporters provided expertise, and HortResearch provided a lot of expertise. And then BioGro, our certifying agency, they did their best – they would do what they could. So basically we were really well supported, it wasn't just one person going out on their own, we had all the scientific input, the commercial input, plus great people like Heidi, who's very efficient at running around and doing things.”*

Grower interaction

Organic grower: *“The packhouse is where the information comes through. It's an essential meeting point of minds. We have the exporters, receivers, the growers themselves and all our*

agents in there constantly, and there wouldn't be a week go by when I didn't learn something."

Organic grower: *"Just talking to other growers has been great. It's just the same group of growers that started six or eight years ago that are still there now, one or two have given up and very few new ones, so if you've got a problem or something it's good to just go and talk to your neighbours or something. I'm lucky, I've got neighbours who are organic, so I can just go and bounce ideas off them."*

Recent changes

Organic grower: *"There's no discussion group now. What's happening is the packhouses and the exporters are rationalising, I suppose, in that they are aligning themselves with suppliers. So the supply chain is grower - packhouse - exporter, or the packhouses are expanding their operations, buying their own orchards with their own managers; the export company will own the packhouse, their own orchards and the export chains. And there's a lot more of that going on now. So the individual growers are either getting bigger or getting squeezed, I suppose you could say. So information sharing is specific to those companies, there's not the sharing that there was... It's a lot tighter, a lot more competitive, a lot more closed-shop than it used to be."*

One of the newest problems to attack organic orchards, bronze beetle, further shows the importance of grower-researcher links. Growers have various ideas about how to control the beetle, which has increasingly infested organic orchards in recent years, but few are confident about any particular method. Some planned to follow HortResearch advice to cultivate the ground in problem areas in their orchards this year, to disturb the beetle larvae at a stage in their life cycle in the soil. Many pin their hopes on HortResearch to work out a long-term solution; as one grower put it, "bronze beetle, yeah that's a bugger... gosh I hope they come up with something."

4.5 Market networks

A handful of export companies dominate the organic apple industry. The companies all have their own market relationships with various supermarket chains and distributors abroad, principally in Europe and the USA. All exporters report the same trend in the marketplace: increasing demand for organic fruit, especially from big mainstream retailers.

Most growers split their crop between multiple exporters, in order to minimise their risk, as price returns may vary slightly between exporters in any given year. Growers say they like this structure, which forces export companies to perform well in order to compete for growers' loyalty. Currently the high demand for organic apples means that the export companies are in competition with each other to get growers' apples.

Organic grower: *"You can't put all your eggs in one basket, because it's a disaster if you back the wrong one. So we've always tried to use two or three exporters."*

Organic grower: *"I would rather keep more than one organisation going so that there's the opportunity to make everybody keep trying hard... if _____ became the exporter of choice, well all of a sudden they'd have the field to themselves, and we don't really want that."*

Still, the power dynamics of the exporter-grower relationship are not completely equal. Many growers complain that they feel cut off from their markets, which are halfway around the world, and some feel powerless when having to depend on a middleman to sell their crop. A few growers have developed their own direct market links abroad, built through personal relationships – including international visits in which importers come to New Zealand and growers travel abroad.

Organic grower: *“I suppose that one of the biggest things is we’re in the dark about the markets. For that we need to rely on the exporters. So there’s four or five exporters... but they’ve got another agenda – they just want to get your fruit. So they’re telling you the markets are this and that, so you have to be very careful about dealing with the exporters. Of course they all tell you they can sell your fruit for a fortune, and then you give them your fruit and the other end of the season comes along and ‘I’m sorry, we couldn’t sell your fruit because of this, this and this.’”*

Organic grower: *“The companies are all pretty good, there’s a lot of feedback. They’re all chasing fruit, because last year they just could not get enough of it... So if you’ve got some fruit, they’ll take it... There’s a lot of competition right now, but whether that’s going to last, who knows. So I want to align myself, put myself in a situation where I have more control over where my fruit goes, how it’s handled, and what sort of returns I get... Ultimately I’d like to export in my own right.”*

Growers’ lack of power is even greater in the conventional market, where tight prices and a proliferation of export companies make it harder for growers to know whom to trust. However, conventional growers also accept that current low returns are the fault of a poor market, not the fault of individual export companies:

Conventional grower: *“We’re price takers... I give it to my exporter, he sells it and gives me what’s left... They say they’ve got credible markets... They can tell you but you still don’t know if you’re going to get paid. The growers have no access to their information... We don’t know what we’re getting ’til the money is in the bank.”*

Conventional grower: *“I think that since deregulation, the exporters have all been pretty good. They’ve all tried pretty hard. Last year it didn’t matter what you did, it was a disastrous market in Europe and England, Europe especially.”*

Organic profits

Returns for organic apples have been excellent in recent years, and growers report high profits. Since 2001, orchard operating surpluses have hovered as high as \$30,000/ha for some organic varieties, with the exception of one poor year in 2004 (Stiefel et al. 2006). High demand for organic apples means that suppliers – growers and exporters – have a good bargaining position with their foreign customers. This can make up for the riskiness and lower packouts associated with organic growing.

Organic grower: *“Last year was a classic example, we had a very wet spring, we were probably spraying two to three times a week with sulphur or lime sulphur or copper, and the fruit was just covered in russet. Some varieties worse than others; it was pretty bad. And we were lucky to get away with it, because there was a shortage of organic fruit last season, so all the exporters came up to us and said ‘Look, we’ve got to have some volume, put all this extra russet in the cartons now,’ that normally we would have had to just chuck out. So it saved us really.”*

However, the organic apple market potentially is highly volatile at the moment. International demand is growing quickly, but supply is increasing as well – in New Zealand, and in Chile, New Zealand's main Southern Hemisphere competitor for selling organic fruit to the Northern Hemisphere market.

Conventional market crashes

The conventional apple industry presents a bleak picture of what can happen when the global fruit market is oversupplied. In 2005, New Zealand's top two apple varieties received returns far below the cost of production; Braeburn returns averaged under \$10 a carton, Royal Gala just under \$14 (Pipfruit New Zealand 2006). (The average cost of production has recently been calculated at \$17.30 a carton (MAF 2004).) Returns in 2006 improved slightly to catch up with the cost of production, but did not allow growers to make up for previous losses.

Conventional grower: *Last year, "Every carton I produced I put \$5 on top of it. If you had 50,000 cartons you lost \$250,000 last year... you cut up a quarter of the orchard and gave it to the bank... The costs of compliance are so high, the labor costs are high compared to our competitors... Apples are relatively easy to grow worldwide. That's why production has increased so much in the last few years... No one's really sure if you're going to be in business next year... These cycles are getting greater and steeper for sure, and there's a whole lot of casualties on the way through. There may be a time when we need to exit the industry."*

Conventional exporter: *Last year, "We just had too much fruit... We couldn't get rid of it."*

4.6 Growing organics

The organic apple industry is currently growing in volume. New organic orchards are mostly the result of the biggest existing growers buying more land, rather than conventional growers converting.

Organic grower: *"I'm seeing an increase [in organic apple production], and John Bostock in particular has converted a couple of orchards. In the last six months there have been at least three other growers that I know of that have converted extra blocks... There wouldn't be a shadow of doubt that most people are chasing the dollar at the moment... An increase here is usually not from new people. An increase here is usually the same people, buying their neighbour, or finding a block to lease."*

Organic grower: *"You're probably seeing an increase... There's no growers out there that are going to convert orchards to organics because they think it's the best way to grow fruit... There's only one reason why they do it and it's because they're gonna look at the returns this year and it's going to have a 50 or a 60 dollar, and they're gonna look at the returns for conventional and it's going to have a 20 or a 21 dollar, and it's as simple as that. Mr. Apple, and they're the biggest grower in New Zealand, have just converted another 150 acres. Now they have 20 per cent of their production in organics, and they're a big corporate grower, and the main reason they're doing it is because of the money."*

One reason that the growth in organics is coming from existing growers is because of the cost of conversion. Yields generally drop after the switch to organic management, but the grower does not receive an organic price premium until attaining full organic certification three years

later. This means that orchards may operate at a loss while converting to organics, making the conversion period a huge economic hurdle for small IFP growers, who are already struggling economically.

Forecasting the future: marketers' views

Marketers and growers differ in their opinions as to how long the current high organic returns will last, as international supply grows to meet demand. The exporters express short-term optimism about growth in the sector, though they acknowledge that the long term future is unpredictable.

Organic exporter: *"If the market's good next year, we'll convert 50 hectares more." Organic is "one of the greatest brands in the world... better than Pepsi-Cola... It's such a powerful brand, and it's on a roll... The major retailers, no one wanted to do this three, four years ago; now no one can afford not to. They're all saying, 'I MUST have organics, I'm selling 100,000 boxes for you, I MUST have 10,000 organic.'... Once some of the mainstream big boys make that jump, the others can't afford not to be there... Where it's going who knows?"*

Organic exporter: *"Our marketing people overseas are asking for more organic... I reckon it [the supply] could just about double and not have any effect... This time the supermarkets are asking for it."*

Organic exporter: *"It will grow, and it needs to grow... [but] the market is very volatile at the moment because of these huge retailers saying they have to have organics on their shelf... Are they going to ruin the market in five years' time?"*

Forecasting the future: growers' views

Organic apple growers feel more nervous about growth in organic supply. This could reflect the fact that they have less direct contact with the markets than the exporters – or it could reflect growers' more vulnerable position: when market prices dip, growers are the ones who feel the impact most strongly.

Organic grower: *"My belief is that in two to three years' time it [the supply] will double, with the amount of fruit that's being converted that I know about... So there's gonna be pressure ultimately in the future, and of course our foreign growers, Chile's growing as well, are doing the same thing, because the market returns have been phenomenal and it's going to drive a lot of people in there... So I'd say there's probably three years at the outside before pressure will come on. Demand's growing at 20 per cent, as far as the customers are concerned. For some reason in Europe this year there's been a massive turnaround as far as awareness. We've seen photographs... of supermarket chains suddenly increasing their organic fruit stands out of the blue. So I believe demand is growing at the moment in proportion to the growth of produce. But I'd say in three years' time there's going to be some pressure with demand and volumes, our price will get very close. And at that stage... there's going to be a fair amount of pressure coming on organic growers. So that's my call. A lot of the big supermarkets, Wal-Mart are moving into it in a big way; Wal-Mart scares me because they're a discounter, and you certainly don't want to see that, we need that high price to survive."*

Organic grower: *"If it increased, one of the advantages I could see is we would be able to supply some of the larger supermarket chains with a more reliable supply. Apart from that I can't see too many advantages of it, except that I don't see too much future for conventional,*

and I think that possibly a few more conventional may switch over. But I guess if too many people swap over, the returns eventually will come down... There is a few conversions this year – John Bostock’s got probably 100,000 cartons in conversion, we’ve got a few more, and some other growers here and there. So yeah, it’s gonna head up a bit anyway. I hope it doesn’t knock returns around too much.”

Organic grower: *On growth in organics: “It’ll certainly be good for the area, but whether it’ll be good for the market situation is a bit of an unknown quantity... There’s no question that there’s an increasing demand for pipfruit. But we prefer to stay on the underside of the supply side rather than the oversupply side, that’s the only potential problem.”*

Organic grower: *“There’s a bright future for organics, but it is volume-specific... Supply and demand – our supply is not up with demand, is under demand, undersupply, so of course the prices are high – they’re fighting over it... Should more people convert? Well I’d be telling people not to, because I’d like to see my premiums stay... There’s plenty of profitability when we get \$50 and \$60, but we’re not going to get that forever; we’re not going to get that next year, I’m sure.”*

Because of their fear of losing their price premiums, some growers are thinking about other ways to differentiate themselves in the marketplace. One biodynamic (Demeter-certified) orchard has received such high returns abroad that several other growers are now toying with the idea of going biodynamic. Other growers hope that they can differentiate themselves in the marketplace by building personal sales relationships abroad, and establish their own brand identity by producing high-quality apples.

Organic grower: *“[Biodynamic grower] _____ is different... he’s the only Demeter grower in New Zealand... He’s done it very well because he’s created a niche in a niche. He can grow small fruit and it doesn’t matter, because he has a small amount of people who are prepared to pay for Demeter fruit, and that’s fantastic, what he’s done is great. So he’s a little different, he’s got a good relationship with his exporter which is _____, but also he’s got a great relationship with the people who are buying the fruit. And that’s what the people who are buying the fruit would like – to know about the growers, talk to the growers and see where they’re coming from.”*

Organic grower: *“I believe if you grow well, you don’t have competition, in the organics. Because if you grow organics well, the taste tests and the sugars will guarantee your sales. So I don’t really mind who comes in. If you do a good job, then you’ll get a good sale, and you’ll get a good price, and you’ll get confirmation from the market that business will be ongoing... So I’m not really too concerned about more people having too many apples; at the end of the day, I’d like to have the very best apples.”*

4.7 Beyond apples: Organics in Hawke’s Bay

Apples are an organic monoculture in Hawke’s Bay. Ironically, organic pipfruit growers tend even more toward monoculture than their conventional counterparts do. Some conventional apple growers are currently trying to diversify into other crops to make money. But out of the organic growers interviewed for this study, only three grew other crops: one growing pears; one growing feijoas; one growing pears, plums, and peaches. Some growers actually reported that their orchards had become *less* diverse since they had gone organic. They had ripped out non-apple trees, because growing other fruit is so difficult organically – pears and stonefruit are susceptible to more diseases, and are highly sensitive to lime sulphur. There is also no

informational support or export market infrastructure in place for most other organic fruit. Industry personnel recognize that this leaves growers in a vulnerable position, both economically and ecologically.

Organic exporter: *“Every year something loses heaps and something makes heaps... Being just an apple grower doesn’t make sense.”*

Organic certifier: *“The original intention of organic production was if you had ten hectares, you wouldn’t have ten hectares of apples crammed to every last corner of your property.”*

Apples and the rest of the organic world

The organic pipfruit industry is also disconnected from the rest of the local organic/biodynamic scene in Hawke’s Bay. Hawke’s Bay has one of the longest-established biodynamic communities in New Zealand, including a handful of thriving biodynamic businesses and training institutions. Only two apple growers (one current grower, one former grower) report having any connection to this local network. The organic-movement scene and the organic apple industry operate from different motivations as well; more of the non-pipfruit organic growers are in organics or biodynamics for philosophical reasons, not for profit.

Certifier: *“The pipfruit sector is fairly insular; they don’t understand much about the background of the organic movement... It’s not really growing for any philosophical reason at all... not what people 15 years ago in the organic movement imagined to be organic... I find it quite troubling.”*

Organic apple exporter: *“Who cares if ten per cent of the world agree philosophically and the rest commercially? ... You need it to be commercially sensible... Whether we agree or not is irrelevant... We don’t cheat, we don’t bend the rules or break the rules.”*

Organic information flows outside of pipfruit

Meanwhile, outside of the pipfruit industry, there is little support for organic growers. Producers of other organic products in the region are largely on their own in terms of finding information and marketing their products.

There is a small but strong network of local organic and biodynamic growers who exchange information through personal relationships. Several years ago, a small group of diverse producers formed the Biodynamic Organic Education Trust and organised a series of workshops and field days visiting one another’s property. However, these efforts have since faded away. Many in the local organic scene comment that it can be difficult to sustain momentum for such events, because such efforts are largely organised by volunteers, and therefore they depend on the time and energy of a few key people.

Organic vegetable grower: *“A lot of Hawke’s Bay is based on the grapes and pipfruit, and the poor old vege grower is pushed aside – we’re peasants. You feel like you’re on your own a little bit.”*

Organic vegetable grower: *“A lot of it’s just done by the seat of our pants. We don’t have extension officers, we’ve never had anybody to ask except perhaps some other growers, and there is sort of an informal network that people help each other. But most of what I’ve learnt*

is by doing it ourselves or by reading stuff that's happened overseas or wherever... We've learnt the hard way really... There's still a desperate need for an extension service."

Still, the same as in Canterbury, there is often a marketing disincentive to sharing information, as growers are in competition for the same markets.

Organic vegetable grower: *"There's always a bit of an irony, you might have a competitor ringing you, saying, 'How are you getting on with your potatoes, what can you do for disease control or this or that?' It's like, hang on a minute, you're the same guy that last week dumped your potatoes in the market at a cheap price, and now you've got the cheek to ring me up and ask my advice, when I haven't been able to sell my potatoes because you've undercut the market... That sort of thing happens, and you've got to make a call, and say your philosophy says you help somebody... I've probably given up a lot of commercial advantage, because of my philosophy – you're helping another competitor."*

Domestic organic produce markets

Most organic vegetable growers in Hawke's Bay sell their produce through local outlets, in a tightly linked network based on personal relationships. Some organic shop owners are committed to supporting local growers; one shop owner even sells produce at a loss sometimes in order to help growers get rid of their excess supply. As well, one of the largest organic vegetable growers in New Zealand, who is located in Hawke's Bay, is committed to directly supplying the local market, though he also sells produce throughout the country.

The domestic organic produce market sometimes lacks a coordinated supply. Organic shops still report that they have trouble getting a complete supply of domestically grown, fresh organic produce year-round. All produce comes on at the same time from local growers, meaning, "either no one's got something or everyone's got it," as one organic shop owner put it. The market is vulnerable to both oversupply and undersupply. For example, a large local grower was supplying organic broccoli and cauliflower throughout New Zealand; when a competitor flooded the market at a cheaper price, the first grower got out; and now the domestic market for those crops is undersupplied.

Organic shop owner: *"I can't get organic brassicas – there's a hole in the market... [Right now] we can't get organic carrots."*

Organic fresh produce wholesaler: *"There's basically a shortage of growers... and good growers being able to supply good quality at the right time."*

4.8 Summary of key points

Conversion

- Many apple growers converted to organics for pragmatic reasons: financial returns, and a desire to get out of ENZA's export authority in the 1990s. Some were concerned with health and environmental effects of conventional agrichemicals as well.
- Most small conventional growers now lack the financial resources to convert to organics, since the conversion process entails a drop in yields without an organic price premium to compensate for the first three years.

Practices

- The apple industry depends on an “input substitution” approach to organics – converting conventional orchards and simply substituting organic chemicals in place of conventional ones.
- Blackspot is a high-risk problem for organic orchards. But the use of lime sulphur to control blackspot may threaten the biological sustainability of organic orchards, as lime sulphur can damage tree health.
- Organic orchards often experience a reduction in pest problems because beneficial insects are able to survive and control pests; but even some organically allowed sprays can upset that fine balance.
- Organic growers have varying levels of understanding about how to manage orchard soils.

Information networks

- A tightly linked information network of growers and industry leaders has been critical to the industry’s development, helping growers through the many technical challenges of organic fruit production.
- Organic growers have benefited from discussion groups, and from informal relationships with other growers.
- A close relationship between growers and researchers at HortResearch has helped solve many production problems.

Markets

- A handful of companies dominate the export market in organic apples, sending them to Europe and the USA.
- Most growers prefer to split their crop between multiple exporters, in order to minimise their financial risk.
- Many growers feel cut-off from faraway markets, and wish for greater control or transparency about where their fruit goes.
- Organic growers currently receive excellent prices as foreign demand is soaring, particularly from supermarkets.
- Conventional apple returns have been poor for several years, and many conventional growers have gone out of business, often selling their orchards to bigger companies.

Growing organics

- Organic supply is currently growing, not from new conversions, but from the biggest organic growers increasing their orchards.
- Marketers and growers differ in their opinions as to how long high price premiums will last. Demand is growing, but supply is also growing elsewhere in the Southern Hemisphere. Some organic growers fear losing their price premiums in the future.
- Some organic growers are seeking ways to differentiate their own fruit, such as through biodynamic certification.

Beyond apples

- Apples in Hawke’s Bay are an organic monoculture.
- The organic pipfruit industry is mostly disconnected from the rest of the local organic/biodynamic scene in Hawke’s Bay.
- Outside of the pipfruit industry, there is little institutional support for organic growers of other crops.
- The domestic organic produce market is sometimes lacking in coordinated supply.

Chapter 5

Results: Dairy

5.1 History of organic dairy production in New Zealand

Since 2002, Fonterra, the New Zealand dairy co-operative, has produced and exported organic milk products. But the original drive for organic dairy farming in New Zealand came from farmers themselves.

In the 1990s, a handful of dairy farmers already farmed organically, but they were spread across the country. Because the New Zealand Dairy Board did not pay a premium for organic milk, these organic suppliers either had to sell their milk for conventional prices, or else find alternative outlets to process and market their products. Eventually, Waikato dairy farmers decided to organise the organic industry themselves. A group began converting together in the late 1990s, hoping that if enough farmers became certified organic, together they would have the critical mass to find a market for their organic milk.

Organic dairy farmer: *“There was no premium back then... There was no industry help. So we just believed in something and went for it... I went to the dairy company and they basically said, ‘Bugger off, there’s only a couple of you [organic farmers], you’re all over the place, it’s just a fad...’ So I went, O.K., the excuse was, ‘There’s not enough of you and you’re spread all over the place, I thought, ‘Right I’ll fix that, we’ll hold some field days.’... So I’d bring people on – one time we had 75 here – and I’d give a little spiel of how we got into it, bits and pieces, and then I’d say, let’s go for a walk, and you can see if I’m full of shit. And farmers, they’re not dumb, they’ll look at a cow and say, ‘Oh yeah, they’re nice and shiny, they’ve got good coats, you must be feeding them properly, shit look at all the pasture, look at what’s growing, look at this, look at this, look at that.’”*

Organic dairy farmer: *“One guy got off his chuff and decided to call a meeting. And we met at his farm down at Cambridge, none of us knew each other, he just let everyone know that he was going to have this meeting about organic dairy farming, and there was about 15 of us turned up. And we formed an organisation called the Organic Dairy Producers Group right there and then, and have been going ever since...”*

Right from that time there was a committee of people started knocking on doors of various dairy companies... because we realised it was going to take time, and by the time we all finished certifying, we wanted somewhere for our milk to be utilised. And it took about three years I suppose before Fonterra started picking up, and by that stage we were all nearing the end of our certification.”

In 2000, as the farmers continued to call on Fonterra to sell organic milk, dairy company staff also did a market study, and found plenty of overseas demand for organic dairy products. Soon after, the company began its organic program with around 30 farmers. Fonterra paid farmers a 16 per cent premium (beyond the conventional milk price) for milk that met the U.S. organic standards, and a ten per cent premium for milk meeting the European Union standards. However, few new farmers converted, so in 2004 Fonterra raised the premium to 20 per cent for organic milk and seven per cent for milk from farms in their first three years of organic conversion. (Fonterra does not receive any premium for conversion-stage milk, but offers that premium to help farmers through the conversion period.)

Present status

By late 2006, Fonterra had 66 suppliers either fully organic or in conversion. Most of the organic milk produced in New Zealand is sold through Fonterra, though a few smaller companies operate in niches, selling organic dairy products for the domestic market. Fonterra has set a goal of reaching 170,000 metric tonnes/year of certified organic milk solids – which would amount to about 200 organic dairy farms – by the year 2013. The company has a dedicated organic extension officer to help farmers convert, and holds field days on organic farms.

Fonterra is the largest dairy export company in the world. It collects milk from 12,000 New Zealand farms. Thus, even though the company has made a commitment to organics, organic dairy products still remains a small part of the company's business.

To create economies of scale in transport and processing, Fonterra collects organic milk from three areas of the North Island – Waikato, Manawatu, and Taranaki – and processes all of its organic products in the Waikato. Fonterra currently produces and markets a variety of organic products, such as milk powder, butter, and ingredients for processed cheese products. The company exports the majority of these to other multinational food corporations, which then process the products further and/or repackaging them under their own brands. Most of these markets are in the U.S. and Asia.

Fonterra representatives refuse to reveal how much of a premium the company receives for its organic products. They also refuse to reveal the names of their customers abroad. However, company staff are enthusiastic about growth in the international market for organic products, which they estimate at US\$5.1 billion per year (in 2005) and growing at 20 per cent per year. Fonterra marketing staff say that the biggest barrier to growth in Fonterra's organic business is how many dairy farmers they can get to convert in New Zealand. Hence, the organic program staff feel great pressure to convert more farmers.

5.2 Choosing organic: reasons for conversion

Dairy farmers have gone organic for a whole range of interconnected reasons, including:

- Belief that organic farming methods lead to healthier soils, healthier animals, healthier product.
- Environmental concerns about damage from conventional farming.
- Profitability; desire for a profitable alternative to high-input conventional dairy farming.

Organic dairy farmers usually voice some combination of these reasons for being organic.

Farmer in conversion to organics: *"I suppose that what finally got us over to converting was Fonterra were offering a premium for organic milk. Prior to that we'd already started down a pathway, pretty much aligned ourselves with an organic system of farming anyway, so it was basically pretty easy just to start on certification."*

Farmer in conversion: *"Because it was low cost. We're in the industry to make money. You work hard, and you don't really want to be in there in the hard grind til you're 80... with the premium we're getting possibly what you'd be for milking 300 cows, and we're only milking 210, just over 200... We could have gone the other way, high-input with an extra labor unit, or you can take the pressure off a bit."*

Organic farmer: *“Environment really, I’ve always been interested in nature, not meddling with the environment too much... leaving the landscape untouched. And that followed on to farm with minimum impact on the environment.”*

Organic farmer: *“About that time, this was six or seven years ago, you got that feeling looking at the marketplace that there would in fact be a future for organic milk and meat and all that sort of thing, and that people were starting to demand healthier food produced in a more sustainable way.”*

Organic farmer: *“We just realised that farming that way was going to be better for the soil, better for us, and better for the cows.”*

Organic farmer: *“We started looking at biological systems ten years ago, because we couldn’t get the conventional system to work. We were down to counting every blade of grass and putting on X amounts of X, and it didn’t add up. We knew there must have been a better way... We’re doing it probably more for increasing production and producing more product, than actually doing it for the good feely bit, although that comes with it. We’re probably more commercially aligned than a lot of organic farmers.”*

Conventional hesitations

Still, conventional farmers express a range of reasons and perceptions which keep them from going organic. These range from technical concerns, to fear of having to abandon all conventional chemical quick fixes (e.g. antibiotics, herbicides). Objections or worries about organics, voiced by conventional farmers in this study, include:

- concerns that organics means a drop in production
- worries about how to deal with animal health problems, especially mastitis
- weed control issues – concern with increased labor requirements
- age / feeling too far along in one’s career to try something new
- increase in paperwork, fear of restrictions
- lack of support / infrastructure – e.g., it is easier to find conventional vets, conventional fertilisers
- as a sharemilker, not working with a landowner who is open to going organic.

In most cases a combination of these objections, based on various degrees of information, block a farmer from changing.

Conventional farming couple: *“Most farmers have got a mortgage; if I’d had to drop my production a third, I’d have a lower income... I still think we make more money this way than we would doing it organically... If you owe this many dollars to the bank manager... no way am I going to go cold turkey.”*

On weed control: *“It’s a hell of a lot easier and a hell of a lot quicker to do it with a spray... Jump on the motorbike and it’s all done in the morning.”*

On animal health: *“We don’t like to see our animals suffer... [under organics] you’re not allowed to treat your cows with antibiotics and they get really sick.”*

Conventional farmer: *“What do I do for mastitis, because I cannot use penicillin any more? What do I do about the weeds, because I can’t spray them – not that we’re weedy, but that’s because I do spray them. And my biggest worry is young animals, not being able to drench them. And I have yet to see organically grown calves, or organically reared calves, that are as good as mine.”*

Conventional farmer: *“Certainly one of the attractions was the premiums, the harmony with the soil – organics has its good points. But ultimately I sort of like the middle ground. I think in the conventional system I can take the best of both worlds.”*

“We’re able to have our weed control at a reasonable price... With the organics I can’t get enough people to use grubbers and do weed control.”

“I can go to my local vet, I can get what I need... There’s wonderful networks, I’m thrilled with the support system I have... My nearest organic vet is in _____, that would be 35-40 minutes; my vet here is only five minutes away.”

5.3 Going organic: process and practices

Conversion to organics can be an extended process. Many organic farmers recommend that other dairy farmers convert to organics slowly. A common first step is to change to an organic fertiliser program. Many farmers report that once they switch their fertiliser regime to organics, an upward spiral begins: soil biology becomes more active; and the pasture becomes more nutritionally balanced – the grass itself is better quality, and a greater diversity of pasture plants often sprout on their own. As a result, animal health improves; and once animal health problems have decreased, the farmer can begin to move away from conventional medical treatments and towards organic methods. Most organic farmers recommend this progressive method of converting rather than going “cold turkey” from a chemical-intensive system to organics overnight. However, every farm, and every herd, is different. It may take a number of years before an organic farm truly thrives. After they have been organic for a few years, many organic farmers report increased profitability and drastic reductions in animal health problems.

Organic farmer: *“There’s obviously lots of conventional illnesses, and to change over overnight is a huge mountain, because you’ve got to find the solution to everything. And yeah, if you sort of think, every day there’s a new illness coming up, and what am I supposed to do, where am I supposed to go, the mountain’s too big. A good way to solve some of that would be to change the fert one or two years before going organic. Because they will find that the problems will disappear on their own.”*

Organic farmer: *“We sort of aligned ourselves with an organic system, but then we had the conventional system to fall back on. For example, mastitis, our first approach was always homeopathics, and then if that didn’t work, we’d make an assessment and O.K., we’d try some penicillin. So a lot of our practices we didn’t have to change, we just had to throw away the conventional farming back-up.”*

Slow conversion also allows farmers to build confidence in the organic system. One organic farming couple report that they first switched one third of their fertiliser to organic, saw that “the sky didn’t fall in, so we progressed to a bit more,” until within four years all of their fertiliser was organic; and then they finally stopped using conventional medical treatments.

Soil practices

Organic farmers’ soil fertility practices vary widely. One long-term organic farmer applies only vermicast produced from his own worms, and purchased seaweed. Some farmers make their own compost, using materials such as manure and wood chips from wintertime stand-off pads for cows. Others are in more of an input-substitution mode, relying on purchasing organic fertilisers such as fish, chelated minerals, RPR (reactive phosphate rock), and seaweed, often following the recommendations of organic fertiliser company reps.

Animal health

Most long-term organic farmers say that they no longer have major animal health problems. Most attribute this to feeding their cows well, primarily by improving the quality and diversity of pasture. Some organic farmers do experience animal health problems around the time of conversion. Overall, organic farmers emphasise the importance of preventing health problems in the first place through proper nutrition and reducing stress on animals – maintaining health, rather than waiting and reacting to diseases later.

Organic farmer: *“You change your fertiliser, you get rid of the animal health problems. It’s as simple as that, I believe. Well that’s 75 per cent of the problem. Change the fert, and you sack the vet. Because you change the fert, which changes the soil, which changes the quality of the grass, which mineralises the animal, and if they’re balanced they’re healthy... The first thing to go is facial eczema, this year we didn’t even have – for the last two or three years we’ve only had one case of milk fever, this year we had none; last year we had none or one with a sore foot, which still was only treated with homeopathy and time out... I firmly believe that if you have healthy pasture, you’re gonna have healthy stock, so you just don’t get the problems.”*

Organic farmer: *“The first year or two converting was difficult because you didn’t have a lot of the props from the conventional system, and the biological system hadn’t really kicked in. So there was one or two issues around that. But overall that’s a long way better than it was. And we’ve reduced the numbers. Stress – a huge amount of the disease issues can be stress-related. Throw stress into the system and just see what comes out, it’ll be one sort of health issue or another. So just destocking and destressing is half the battle.”*

Organic farmer: *“The first time we got into organics it was a reaction – they got bloat, I had to do something; then mastitis – oh I’ve got mastitis, what am I going to do, and using the various herbal remedies and things, and drenching with cider vinegar and garlic... but gradually I worked out that trying to prevent it, and get their immune system built before it happened, and it’s working like a dream now, we just have very few problems. But in those early days you’re going to get problems because you’re coming from a different system... Through the conversion time, there were some cows that didn’t convert that well, and we knew that they’d gotten so used to the system and being propped up with the drenches that they’d never convert, and so we used culling as part of our management as well, a small part but it was still necessary.”*

Organic farmer: On animal health problems: *“Pretty much they’ve all dropped into the background because the medicine cabinet’s out in the paddock.”*

On cows self-medicating: *“They know when they need it, and they need it individually... even if you watch how they eat, they eat different food groupings or plant groupings as they require it, too... that’s 99 per cent of their wellbeing.”*

Most organic farmers grow all their own feed simply because organic feed is unavailable or uneconomic to buy in. This means that organic farmers must be more cautious about their stocking rates – some farmers have gotten into tense situations when they did not have enough feed and had trouble finding more to buy.

Organic profitability

Some of the top organic farmers report that they are among the most profitable dairy farmers in the country. Many organic farmers point out the distinction between maximising production, and maximising profitability. The dairy industry pushes maximum production as the supreme goal. Fonterra encourages all dairy farmers to increase their production by four per cent every year – but that usually means increased input costs for the farmer, so conventional farmers end up with high production but high costs as well. Organic farmers report that their profitability comes from a combination of factors: receiving a premium, and keeping costs down (primarily through reduced vet bills; many do spend as much on organic fertiliser as conventional farmers spend on synthetic fertiliser).

Organic farmer: *“My figures have been independently checked by Dexcel people and what have you, and we’re right up there... the vet bill is reduced down to \$4 or \$5 a cow, from \$50-60 a cow. The fertiliser bill is down. We didn’t treat a single metabolic case this year... We’re back a bit on total production, but profitability is up.”*

Farmer in conversion: *“Sure your production may or will drop – especially in the short term, most likely that your production will drop. But that’s balanced by a huge reduction in costs. And sometimes farmers only equate their profit with their production. But they forget that the hundreds of thousands of dollars they spend is actually affecting their profit also... Our production was down last year, but our profit was up... because our costs were way down. So our accountant said, ‘Whatever you’re doing, just keep on doing it.’ Here’s a farm where production’s down but profit’s up.”*

Organic farmer: *“Prior, we were in a high-input system, and were really cranking the production... but our bottom line has been the same for the last few years. When we were at maximum production, we were no better off than we are now... Our bottom line has been the same as our previous farming, but we feel that we are going to improve on that from now on.”*

Organic farmer: *“I got Dexcel to do a profit-watch thing on this farm... and it panned out we were just under double the profit per hectare for the average Waikato farm – not organic farm, the average Waikato farm... Per cow, the profit per cow, we’re in the top three per cent in the country, according to Dexcel. And per hectare we were above the average production per hectare, but profit-wise we were just about double.”*

“They [Fonterra] say to farmers, ‘Give us lots of milk,’ but they might start farming uneconomically... The farmer’s probably no better off. The payout went up a little bit because they had more milk, but it’s probably costing him extra to do that.”

5.4 Information networks

Some dairy farmers personify the “information-hungry” type, seeking out information from as many sources they can find. These tend to be mostly the earlier converts.

Organic farmer: *“You learned a lot from the one or two farmers who were doing it and were prepared to talk about it... Internet, reading, find out the good books, there’s actually a lot of good information in the States. And from older, trying to remember what our fathers used to do, which was basically organic... and a lot of trial and error, like experimenting – we’ve got experiments going on all the time. You’ll find most of the organic farmers are experimenting*

a lot, and sometimes you get it right, sometimes you don't, but you learn along the way. And we're still a long way from knowing it all."

Organic farming couple: *"We just made it our priority to just hit every library, use the Internet, Google search and what have you. We did a lot of reading, we spent a lot of money on books."*

"I still call into old second-hand bookshops and keep looking for bits and pieces. The other thing is seminars, we've been to Arden Anderson, Elaine Ingham a couple of times... international speakers, bits and pieces. We have had international people stay here."

Farmer-to-farmer information

Farmer-to-farmer contact is key during the conversion phase. It is important for new organic farmers to have contact with experienced organic farmers, for multiple reasons: to show conventional farmers that organic production is indeed possible and profitable; and then to help them through the conversion process.

Organic farmer: *"What really convinced me was I went to, _____ had an open day, and his farm is an absolute credit to him. And what I saw was this beautiful looking farm, without weeds on it. It was in a very dry February... and this farm was virtually looking like an oasis in a desert. It was brilliant, and the cows looked great, he was making money and was very happy with what he was doing. And _____'s a very good communicator, and what he explained to us made sense. And that day I came back and made the decision to start making the changes."*

One conventional farmer who is now considering conversion says he would want *"Somebody to sort of hold your hand. Somebody that you could go to, like _____ [long-term organic farmer], that you could go to, and say, I've got this problem – for a year or something like that."*

Farmer-to-farmer contact remains important as farmers progress in their organic careers.

Organic farmer: *"I think once you become part of the network, and once you know two or three people, those two or three people would be able to put you onto two or three people. You're probably going to gain more knowledge that way, or more help, than if you've got a big manual or half a dozen volumes of something that you have to read through anyway. You might as well go straight to someone who's already encountered the problem."*

Discussion groups

Discussion groups have been a key site for that farmer-to-farmer contact. There is currently no organic dairy discussion group operating in the Waikato, because there were no longer enough farmers willing to pay fees to a facilitator. However, many farmers speak highly of past discussion groups, particularly for helping farmers through the conversion phase.

Organic farmer: *"There was also a discussion group, probably about 15 of us, and we'd meet once a month, and you'd go and you might have had a problem and what have you, but someone else would have had it and solved it, and you always came home on a high. And those groups, that group, the positiveness just pushed you forward for the next month and what have you. Just the support, and knowing you were doing the right thing... it was really important."*

Organic farmer: *"It was really rare that I didn't go to a discussion group, there'd have to be something really important on for me not to go. The discussion group – absolutely, totally invaluable. From the hard-core learning... out in the paddock, to the chitchat over lunch and a cup of tea – 'cause you learn heaps, if not as much, if not more, then, as in actually discussing the soil or the plants or whatever. Even finding contacts of where to get stuff for me, the email group, since that's been set up, is just fantastic as well... I would have hated to have gone organic without a discussion group. It just would be so much harder. I would be absolutely lost without the email group or the discussion group for the organics – just keeping in touch with the others so you're not doing it all by yourself."*

Some organic farmers who have been through short courses on organics (e.g. taught by consultant Bill Quinn) say that such courses are crucial in helping farmers understand the organic system as a whole. Many stress that it is important to have the right facilitator for organic discussion groups – someone committed to the organic system. Quinn's discussion groups also received praise from past participants.

Organic farmer: *For an organic discussion group leader, "If you have a person that's limited of vision and a person that's been too well-educated, their thoughts are too tied up to actually see what's going on... They need a person that comes with a mind that's really open, and had a lot of experience in all different aspects... the right person to create the right environment to drive the people a little bit further... There's a few people that can – Bill Quinn is one of them."*

Farmers vs. researchers

Many farmers believe that the most advanced practical knowledge of organic dairy farming in New Zealand is located among the best farmers, not in universities or traditional research and extension institutions. The conventional dairy research and extension organisations – Dairy InSight and Dexcel – have been slow to take on organics. Dexcel ran an organic discussion group which folded due to personnel changes within the organisation. Massey University researchers currently run the most heavily-funded organic dairy research project, receiving \$250,000 per year from Dairy InSight. The project involves two herds, one organic and one conventional, which are compared along multiple variables, such as productivity, animal health, and profitability. However, the organic half of the farm has not performed especially well – which some observers, both inside and outside the project, attribute to the fact that many of the researchers are not enthusiastic about organics.

Organic farmer: *"Farmer-to-farmer information is, we find, a lot more valuable. Scientists don't like it when I quite often say that science is about ten years behind the top farmers. From our observation, both before we were organic and now through, it's the top farmers who lead the way, and then the scientists say, 'What's going on over there, we better just research this,' and by the time they've actually put it all together, it's about ten years down the track, and that farmer's still ten years ahead of them... And the professionals, whether it's the researchers or what have you, get the bulk of the money, and it doesn't produce the food."*

Organic farmer: *"You've got Massey University that takes the lion's share of the funding, they pull about a quarter of a million bucks in, the little bit of funding that is available, and they're basically trying to reinvent the wheel... They have a conventional and an organic herd running side by side, and the figures coming out of that outfit would put anybody off organic farming... They should've had a robust farmer peer group involved, because they've taken a conventional approach to an organic operation... So Massey is actually doing the industry a*

disservice at the moment, whereas the good organic farms are up at the top ten per cent of profitability.”

5.5 Market networks: Fonterra

Organic farmers praise Fonterra for getting into organics and for offering a price premium. That leadership and financial support, coming from the largest company in New Zealand, have greatly increased the profile and credibility of organic farming.

Organic farmer: *“It’s been a fantastic catalyst, with them paying seven per cent to the farmers that start conversion, soon as they sign their organic conversion contract. Then after three years they’re paying 20 per cent Plus with Fonterra being 95 per cent of the New Zealand dairy industry, or somewhere around that figure, by them taking it seriously, or having a proper business plan, long-term business plan, it has made a number of farmers sit up and take notice. It’s really helped put it on the map and have it accepted as a proper farming practice We’re not laughed at as much as we used to. We’re now getting people in the district ringing and asking about different farming issues, whereas before they thought we were nuts.”*

Organic farmer: *“The best thing they ever did was to take it on board, because they are the biggest export company in New Zealand. That was a huge role, to give it credibility straightaway. Offering a premium, which made it look like they were serious about it. Offering six year contracts, that’s not done in any of the industries. They’re giving us six year assurance that they will pay a premium, well that’s all brilliant, that’s good.”*

Other farmers say they appreciate the advantages of doing business through a big, well-organised company – Fonterra is efficient at transport, straightforward to work with, and reliable on payment.

Fonterra’s push for production

However, many organic farmers see Fonterra’s overall emphasis on increasing production-at-any-cost as an obstacle to the company’s organic program. That is, while a small segment of the company is pushing organics, the rest of the company is pushing conventional farmers in the opposite direction, toward an increasingly high-input, intensive system. From 1994-2002, the number of dairy cows per hectare in New Zealand increased 19 per cent; milk solid production per hectare went up 34 per cent; and fueling this jump in productivity, urea fertiliser per hectare jumped a staggering 162 per cent (Parliamentary Commissioner for the Environment 2004). Dairy industry publications, which circulate to all farmers, showcase high-input / high-production farms as models. Because Fonterra’s goal is maximum production, these publications usually do not mention that low-input or organic systems can be equally profitable even when producing less milk.

Farming couple in conversion: *“Fonterra, it seems like they just want more milk at any cost... but as long as you’re increasing production without increasing profitability, there’s no point in doing it... and Fonterra has to be responsible in getting that message across.”*

“There seems to be this pressure or stress to perform with your production, and I don’t know where it comes from. Because you’ve got a farm, it’s going to grow grass, and all year round in New Zealand... I’ve actually given up reading their [Fonterra’s] magazine... because Fonterra’s focus is production, that’s all I see them wanting to do is to make more money.”

Organic farmer: *“One of their issues is they’re actively trying to get more milk production. Yet they’re trying to be seen to be clean and green. And I think there’s a feeling that if they promote organic production, they’re not going to grow that total milk quantity. Because almost invariably, a farm converting to organic farming, at least for a period, will drop total milk production. It can come back up, but it will drop in the interim. Because I can’t find another reason why a company with considerable resources – basically endless resources, because they pay us the bit that’s left over – is saying it wants to grow organics and is doing such a lousy job of promoting it... The industry, they’re telling farmers they need to increase their production by four per cent per year, otherwise they’ll get left behind... It’s just a motivational thing, it’s telling you to run to stand still... it’s got a commodity mentality. That’s why I don’t believe they’ll succeed with organics.”*

Fonterra staff member: *“We’ve just been focused on production, production at the expense of everything else... Everything’s telling them [farmers] they should use nitrogen, they should use supplement, they should get so many kilograms [of milk solids] per hectare.”*

The industry-wide extension organisation for dairy farmers, Dexcel, focuses on helping farmers meet production goals in line with Fonterra’s aims. The aim of Dexcel’s “Pasture Plus” discussion groups summarises that approach, offering to teach farmers about “Growing more grass, harvesting more grass, making more milk and ultimately enjoying more money,” according to the organisation’s own web page (Dexcel 2007). Other Dexcel discussion groups focus on conventional practices such as herbicide use and supplement feeding. Dexcel does operate multiple kinds of focus farms – including both a “Super Productivity” farm obtaining 1750 kg of milk solids per hectare, and a “Tight N” farm aimed at reducing nitrogen leaching – showing that the industry is at least taking steps to respond to criticism of its environmental practices.

5.6 Growing organics

What would it take to get more dairy farmers to switch to organics? Some farmers believe only money will motivate more of their peers to convert. Others believe it is a matter of changing the perception of organics – showing farmers that organic is a sensible way to farm. Most farmers believe there is a need for better dissemination of information on organics – both through written

Appealing to farmers’ monetary motivations

Organic farmer: *“Firstly if you really want to convert people, it’s the money honey – it really is... You work hard, you’re not going to work hard and take a drop in pay. That’s ultimately what everyone thinks organics is. That’s the first question that comes into it... Fonterra want to swing people to organics, they’re going to have to make it the money. That’s the only thing. It’s a big business, dairy farming, now the average farm is worth \$4 million... We’re not getting paid that much, so it’s a struggle.”*

Organic farmer: *“High premiums – if they increased the premiums to 30 per cent, they’d have all the farmers they need... Money is what changes it... dairy farming is pretty tight at the moment.”*

Organic farmer: *“People are driven by positive incentive, or disincentive. The incentive at the moment is 20 per cent premium. A few people will change on philosophical grounds,*

regardless of money. There's about 27 of us, and we've all done that. The rest are going to come being motivated by financial gain, I think."

Conventional farmer: *"Getting people to convert, 20 per cent I don't think's enough. There's a huge waiting in those first three years, isn't there, and cows, I have seen cows not responding to the system, they don't fit the organic system for whatever reason... So I think the 20 per cent is a disincentive. If it was 30 or 40 per cent... Maybe they need to give a bit more to the producer if they really want more producers to convert."*

Increasing information flows

Farmers suggest multiple steps for improving and increasing the flows of information about organics. This involves a whole range of activities – including general publicity, working through farming industries (such as input suppliers), and improving farmer-to-farmer contact, through mentorship and discussion groups.

The most basic first step is to change the common perception of organics, many farmers believe.

Organic farmer: *"Changing the image of organic farmers, promoting us as not being greenies, as in New Zealand – you know about greenies, you tie yourself to a tree or something – not every organic farmer wants to do that."*

Organic farmer: *Other farmers think " 'How can you farm without nitrogen? How can you farm without a pour-on for your internal parasites? You just can't.' But you can. We were never too hamstrung by all the convention, and what you have to do and what you're supposed to do, and what the neighbour's doing, and for us it wasn't difficult. I think farmers are a pretty conservative bunch... But having said that, once a few case examples are out there and it works and it is profitable, there's probably a landslide towards it."*

Organic farmer: *"Perception... There's enough low-input farmers around to go organic without too much trouble – there's this image of organic farmers around that they're greenie... It's the image that puts them off, they think that they're progressive and an organic farmer is stupid... They don't want to go there, it's too unusual, too different, too scary."*

Printed information channels

Farmers offer a variety of suggestions about how to change that perception. One of the simplest is getting more information on organics into all the normal publicity channels through which dairy farmers get information. That means working with supply companies, vets, and the farming press to make sure they are all offering and publicising organic options.

Conventional dairy farmers get information from a variety of standard sources – dairy magazines, farming newspapers, consultants, Dexcel discussion groups and field days, fertiliser companies – most of which push a conventional system.

Conventional farmer: *"There's good farming journals come out, specific ones for dairy farmers. Fonterra has its own monthly magazine that you have to read. Otherwise you're not going to get told what you need to know. And there have been private companies – Dairy Exporter, other magazines. I read a lot of magazines, I don't spend a lot of time on the Internet... There are discussion groups, they're funded by a levy that we pay into... There are*

workshops, there's one coming up... It's going to a farm, he's just installed a whole lot of new gear, and they'll put on a lunch, and we'll stand around and ooh and ah at the three million bucks he's just spent to milk his cows."

Currently, however, the vast majority of information which floods farmers' mailboxes makes little mention of organic options.

Organic farmer: *"The vets always send out a little pamphlet with what you have to do at this time – like inject your calves, and do this for your calves, do this for your cows, and what's coming up... there could be a really simple avenue for organics to make it easier. They're trying to get people to convert, but they're not making it look easy... A lot of people are scared off, and they're only scared because they don't know. It's just the education thing."*

Organic farmer: *"Dexcel produced a whole little bible on mastitis management, and it cost a fortune, and at no point did it mention an organic approach. At no point did it mention trace elements or soil health in relation to stock health or mastitis. It was all drug program. It might as well have been funded by Pfizer or someone. It was pathetic."*

Organic farmer: *"The Dairy Exporter, which is a magazine produced by the industry, by Fonterra, it's a lot of case studies of different farms all around the country. And basically, essentially what it does, it talks about good farmers, the best farmers in the country, and what they do. So you get all the best farmers who are doing 12, 1300 solids per hectare, and even more, 15, 18, and you know 400 or 450 milk solids per cow... A lot of average farmers, they see these shining examples, and they think, 'Well I'm going to be like that,' and they adopt some of the inputs these people are on, they go to high-input, they use lots of maize, and they buy in this palm kernel extract, and they put on, they double their fert... And then you go the other way, if you look at the organic side of it, it just doesn't sit good in a magazine like that, because you're comparing a system where all everyone wants to talk about is milk solids per hectare."*

Working with organic input suppliers

Input suppliers, such as organic fertiliser companies, may also help identify farmers who are ready to convert to organics. Many organic fertiliser companies actually sell the bulk of their products to conventional farmers. These conventional farmers are thus already partway along the path to organic certification. One organic fertiliser company reports that in the last few years, a huge wave of conventional farmers have switched to organic fertilisers for practical reasons – they have realised that a more balanced fertiliser program supports better animal health. Many organic farmers interviewed for this study had originally switched to organic-type fertilisers for practical reasons, and then became certified when they realised they were close to being organic anyway. Thus, halfway-organic farmers are potential future organic farmers. Organic input supply companies may help identify and reach these farmers.

Organic farmer: *"The people that I think could help the most that so far have been left out of the discussion are the input service industry, the input suppliers and all that. They're the ones who know the farmers whose practices are that close to organic already, and you might be surprised how many are out there; they have direct relationships into farms, they have built friendships, relationships, and know a lot about the farmers' personal, financial, and more importantly, they know the technical advice about the products."*

Organic fertiliser company owner: *"Our main thoughts are how will we keep up with the supply at present... That snowball's starting to pick up speed... Where we've always found it*

difficult to speak to farmers, they're calling and inquiring... Mostly they're having so many problems with the chemical fertilisers... mainly metabolic problems with the animals – most of their problems are with their animals' health, that's the reason why they turn."

Organic farmer: *"There are conventional farmers out there changing the type of fertiliser that they are using, so in a way they're only a couple of steps off going organic. And it all just comes down to educating... If Fonterra did more advertising... or possibly from Fonterra's point of view, advertising open days of people who aren't organic but have changed their fertilisers or trying other things, because that's the halfway point, most people have to do that first... They're totally conventional farms but they're pushing that there is an alternative fertiliser, and that is only half a step away from an organic fertiliser. It has to be out there in people's faces more, which really does need to come from Fonterra."*

Organic farmer: *"There are people out there in New Zealand who aren't too far off the mark, all they'd have to do is twig a few of their on-farm management practices and they'd be organic, they just don't know it... You've got a lot of people sitting out there, that are so close, that if you put a decent plan together for them, instead of scaring them, saying, 'Hey look, this consultant's there for you, that's the way you do it, here's the fertiliser industry, there's these people, there's these structures, you only have to change two things in your system and you can increase the profitability of your farm or the percentage of your payout by 20 per cent in three years' time, you can increase it by seven per cent tomorrow, all you have to do is sign that piece of paper.' You'd probably pick up 15 or 20 in the first bloody month."*

Increasing farmer-to-farmer contact

Many farmers also believe that farmer-to-farmer contact is key to growing the organic sector. Conventional farmers are convinced by seeing successful organic farms and interacting with successful organic farmers. Field days at successful organic farms, mentorship by long-term organic farmers, and discussion groups, facilitated by people knowledgeable in organics, may all be part of the process.

Organic farmer: *"When farmers can go to organic farms and see an operation that is more profitable than theirs, run by people who aren't wearing rainbow dreadlocks and things, but are seriously in the business of farming and farming for profit, as well as looking after the stewardship of the land, then you'll start to get some change."*

Organic farmer: *"Taking the new farmers out onto existing farms or even onto their own farm where other experienced ones can say, look I'm having this problem here or this is working for me here and others can see how that's working. Farmers learn with their eyes and their hands best... Whereas the Fonterra staff believe that putting on more seminars and a conference is going to get more farmers on board."*

Organic farmer: *"If we had that \$350,000 to develop discussion groups throughout New Zealand... Fonterra might have 200 farmers by now. Because that's the power of the discussion groups, of having people together and seeing and visiting other farms... We're positive that if we could just get more discussion groups happening – because then farmers talk. You get a few new ones come along and see the farm at a discussion group, and think, 'That didn't look weird, actually, I felt comfortable, and what have you, and their production's not too bad'... Farmers learn with their eyes and their hands. Then they will ask the questions about the bottom line, the financial side of things. So until they actually get more discussion groups run by a facilitator that has either empathy or great knowledge in organics..."*

Organic farmer: *“The ones that have generated the farms for Fonterra, isn’t Fonterra. They don’t know that yet, but it’s not Fonterra. It’s farmers and people like the farmers and Bill Quinn. They’re the ones that have generated the farms for Fonterra, their organic program... I don’t see that they [Fonterra] should be trying to do all the education side and control it and hold it, because they can’t, they haven’t got the expertise, they think they have but they haven’t.”*

However, there is a catch which makes farmer-to-farmer learning difficult to implement. Although the top organic farmers are ideal spokespeople and teachers, they also quickly become overburdened when working voluntarily to promote organics and run their own farms at the same time. The Organic Dairy Producers Group (ODPG), an all-volunteer organisation, has in the past organised discussion groups and field days, and engaged in political advocacy, and maintains an email discussion group. But dairy farmers can be busy people. Many of the leading organic farmers are tired of promoting organics and organising events, because it becomes a cost to their own businesses. The following farmers have put in years of enthusiastic volunteer work on the ODPG:

Organic farmer: *“The trouble is we’re all busy on our own farms. Anything we do off-farm is volunteer work, and that’s a cost to our business... We’ve done a lot of that.”*

Organic farmer: *“If we leave the farm for too long, your farm can actually suffer from it... For us, with all our kids, and all our stuff going on, to try and get enough time for them and on the farm, it’s very hard for us to get enough time to go out and make the whole outer system work... It’s hard to get a group together... You do that three or four years before things start to suffer. We’re trying to make money, pay the mortgage.”*

Organic farmer: *“At the moment, Fonterra say they want us out there [promoting organics] more. My argument is we need to be back on the farms more, because that’s how they’re going to get more milk, not us off the farm and stuffing our farming systems up and not producing very well.”*

5.7 Summary of key points

Conversion

- Dairy farmers convert to organics for a combination of reasons, including a desire for healthier soils, healthier animals, and a healthier product; and a desire for a profitable alternative to high-input conventional systems.
- Conventional farmers express a range of doubts about organics. Many fear a drop in production, and problems with animal health and weeds.
- Many organic dairy farmers recommend that conventional farmers convert to organics in stages – first switching to organic fertilisers, then gradually taking their animals off of conventional health treatments.

Practices

- Organic farmers’ soil practices vary widely; some purchase manufactured organic fertilisers, while others make their own compost.
- Most long-term organic farmers have few problems with animal health. Most say that once pasture quality is improved under organics, animal health problems drop away.
- Most organic farmers grow all their own feed because of the difficulty of finding organic feed to purchase.

- Some organic farmers are among the most profitable dairy farms in the country. They focus on maximising profitability, rather than maximising production.

Information networks

- Some dairy farmers are the “information-hungry” type, seeking out information from a variety of sources. That type characterises mostly the original organic pioneers.
- Farmer-to-farmer contact is important at multiple phases in an organic farmer’s career.
- Dairy farmers like to “look over the fence” at other farms, and most prefer to see successful organic farms before they will consider converting their own farm.
- Many dairy farmers prefer to learn new practices from experienced peers; discussion groups have helped many convert to organics.
- The greatest expertise on organic dairy farming lies mostly with the top farmers and independent consultants. University researchers and the official industry extension organisations have lagged behind, and are less trusted by organic farmers.

Markets

- Organic farmers praise Fonterra for getting into organics, bringing legitimacy and funding to the industry.
- However, many organic farmers see Fonterra’s overall corporate focus as an obstacle to the company’s organic program, as the company is pushing conventional farmers to maximise production, which usually means increasing chemical inputs.

Growing organics

- Fonterra wants 200 organic dairy farmers by 2013 (from 66 currently), but conversions have been slow in coming.
- Most organic dairy farmers want to see growth in organics, but hold a wide variety of opinions as to what would prompt more conventional farmers to convert.
- Some believe a higher premium is necessary.
- Most agree on the need for better dissemination of information on organics: countering negative perceptions of organics; providing more printed information on organic methods through normal dairy industry channels; and more discussion groups.
- Many conventional dairy farmers are already switching to organic fertilisers for production reasons; these farmers are potential organic converts.
- Farmer-to-farmer contact is key in getting conventional farmers to switch and helping them through conversion; but the top organic dairy farmers can become overburdened in this role, when working off-farm to promote organics.

Chapter 6

General Conclusions

6.1 Introduction

This chapter draws together evidence from the three case studies to answer the original research questions: What kind of human networks can contribute to growth in organic production in New Zealand? What kind of information networks are most effective in supporting producers as they learn to grow organically? What are the effects of current market structures, particularly the involvement of large corporations in organics? It considers the issue of corporate organic production monoculture paradox, and the clean green image of New Zealand agriculture. The following chapter, Chapter 7, offers concrete recommendations for programs and policies to grow the New Zealand organic sector.

6.2 The importance of human networks

There is no single recipe for growing organic production. Each agricultural production system, each region, each farmer is different. But certain common ingredients stand out from these case studies. There is an underlying theme: the structure of *human networks* is crucial. Markets for organic produce are growing rapidly throughout the world – but that does *not* mean that organic production will automatically grow in New Zealand as a result. Coordination of market opportunities and information flow are critical. This can be seen clearly from the fact that in two of the sectors studied here (mixed cropping and dairy), New Zealand supply is actually far behind international demand – that is, company representatives report that their overseas customers want more organic product, but they are unable to find enough organic farmers here to produce it. Only in the apple industry is supply growing in parallel with demand – and that is because the biggest growers are getting bigger, not because more conventional growers are converting.

The following *human network* factors contributed to successful organic growth in all of the cases studied:

- **Pioneering farmers/growers** who are willing to experiment with organics first. These become an example to other growers.
- **A local peer group of farmers or growers** willing to go organic together. This creates opportunities for peer support, information flows, and centralised marketing.
- **Market opportunities** – and, equally important, a company or other organisation which is willing to organise those opportunities.
- **Catalyst people** who drive organic production forward and convince more producers to convert. These catalysts can be leading farmers and growers (as in dairy and apples), corporate representatives (as in Canterbury cropping), researchers or discussion group facilitators (as in apples), or others who are closely involved and trusted by producers.

Other contributing factors to growth in some of the systems studied were:

- **The presence and public visibility of ‘stepping-stone’ systems** help farmers switch partly toward organic methods before converting officially – as in the case of dairy farmers

switching to organic fertilisers before going fully organic. (See also Campbell et al. 1997 on the kiwifruit industry).

- **A close relationship between producers and pro-organic researchers** can be helpful, especially in the more technically challenging and high-risk organic systems – such as pipfruit, in which researchers have worked out organic pest and disease management techniques according to growers’ needs.

6.3 Going organic: process and practices

There is no single typical New Zealand organic producer. Farmers and growers turn to organics for a whole range of reasons: deep-seated philosophical beliefs; a desire to improve the health of their soils, animals, and/or overall farming system; concern for their own health or lifestyle; and, of course, the profitability of organic markets. Often these reasons are deeply mixed. This was true in all of the cases studied here. Darnhofer et al. (2005) have suggested that there is a division between “pragmatic” and philosophically “committed” organic farmers, but in reality, in New Zealand, while these extreme types do exist, the lines between them can be blurry. This is obvious from the farmer and grower quotes in the results sections above. This supports earlier findings by Fairweather (1999): farmers go organic for a mixture of interwoven motivations.

In general, in all three studies, the organic growers on the philosophically-driven end of the spectrum are the ones who have been organic the longest. Newer converts tend to have more pragmatic motivations. The apple industry tends the most sharply toward market-related motives. The vast majority of organic producers interviewed do not identify themselves with Green Party politics or with the “greenie” stereotype of organic farming, and many even mock the image of “sandal-wearing hippies.” Many organic producers see organic as a business rather than a lifestyle, and do not personally buy organic food.

This diversity of producers’ motivations has important implications for growth in organics: to get more farmers and growers to convert, it is necessary to demonstrate to them a number of advantages – ecological, farm health, profit, personal. Different combinations of these reasons will sway different farmers. Because the philosophically-driven farmers have in many cases already converted, the pragmatic side of organics – profits, and the rationale for specific organic farm practices – may be more important now for new converts coming from a totally conventional mindset.

There is also an important element of psychology involved in the process of change. Some farmers love taking risks and trying new unknown challenges; many of these are the country’s longest-standing organic farmers. At the other extreme, some farmers understand all of the steps and reasons for organic production, but still seem hesitant to make the leap and convert. For example, some dairy farmers are “on the fence” – they already farm nearly organically, but still feel hesitant about making the formal switch to organics. Some livestock farmers in Canterbury are in a similar position.

Conversion is the most difficult time for organic farmers and growers. During conversion, yields may go down for a variety of reasons. Soil biological activity may need some time to become reestablished after years of dependence on synthetic chemical fertilisers; animal herds may experience initial health problems if they have been bred on conventional drenches; and in general, farmers may be less skilled at this stage as they are still learning the organic system. The difficulties of the conversion years are sharpened by the fact that in most

industries, farmers receive no premium until they obtain their full certification after three years of farming organically.

6.4 Flows of organic information

This research confirms what many have suggested in other countries: information flow is crucial to the spread of organic production (Padel 2001, Warner 2007). The earliest organic pioneers, in all three sectors studied, started out with little outside information. They learned the hard way, through experience, and many suffered losses along the way. For some that meant losing crops to weeds or birds; experiencing sudden animal health problems; or losing large portions of an apple crop to blackspot.

Farmer-to-farmer learning

Farmers and growers like to learn from the experiences of other farmers and growers. This was true in all three of the cases studied. Producers most easily trust the word of peers who have gone before them. Many do trust researchers and corporate representatives – but most producers place the most confidence in the advice of people who have personally dealt with the day-to-day risks that all organic farmers take. Dynamic farmer-to-farmer knowledge exchange networks have been critical to the development of organics in New Zealand, similarly to many cases in the U.S. (Hassanein and Kloppenburg 1995, Warner 2007). In all three sectors studied here, producers say that their fellow organic producers are an important source of information. Organised discussion groups have been an important part of these networks in all three sectors studied. Producers say they have learned from visiting each others' organic properties, and from the informal advice networks stimulated by these discussion groups.

However, farmer-to-farmer learning often works best when it receives organisation and funding from someone other than farmers themselves. Farmers and growers are busy people, and volunteer-run organic education groups tend to go through ups and downs as leaders juggle busy lives. Discussion groups in all three sectors have lasted the longest when they have been run by paid facilitators. The presence of a skilled facilitator, with knowledge and commitment to organics, has been important in all three sectors.

Some farmers (both conventional and organic) do hire professional consultants or farm advisors. Still, these farmers stress that what makes a good consultant is someone who has contact with many other farmers. In this way, the best advisors are mostly serving as conductors of information flow between farms.

Organic producers can feel quite isolated if they have no organic neighbours. Many report the value of having organic neighbours or other organic friends. These informal relationships are important not just for exchanging information, but also for moral support and camaraderie.

Clearly, it is important for new organic producers to have contact with experienced organic farmers as mentors. The only problem with this is that promoting organics can become a drain on these leading farmers' time.

Many farmers do learn from reading. Some of the most resourceful organic farmers continually hunt down information via Internet, books, and farming publications. However, printed materials are not enough to satisfy all farmers. Not all farmers prefer to learn by reading; and of those who do learn by reading, it is sometimes as a last resort when they

cannot find information elsewhere. The majority of farmers interviewed, both conventional and organic, prefer to learn with their hands and eyes – by trying things themselves, or by learning from their neighbours' practices.

The role of research

The relationship between organic farmers and organic researchers varies from sector to sector. In some cases, the grower-researcher relationship has been vital. Research is most important in technically challenging, high risk organic agriculture/horticulture sectors, when producers cannot afford to experiment with risky practices on their own. For example, HortResearch scientists have worked closely with organic apple growers to find solutions to pest and disease problems. Growers have come to depend on this support, particularly when a new problem arises, such as current infestations of bronze beetle. Because organic apple growers can lose huge portions of their crop by trying the wrong pest/disease management techniques, it is important for these growers to be able to rely on research rather than doing it themselves.

Research is most useful to producers when it is run by people who are deeply committed to making organics succeed, and when research questions come directly from farmers' stated needs. Top organic dairy farmers complain about the Massey University dairy trial, which is comparing two herds, one conventional and one organic, run on side-by-side farms. The trial is the most heavily funded organic dairy research project in the country, but many of the researchers running it are not themselves enthusiastic about organics, and are actually asking the top organic dairy farmers for advice, rather than the other way around.

Moreover, in many cases, farmers simply do not feel the need for more research. In Canterbury, the only organic farmers who mentioned researchers as an important source of information were mostly farmers who had researchers conducting trials on their own farms. Canterbury experienced closer grower-researcher connections in the 1980s and 1990s, when more MAF and Lincoln University researchers were working in organics. Researchers also worked closely with Wattie's farmers to work out an organic production system for peas. But at present, research does not appear to register much importance in Canterbury organic farmers' minds.

Barrier to growth: conventional farmers' impressions of organics

In every sector studied, some conventional producers have serious production concerns about organics. Some of conventional producers' objections to organics are based on thoughtful consideration, grounded in facts about the trade-offs of some organic practices (e.g. a conventional crop farmer's worry that controlling weeds organically, through mechanical cultivation, would harm the structure of his dusty soil; and conventional apple growers' alarm at the health of organic trees which are sprayed with lime sulphur). However, other conventional producers hold negative opinions of organics based on misinformation. For example, some conventional dairy farmers believe that organic farms are full of sick animals, and that to succeed in organics, a farmer needs to own two farms – one organic, and one conventional farm to shove all the sick animals onto. Some conventional apple growers criticise organic growers for spraying their orchards with high levels of heavy metals, but in reality, organic orchards are only allowed to spray 2kg of copper/ha per year, and many spray less. Stereotypes about organic producers have decreased in the last decade. Many early organic growers were laughed at by their friends and acquaintances at first; now many of them say that neighbours take them more seriously. But still, misinformation and unanswered questions about organics persist in the farming community.

Barrier to growth: the link between products and information

The corporate structure of the farming industry greatly influences the way that information travels. Information flows in parallel to the flow of commercial products in New Zealand agriculture. That is to say, information travels mostly along with the exchange of products or other commercial activities. In the absence of a government-funded extension service, commercial entities have stepped in to become the main information providers. For example, in Canterbury, farmers (both conventional and organic) get crop cultivation recommendations from the companies for whom they grow those crops; they get soil recommendations from fertiliser company representatives; they get animal health recommendations from vets. Farmers are not just passive recipients of information, waiting for someone else to tell them how to farm; but most information travels attached to a particular product. This information-flow pattern tends to promote a farming style based on purchased chemical inputs. Conventional farmers are bombarded with information, from farming publications and sales representatives, all pushing particular products. As organic production has grown, more organic products have become available, and the people selling those products become important conduits of information – such as organic fertiliser companies, and homeopathic vets. It can be difficult for organic producers to evaluate the competing claims of different “witch doctors” offering their own organic products, though the same problem exists for conventional farmers.

The commercial information-flow pattern presents a problem for organics, because much important organic information is not connected to a particular product. If information flows only through commercial channels, key information will not get out. For example, companies do not package and sell advice on how to alter grazing patterns to improve animal health; how to make and apply compost suited to a particular farm; or how to manage weeds through cultivation. Of course, this information could be sold by consultants, but in practice that can be difficult for consultants to do. For example, one organic consultant complains that it is hard for him to make a living, because all he sells is information, and farmers pay him for his advice, but then spread that information to other non-paying farmers for free.

Thus, outside funding is critical to supply the flow of non-commercial information in organic farming. Otherwise, organic farmers can wind up in an “input substitution” mode: because they get all their information from product providers, they end up substituting conventional chemical inputs with organic ones, rather than redesigning their whole farm system to better suit organic production. The input-substitution mentality characterises many organic apple producers; some newer organic dairy farmers also fall into that category. A farming approach that relies only on chemical fixes can be expensive, and may ignore plenty of other important techniques and practices. As past studies have pointed out (Pretty 1998, Warner 2007), true agroecological farming requires more than just “technology transfer” of specific products; it requires an ongoing, dynamic learning process that involves producers. If information transfer is left up to fertiliser and spray companies (including organic companies), then organic farmers in New Zealand will likely remain in input substitution mode.

In New Zealand conventional farming, there is one major information source outside of agribusiness – the research and extension bodies which are funded by levies which all growers pay on their agricultural products. These levy-funded bodies include the Foundation for Arable Research (FAR), Pipfruit New Zealand, and Dexcel and Dairy InSight. However, not all of these organisations have been highly supportive of organic producers. Some industry representatives argue that because organic production only accounts for a small percentage of their levy incomes, only a small percentage of their funding should go into supporting organic production. Many organic producers are skeptical of the mainstream

extension bodies, particularly in arable cropping and in dairy. Therefore, these organisations may not be the ideal providers for organic extension programs.

6.5 Corporate organics, pro and con

Are big corporations good or evil? In the case of organics in New Zealand, that question does not have a simple answer. Corporate involvement in organics has had a whole range of effects.

In some European countries, subsidies and government extension programs help organic farmers through the costly and challenging conversion process. In New Zealand, where government subsidies and extension programs for agriculture are nonexistent, corporations have stepped in to play that supportive role in some cases. Large corporations have significant financial resources; that means they can afford to invest in supporting farmers and growers who are converting to organic. For example, Wattie's greatly advanced organic production in Canterbury in the 1990s. Through largely private means, Wattie's ran one of the best-organised organic extension programs in New Zealand, and helped many farmers through the conversion period. The company invested large amounts of money into publicising and supporting organic production, through field days, newsletters, agronomist visits to farmers, and research. The company's agronomists continue to visit all farmers to advise them on production practices throughout the season.

Fonterra is also demonstrating the importance of corporate economic power in supporting new organic producers. The dairy company pays new organic farmers a seven per cent premium for their milk for the first three years, from the day that they begin converting, even though Fonterra itself receives no premium for the milk until the farm reaches full certification in its third year of organic management. The conversion premium is simply an incentive and support for farmers in transition – an investment in future organic farmers. Many dairy farmers point out that just the presence of Fonterra, the biggest company in New Zealand, has helped the image of organics among conventional farmers.

The apple industry has also shown how corporate resources can contribute to organic expansion. Today, it is the biggest corporate growers who are converting more orchards to organics. These growers are the ones with enough capital to buy up old conventional orchards, and to run those orchards through the economically costly conversion process. (As conversion orchards experience a fall in yields but normally receive no premium for their fruit, they may operate at a loss for those first three years.)

Corporations have a particularly important role to play in New Zealand organics, because of the country's export focus. More than half of New Zealand's export earnings come from agriculture (MAF 2004). It is difficult for farmers and growers to make overseas connections to market their own products, though some producers do it. It is easier for big companies to maintain international business relationships. Criticisms of the "conventionalisation" of organic marketing structures elsewhere therefore do not completely hold true in the case of New Zealand. Organic advocates in California complain that corporate involvement has led to a "de-localisation" of organic distribution chains, as corporate trade replaces local market networks (Buck et al. 1997). However, in New Zealand, where many producers are halfway around the world from their consumers, corporate involvement in organic marketing has had the effect of enabling large-scale export producers to go organic. Of course, there are both ecological and social arguments for eating locally grown organic food; but as long as New

Zealand remains an export-oriented nation, it is hard to imagine a large organic sector without corporate involvement in international organic marketing.

Nevertheless, corporate power to promote organics does have its limits. This is particularly true in multi-crop systems. When a big food company only provides a market for one organic crop, farmers are left to sort out markets for the rest of their own marketing; but this can be difficult to do for farmers new to organics, particularly for farmers who would rather focus their energy on producing, instead of on market-hunting. The case of organic cropping in Canterbury clearly illustrates this problem. Wattie's had the power to stimulate some organic conversions. The company wanted mostly just one organic crop, peas – but peas can only be grown once in a paddock every four or five years, in order to prevent crop diseases from building up in the soil. Thus, Wattie's did not offer farmers a complete organic farming system. As one Wattie's representative put it, "We were only one of their [farmers'] customers, trying to convert them to change their whole system, and hoping the rest would fall into place." Though some organic farmers excel at searching out markets or attracting marketers through their reputations, other organic farmers in the area have had trouble finding enough stable market options, leading one large-scale organic crop farmer to convert back to conventional recently. Elsewhere, in Gisborne, Wattie's experienced a similar problem. The company helped farmers convert to organics there, but only wanted one crop, sweet corn, for its local canning factory. Farmers who were not able to build a full organic rotation ended up switching back to conventional.

Fonterra offers another humbling example, showing that even the biggest corporation in New Zealand cannot automatically push farmers into organics. Certainly, Fonterra has plenty of resources. It employs a dedicated Organic Extension Officer to personally advise farmers as they go organic – a level of support which the company does not even offer to conventional farmers. It funds organic seminars and field days. The company is also co-funding the ARGOS (Agriculture Research Group on Sustainability) research project, a long-term study examining conventional and organic-conversion farms, which Fonterra staff hope will provide economic and production data in favor of organics. But Fonterra's organic staff still appear worried about how to reach their goal of 200 organic dairy farmers by 2013.

Ultimately, Fonterra's involvement in organics raises the question of whether big commodity-focused companies are suited to promoting organic production. Fonterra's small organic staff is making a concerted effort to convert more farmers; but the rest of the company is geared towards an overall mission of pushing farmers to increase their milk production – which means an increasing trend toward intensive, high-chemical-input conventional farms. The dairy industry institutions – Fonterra, and the dairy industry research and extension organisations – are not helping conventional dairy farmers toward the "halfway-organic" point from which they can easily convert; instead they are pushing dairy farmers in the opposite direction. According to one Fonterra representative, company leaders see their organic business as a way to counter-balance image problems associated with the company's biotechnology research. Organic milk, to them, is just one "specialty milk" among many – kosher milk, organic milk, colostrum.

The disadvantages of a corporate monopoly in any farming sector are also obvious. When just one company controls an industry, farmers have few options. Conventional and organic dairy farmers have various gripes about Fonterra, but because there are few competitive companies, there is little incentive for the dairy company to change its dealings with farmers. Likewise, many apple producers also were dissatisfied with ENZA, the body controlling all New Zealand apple and pear exports through the 1990s. Now, organic apple growers report that they enjoy having a handful of companies to whom they can sell their apples; companies are

“kept honest” because they must compete for growers’ loyalty, as they all want as much organic fruit as they can get.

Supermarket organic

One of the biggest drawbacks of corporate-scale organics is on the retail side. Organic marketing channels increasingly resemble the marketing channels for conventional produce. More and more multinational food companies are selling organic products; and at the same time more and more organic produce is now sold through supermarkets. In most developed countries, including New Zealand, growth in organic sales has meant that an increasing proportion of organic sales go through supermarkets (Campbell and Ritchie 2002). More than half of organic food is sold through supermarkets in the U.S.; as much as 80 per cent of organic food is sold through supermarkets in the U.K. (Lockie et al. 2006).

Foreign supermarket demand works in favor of New Zealand organic farmers – for the moment. Supermarkets have the power to move large quantities of food, meaning farmers’ products are in demand, and high prices result. For example, organic apple prices have soared in recent years as more overseas supermarkets have decided to sell organic fruit. In some cases supermarket demand has been so strong that organic growers can even sell poor-quality fruit at good prices. Big companies like Fonterra are finally getting on board with organics for a reason – it is a potentially lucrative business.

The international market for organic produce is currently growing every year. From 2002 to 2004, the market grew from US\$23 billion to nearly US\$28 billion (Willer and Yussefi 2006). However, the amount of land organic production is growing worldwide as well, and it is difficult to know how long the demand will be greater than the supply. Plenty of conventional farming industries have learned the hard way: when markets become oversupplied with a product, then supermarkets have the upper hand in bargaining power, and prices take a nosedive. The current state of the conventional apple industry in New Zealand is a sad illustration of this boom-and-bust commodity crop pattern. Prices have crashed because the world grows too many apples. Many organic advocates are worried now that the U.S. mega-retailer Wal-Mart is getting into organics; demand for organic crops may increase in the short term, but Wal-Mart is known for using its massive bargaining power to drive prices down (Warner 2006). Some organic producers in New Zealand have converted because of the attraction of price premiums. If those price premiums disappear, it is possible that those producers would not remain organic.

6.6 The organic monoculture paradox

One perplexing aspect of current growth in large-scale organic production is *the paradox of corporate organic monoculture*: namely, organic production seems to grow most easily in New Zealand in sectors which are based on monoculture. There are multiple reasons for this:

- **It is easiest to organise organic marketing for a single crop.** The apple and dairy industries each market one organic commodity and report that foreign demand is excellent and growing. But in Canterbury, crop farmers’ diverse farming systems make it harder to organise organic marketing. Thus, even though organic markets are growing worldwide, somehow that demand does not reach Canterbury farmers. One Wattie’s staff member actually expressed envy for single-commodity sectors, which have a simpler time marketing their products.

• **It is easiest for producers to convert to organics when they have a peer group for support, and these peer groups are easiest to organise in single-commodity systems.** When all producers have nearly identical single-crop production systems, they all face the same challenges, and can benefit from peer discussion groups, particularly while they are converting. Organic apple and dairy producers report that they have gained huge benefit from networking with fellow producers, both informally and through discussion groups. Canterbury farmers, in contrast, do report learning from their peers, but they all tend to have slightly different farming systems. Moreover, when all producers are exporting a single commodity, they are usually open to sharing information because they want New Zealand to capture the world organic market (as in the case of apples and dairy; in both, producers report an atmosphere of open information flows). In contrast, when some producers have their own niche markets, as in Canterbury, some farmers are less willing to share information, because they see other farmers as potential competitors. Leading organic farmers there are unlikely to try to get more farmers to convert to organics; some even say they have no interest in growing the organic sector, because they would rather keep the markets to themselves. This stands in particular contrast to the organic dairy industry, where many dairy farmers are keen to promote organics and help new farmers convert.

Of course, there are obvious dangers to this organic monoculture tendency, ecologically and economically. The apple industry highlights both: organic apples are hard to grow in a conventional-style orchard monoculture, a system which is highly susceptible to pest and disease outbreaks. Economically, organic apple producers depend on a single crop, in a fluctuating, volatile world fruit market. Apples thus are a prime example of the problems with an “input substitution” approach to organic monoculture, as described by Rosset and Altieri (1997). The dairy industry is not a true monoculture in terms of on-farm practice, as the most successful organic dairy farms include a wide range of species in their pastures. But organic dairy farmers still depend on a single market – Fonterra – and are therefore subject to the company’s decisions on payouts.

One of the basic principles of ecological agriculture is biodiversity. Some of the top New Zealand organic farms produce a diversity of crops for a diversity of markets. Growing multiple crops means that when one crop has a problem – either production problems, or low prices – a farmer is not financially destroyed. But all of the corporations in this study chose to focus mostly on one organic crop. When corporations market only a single organic crop or product, they promote organic growth in the short term, as long as markets for that one product are growing abroad; but they may leave farmers vulnerable in the long term.

6.7 Clean, green New Zealand agriculture?

Perhaps one of the biggest subtle barriers to the spread of organics in New Zealand is the fact that many farmers, and citizens, still perceive conventional agriculture as “clean and green.” A 2004 report by the Parliamentary Commissioner for the Environment, *Growing for Good*, detailed many alarming environmental consequences of recent intensification of New Zealand agriculture. Increased animal stocking rates on the land, increased fertiliser use, and increased areas of land converted to dairying, are having multiple negative environmental effects. Nutrient runoff is harming water quality in surface waters; groundwater in some farming areas has become contaminated with nitrates. Soil erosion and over-allocation of water for irrigation threaten future resource supplies. Greenhouse gas emissions from agriculture have also increased (Parliamentary Commissioner for the Environment 2004).

Yet some advocates for conventional agriculture continue to argue that because some farming practices are more environmentally responsible than they were in the past, and because some current conventional agrichemicals are not as toxic as chemicals used in the past, that enough progress has been made. For example, one Pipfruit New Zealand representative insists that “there is no conventional apple production in New Zealand” because all apple orchards are now either organic or IFP – Integrated Fruit Production, using various “soft chemicals” in place of previous reliance on highly toxic organophosphates. In Canterbury, conventional crop farmers say they are proud that they are taking care of their soil through minimum-tillage or no-till systems – even though these systems rely on repeated applications of herbicides. In the dairy industry, Fonterra has implemented a Clean Streams Accord requiring farmers to fence off their waterways, and will soon require all dairy farmers to do nutrient budgeting in cooperation with their fertiliser sales representatives. But some critics say these measures are only image control, and that in the case of Clean Streams, “farmers have complied with the letter of the law, but not necessarily the spirit,” doing the bare minimum to keep stock out of streams but not taking other measures to preserve stream quality (Jay 2006). Even when farmers do fence their streams, the Accord does nothing to counter the fact that “there are more and more cows creating more and more effluent” (Jay 2006).

Why is there less organic agriculture, and less organic consumption, in New Zealand, as opposed to other modernised countries? Less than one per cent of New Zealand farmland is certified organic, while several European countries have five to ten per cent of their farmland in organics (Willer and Yussefi 2006). Is it because other countries are more affluent, so consumers there can buy more organic food – or is it because, in the absence of food scares, New Zealanders are more complacent about the safety of their agricultural systems? Many organic producers interviewed for this study say that they themselves do not eat organically, reflecting the widespread belief that conventional food is safe. Many organic farmers interviewed also pointed out that conventional production practices have improved over time, particularly with the move toward IFP or IPM (Integrated Pest Management) systems in various industries. Meanwhile, abroad, food scares such as mad cow disease and genetic engineering have frightened consumers in Europe. Negative publicity about factory farming and fast food has increased in recent years in the U.S. In both Europe and the U.S., popular media have often portrayed organic food as a safe, healthy, environmentally friendly, and even fashionable alternative to “Frankenfoods” and other problems with conventional agriculture (Lockie et al. 2006). Likewise, some organic shop owners report that the New Zealand debate over GE foods prompted a rise in organic consumption, as consumers realised that the only way to avoid GE food was to eat organically.

Some New Zealand organic industry leaders say they are reluctant to attack conventional agriculture, because they fear that powerful conventional farming organisations would then attack and marginalise organics. Still, one is left wondering how much organic production can grow in New Zealand if farmers and the rest of society remain unworried about the state of conventional agriculture, and unconvinced that an organic product really is better.

Chapter 7

Recommendations

7.1 Introduction

The following recommendations for growing organic production in New Zealand fall into three categories: information transfer, market coordination, and conversion support.

7.2 Information transfer

These recommendations are targeted at improving information flows within the organic sector. These could serve as guidelines for creating programs under the new Organic Advisory Service.

Working with established patterns for growing organics

- *Support organic pioneers who are among the first in their area to go organic* – through advice or financial support as producers trial new practices. Organic production grows in bursts; once successful models are established, more farmers convert. Many farmers are waiting to see an organic neighbour do it first. Therefore, supporting pioneer organic farmers can have a major impact.

- *Promote farmer-to-farmer links.* Many farmers are most trusting of the information that they get from other farmers.

Help new organic producers learn from the experiences of other producers. This can happen through field days, or through paired mentorship between old and new organic producers. However, longstanding organic farmers may need to be compensated for their work in promoting organics; otherwise they end up promoting organics at a cost to their own farm businesses.

Peer groups, such as discussion groups, are important for farmers to convert together and talk through problems. Outside funding for a professional facilitator, who is personally committed to and knowledgeable about organics, greatly helps the success of these groups.

- *Information flows in parallel to commercial flows; work with that pattern, and also work beyond it.* Most farmers get information from the same sources with which they do business – input suppliers (such as agrichemical companies), and food processing companies. Information-providing programs can work within that pattern, but also need to fill the gaps that it leaves:

Work through existing commercial channels which provide information to farmers. For example, some organic fertiliser companies already work directly with large numbers of conventional growers who use their products; these companies could become extension agents providing information on organic conversion. These companies' conventional farmer clients are among the most likely potential converts to organics.

Provide non-product-based organic information through non-commercial means. Many important organic practices are not based on the use of a particular product; therefore information about those practices is not circulated through the usual commercial channels. Seminars, workshops, and discussion groups can fill major information gaps if they focus on agroecological practices and system design issues which are not linked to products – e.g. designing grazing systems to promote animal health; or designing plantings to encourage biological pest control.

Help producers move beyond input substitution. Many of these non-product-based organic practices require deep understanding, which requires in-depth education, not just tips which can be offered on a printed fact sheet or website.

- *Promote partially organic systems as stepping stones to full organic production.* Once more farmers begin to convert to organic fertiliser use and other organic practices, it is easier for them to imagine shifting to full organic certification.

Diverse programs for diverse needs

- *Provide more individualised support to producers outside of the biggest commodity industries.* These farmers and growers currently receive the least information support, because they are not working through large corporations which assist producers in big commodity industries. These diverse producers often lack a peer group for advice, and are harder to organise into useful discussion groups. They may need more individualised ways of learning about organic practices and markets. These growers are important to New Zealand's organic market, especially to the supply of fresh domestic organic produce.

- *Offer a range of different information sources, because farmers and growers learn in different ways.* Some prefer to learn through human contact; others enjoy reading. Some use the Internet; others do not. Some hungrily seek out information on their own; others like to have someone personally help them with advice. Offering a diversity of information sources is key to reaching a diversity of producers.

- *Organic and chemical-intensive conventional are two extremes on a spectrum of farming styles. Offer different extension activities to get farmers onto the organic pathway, and to move them along it.* (See table below.) The path is not the same for every producer, but a general pattern does exist:

Step 1: Awareness. Many conventional farmers still have negative perceptions about organic production practices, and markets. These need to be countered through the channels through which conventional producers normally receive information: the general farming press, industry-specific publications and extension materials, and information from input suppliers.

Step 2: Use of some organic practices. Many current organic farmers experimented with some organic practices before deciding to go all the way. Conventional farmers need to become aware of the merits of different options, such as organic fertilisers and alternative animal health treatments. Conventional extension organisations and input suppliers can be engaged in this process. Once farmers have seen the benefit of some organic practices on their own farms, it is easier for them to convert.

Step 3: Conversion. Producers need financial and practical advice on the decision to convert. Once farmers decide to convert to organics, they enter the most information-

needy stage; they may need advice on complying with organic standards, and advice on technical organic practices. That can include both basic written information, and advice from other organic producers.

Step 4: Moving to deeper levels of organic understanding. Many organic farmers farm according to the letter of the organic standard rules, without moving to a deeper understanding of their own organic system. Information flows should not stop once farmers have reached organic certification; many leading organic farmers have shown that organic farmers can improve their production and profitability over time if they continue to learn.

Table 1: The pathway from conventional to deep organic production

	Process	Farmer's information needs	Ways to meet those needs
Step 1: Awareness	Conventional farmer comes to understand organics as an attractive option	Clear information on organic production practices and profitability; positive image of organics	<ul style="list-style-type: none"> • General publicity, farming press • Information from mainstream industry extension organisations
Step 2: Use of some organic practices	Conventional farmer begins to experiment with some organic practices	Information on specific merits of organic techniques	<ul style="list-style-type: none"> • Advice from input supply companies and extension organisations • Contact with farmers using similar practices
Step 3: Conversion to organic	Farmer goes through three-year conversion period to become certified	Information on financial costs and benefits of certification; basic advice on how to meet standards and use organic practices	<ul style="list-style-type: none"> • Personal financial and practical advice on conversion process • Basic advice via printed sources and/or Internet • Peer group/discussion group support • Mentorship from experienced organic farmers
Step 4: Going deeper	Organic farmer moves beyond input-substitution into a deeper understanding of organic practice	Tools to analyse, improve and refine one's own farming system	<ul style="list-style-type: none"> • Courses, seminars on theory and practice • Contact with other organic farmers

Beyond the farm

- *More research is needed in some organic sectors, but priorities must be determined by farmers and growers.* In the pipfruit industry, growers have benefited from the work of researchers who work closely with them, on pest and disease problems specific to growers' needs. However, in the dairy industry, many farmers feel that university research lags behind what the best organic farmers are already doing. Organic farmers and growers need to be closely involved in setting research priorities in order to keep research relevant. Some sectors have more research needs than others, depending on the particular production challenges.

- *Engage the official levy-funded agricultural extension organisations, but do not rely on them exclusively.* Conventional farmers and growers depend on levy-funded farming industry organisations to inform them about production practices; therefore, those institutions are an important channel for information about organics. However, individuals working in those institutions are not always suited to running organic educational activities. For example, organic dairy farmers say they benefited more from privately run discussion groups than from industry organic discussion groups run by Dexcel. If a portion of organic crop levies went to a dedicated organic extension organisation rather than the conventional industry organisations, this could provide an alternative source of information for organic producers; however, such a strategy would also reduce the possibility of conventional farmers learning about organics through normal industry information channels.

- *More widespread publicity about organics, in mainstream media channels, would increase public understanding of the benefits of organic agriculture.* Misperceptions about organic production, and beliefs about the safety of conventional production, are both still common in New Zealand. Dispelling those myths could bring more farmers and consumers toward organics.

7.3 Market coordination

Information transfer on its own is not enough to stimulate and maintain growth in organics. Stable markets are one of the most important ways to attract farmers to organics, and help them stay organic. In particular, better organised communication among producers and marketers, in New Zealand and beyond, could help manage supply to meet both international and domestic demand. As Lockie et al. (2006) write: "Unfettered market forces can only do so much to expand the organic market. After that, it is the responsibility of those who would like to see that market grow to get organized."

- *Organise and coordinate market opportunities.* International organic demand is rising, but not necessarily reaching New Zealand producers. Meanwhile, some New Zealand food manufacturers are even importing organic ingredients which could be grown in New Zealand. Some organic farmers say they have no trouble finding markets for a variety of crops; other organic producers in more isolated areas have more trouble, or depend on very few market outlets. For example, some livestock farmers say they have no markets for organic beef. Some pioneering organic farmers enjoy finding their own markets directly, but not all farmers are so inclined. Centralised market-finding assistance could improve the link between farmers and markets, especially for producers who are not in central areas or are not well-connected in the organic scene.

- *Organise and coordinate domestic markets, particularly for fresh produce.* Organic shop owners complain that the domestic organic produce market is still undersupplied for certain

crops. At the same time, many large-scale organic crop farmers do not want to supply the domestic market, because they feel the market is too small and therefore risks becoming oversupplied. More coordination is necessary to ensure that producers adequately supply the market without oversupplying it. Producers of some fresh organic vegetables already talk amongst themselves to split the market at different times of year. Extending this practice to other crops could benefit both producers and consumers.

- *Organise to protect organic premiums.* Many organic producers depend on receiving a price premium; and producers who are not philosophically motivated toward organics will not necessarily stay organic if premiums disappear. Therefore it is important to strategise ways to keep organic prices stable. That may include dialogue among organic producers, and among organic export companies, to make sure that they do not undercut each other in the marketplace (though formal price-fixing is illegal in the domestic market). Dialogue with organic producers in other competing countries may also be necessary; this is already happening informally in the organic apple industry. These kinds of dialogue are easier to organise in the organic industry than in conventional production, because of the smaller number of players.

- *Encourage diversification, resisting the trend toward organic monocultures.* The current corporate organic growth model mostly promotes single-commodity production. Organic producers are exposed to financial and ecological risk when they grow only one crop. Efforts to help producers diversify would require the cooperation of both information providers and marketers.

7.4 Conversion support

Conversion is the hardest time for most organic producers; that is when they need the most support. During conversion to organics, yields may drop as the farmer and the farm adapt to a different production system; and the farmer normally receives no price premium for those first three years before full organic certification. This is the period when new organic farmers need information support. In addition, though formal agricultural subsidies do not exist in New Zealand, some kind of financial incentives for converting farmers would help them through the conversion phase. At the very least, banks need to be sensitised to the financial issues around conversion, to lessen the pressure on farmers for those first three years. For most farmers, organics is a profitable business, but those conversion years can present a financial and psychological obstacle for many.

7.5 Areas for further research

The general conclusions and recommendations from the three sectors in this study may apply to many other sectors as well. Still, some sectors have their own unique issues around organic production and information, which are worth exploring in more detail.

Domestic horticulture

Producers growing for the domestic market have a variety of different information-gathering needs, and receive little external support. Not all of the conclusions in this report apply to them, because the diversity of their crops and the range of their locations make them different from organic commodity producers. Domestic organic produce markets also have tricky

supply issues – they are undersupplied for some crops, but vulnerable to oversupply as well. More research is needed to determine the information and marketing needs of diversified organic horticulturists.

Sheep and beef

International markets for organic meat are strong and growing. For example, U.S. organic meat sales increased 140 per cent from 2004-2006, according to one study (Pork Magazine 2006). New Zealand's pasture-based livestock farms have successfully turned organic in many cases. Yet organic meat production appears to lack centralised coordination and promotion in New Zealand. Further research could document successful information networks in sheep and beef production, and assess the information needs of conventional and organic meat producers, in order to design programs to stimulate more conversions.

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