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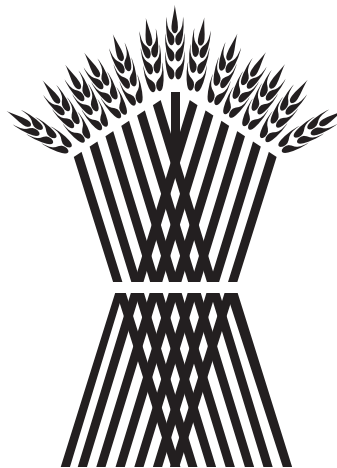
**RECENT DEVELOPMENTS IN  
ORGANIC FOOD PRODUCTION  
IN NEW ZEALAND:**

*Part 3: Exporting of Organic Produce  
from Gisborne District*

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**BRAD COOMBES  
HUGH CAMPBELL  
JOHN FAIRWEATHER**



May 1998

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2. *Recent Developments in Organic Food Production in New Zealand: Part 2, Kiwifruit in the Bay of Plenty.* H. Campbell, J. Fairweather & D. Steven 1997
3. *Men and Women as Stakeholders in the Initiation and Implementation of Sustainable Farm Practices: Organic Farming in Canterbury.* R. Liepins & H. Campbell 1997



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## Authors

Dr Brad Coombes was a Junior Research Fellow on the PGSF programme 'Optimum Development of Certified Organic Horticulture in New Zealand'. His Ph.D thesis in Geography examined issues of rural economic development on the East Coast and Catlins Coast. His current publications provide a critical examination of the political economy of sustainable development. Dr Hugh Campbell is based in the Department of Anthropology, Otago University, and is the leader of the PGSF funded research programme. He has ongoing research interests in the development of alternative agriculture and low-input systems of food production. Dr John Fairweather is a Senior Research Sociologist at the Agribusiness and Economics Research Unit, Lincoln University. He is involved in a wide range of research activities investigating social and economic change in rural New Zealand.



# Executive Summary

Despite an almost non-existent base prior to 1990, Gisborne District has experienced a very rapid uptake of organic production. The key growth area has been organic sweet corn production fostered by Heinz-Wattie Ltd. The vast majority of organic products - by volume and value - are destined for export markets.

The rapid uptake of organics in Gisborne District has been influenced by the following *local factors*:

- Local sweet corn growers display a distinctively autonomous psyche towards organics (which may be related to the relative economic and spatial isolation of the district as well as a range of social problems which has reduced perceptual barriers to new economic forms);
- Broader agricultural restructuring in the District has seen increased land areas devoted to horticultural production and a move from bulk-commodity to niche production.

*Heinz-Wattie Ltd.* (HWL) have been prominent in developing organic exporting. The following factors are of significance:

- Organic sweet corn was essential to the marketing strategy of HWL in Japan, and Gisborne District provided the most likely source of this product;
- HWL has been the only significant organisation engaging in technology transfer with newly converted organic growers;
- In the last two seasons, some HWL sweet corn growers have employed a full organic rotation in high value export crops using sweet corn, peas, and squash as well as green-manure crops grown over the winter. This rotation, once established, represents an important development in the context of the entire New Zealand organic industry where broadacre rotations of high value organic crops have - to date - proved difficult to establish.

The longer-term survival of organic production in Gisborne - which now appears to be relatively assured - is dependent on local *diversification* in terms of organic crops and fostering synergies among a variety of organic processing firms. Diversification has had the following effects:

- It has provided the elements for a successful rotation in organic crops;
- It created useful synergies between organic processors/exporters - as evidenced by cooperation between squash exporters and HWL;

- It has led to an increasing range of purchasers of organic products which has reassured many conventional growers considering conversion to organic production;
- It has, however, led to the potential for competition between purchasers of organic products, especially sweet corn. This raises serious questions about the current structure of technology transfer and skills development among organic growers. It also has undermined some of the trust in the generally successful relationship established between HWL and some of its early organic growers.
- Further to this, there is also an emerging competition over what constitutes a legitimate organic certification process. Gisborne District is one site where firm-specific standards for 'organic' production are being developed and inspected by MAF Qual. This has the potential to undermine some significant and beneficial aspects of the current structure of organic certification as provided by BIO-GRO NZ.

A distinctive feature of land-use in Gisborne District is the amount of land in multiple-ownership and managed by Maori resource incorporations/trusts. Despite considerable attention of local Maori to organic production, few such incorporations/trusts have become involved in organic production:

- Several Maori properties appear suited to organic production: local Maori perceive organics as suited to the communal ownership of land and many properties have had low levels of applied agrichemicals, so they could be quickly moved through the BIO-GRO NZ certification procedures;
- However, key structural impediments to Maori development, especially the issues of leasing, and raising development capital for, communal land will need to be resolved for future development of organic production in the region.

The most significant factor in determining the characteristics of organic production in Gisborne has been its *terra nullius* status in terms of organic production at the start of the decade:

- Unlike other regions, Gisborne District did not have significant levels of debate and interaction between long-term organic producers and newly converted export growers;
- This is reflected in a more 'pragmatic' approach to organic production by many new growers in Gisborne District compared to other regions;
- Such pragmatism is indicated by the heightened degree to which some sweet corn growers were attracted to organic production by premiums and have stayed in organic production prima-

rily to achieve these premiums. While the same Grow Organics With Watties promotional material was used in both Canterbury and Gisborne, some Gisborne growers took somewhat different messages from this material than their counterparts in Canterbury;

- Furthermore, some highly pragmatic sweet corn growers will, in the next few years, probably come into conflict with the BIO-GRO inspectorate over issues of soil fertility and fallowing;
- All the study regions had newly converted growers who were initially only interested in premiums but then experienced a 'progressive conversion' to the wider aims of the organic movement. However, in Gisborne District, the extent of 'progressive conversion' seems slower among some prominent sweet corn growers, a situation that is exacerbated by their disinterest in the local organisation for organic producers.

*Five challenges* will need to be faced in the future, if the high rate of organic development in Gisborne District is to be maintained.

**1) Skills and technology transfer:** a significant need for a local grower organisation committed to developing skills and knowledge among growers. All firms engaged in organic exporting should be investing in technology transfer, while the state should also be a provider of research and education in organic production.

**2) Synergies not competition:** synergistic development with companies cooperating to service different elements of a full organic rotation is clearly more suitable to organic production than outright competition. Again, grower pragmatism and the commitment to maintaining premiums is leading some growers to seek to strengthen their position *vis-a-vis* processors by encouraging competition for single crops within their overall rotation rather than finding strength through developing a full rotation.

**3) Resolution of leasing and overcoming barriers to Maori development:** current strategies for incorporating Maori land into organic development have emphasised leasing arrangements. These are undesirable in the long term as a form of organic production and can only be viewed favourably as a 'stepping stone' to independent organic production by Maori incorporations.

**4) Soil fertility and encouragement of 'progressive conversion' of pragmatic sweet corn growers:** some growers will have difficulty maintaining their organic status unless they adopt a less pragmatic attitude to production and begin to address issues of long-term soil fertility.

**5) Maintenance of integrity of organic standards:** as a region which lacks any long term organic history, Gisborne is potentially susceptible to activities which might undermine or 'water down' established notions of what constitutes organic production. MAF Regulatory Authority needs to give clear direction to exporting companies by recognising a national standard for organic production.



## Chapter 1

# Introduction

This report is the third in a series of four case studies on the evolution of organic production in key regional areas of New Zealand. The other three case studies are Canterbury (Campbell 1996), Bay of Plenty (Campbell *et al.* 1997) and Nelson (to be completed in mid 1998). The four reports are the main outputs for the research program 'Optimum Development of Certified Organic Horticulture in New Zealand', funded by the Public Good Science Fund. The current report presents the findings of research into the development of organic production in Gisborne District<sup>1</sup> (see Figure 1.1). Although these findings are significant and stand in their own right as suitable for individual publication, some comparisons are made in the text between the evolution of organics in Gisborne and the development of organics in Canterbury and Bay of Plenty. This mainly involves comparisons between Gisborne and Canterbury, because organic crops and an individual company – Heinz-Wattie Ltd.<sup>2</sup> – have been prominent in both areas. This enables the Gisborne case study to be more fully understood. Nevertheless, extensive comparisons are not made in this report: they have been set aside for a future publication to be completed after the Nelson report.

## 1.1 Research objectives

Since 1990, organic production has increased markedly in New Zealand, with a considerable change in emphasis in terms of the target consumer. During the 1970s and 1980s, production was largely in the informal sector – with a focus on self-provision and bartering – or in semi-commercial sectors, with local growers supplying local buyers or cooperatives. The domestic market consumed almost all organic produce. Organic production was part of a philosophical stance: a direct critique of intensive methods of food production which had emerged after WWII. The organic movement sought to retain the historical necessity for food production to cooperate with natural systems as the basis for sustainability. BIO-GRO NZ – the organisation which formed in 1983 as an umbrella group for the various actors within the organic agriculture movement – has become

the certifying agency of choice in recent times. However, the 1990s have seen a considerable change which, through the establishment of a burgeoning export industry for organic food, has attracted a number of new organic growers. It has also challenged the established organic agriculture movement in terms of its philosophical orientation and infrastructural ability to certify the large numbers of new producers.

In the Canterbury and Bay of Plenty studies, it was found that many growers who formerly produced under conventional systems converted to organic production for a variety of reasons, all relating to the increasing number of contradictions arising in their conventional production systems. The four most prominent reasons were: health concerns attributed to high agrichemical use; the attraction of premiums for organic versus conventional products; concerns over high production costs of chemical usage; and concern over the long-term viability and sustainability of conventional systems and products. Many in the organic agriculture movement have also changed their orientation towards the commercial potential of the industry and are now interested in making organics both commercially viable and a successful export industry. Others saw such changes as unacceptable or too costly for small growers and disassociated themselves from BIO-GRO NZ.

There are many potential issues of interest which emanate from this growing commercialisation and export-orientation of organic production in New Zealand:

- What are the impediments which prevent conventional growers from converting to organic production?
- What regional and sectoral differences exist in the growing New Zealand organics industry?
- Will suitable methods, structures for certification and technology evolve which allow for the successful commercialisation of organics yet will also maintain appropriate organic standards?
- Which companies are becoming involved in organic production, for what reasons and how do they incorporate organics within their production, distribution and marketing divisions?
- What direction is the structure of the organic industry presently taking and what is an

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<sup>1</sup> At various points in the text the phrase 'East Coast' is also used. More specifically, the study area encapsulates the Poverty Bay/Waipaoa flats, on which is Gisborne City itself, and the horticultural land near Whangara and Tolaga Bay. The Maori term 'Tairawhiti' covers a similar area to the Gisborne District. Also note that Gisborne District is one of the few unitary authorities in New Zealand. Hence, there is no Regional Council of which Gisborne District is a part.

<sup>2</sup> Henceforth, HWL. During much of the period under discussion this company was called Wattie Frozen Foods Ltd., which was absorbed as an operating division of the Heinz group in 1992. This division ceased to have an independent name when Heinz-Wattie Ltd. was restructured in 1996. To avoid confusion over the changing name of the division, reference will only be made to Heinz-Wattie Ltd for the entire period.

appropriate industry structure that could foster organic production?

- Can the export/commercial and domestic/philosophical components of the organic industry evolve in parallel without the former dominating the latter?

These are just a few of the issues which form the research objectives of the present series of reports. More detail on these objectives can be obtained from Report No. 1 (Campbell 1996).

## 1.2 Site selection: the choice of Gisborne District

It has already been suggested that there are similarities between organic production in Gisborne and Canterbury, especially the role of both organic cropping and HWL. However, there are two factors which make the Gisborne case

study different from the other field areas studied in this series of reports:

*Ethnic composition* – Gisborne District has a particularly high percentage of Maori in its population. Therefore, it was selected to test whether cultural factors can influence the growth of organics. This is particularly important in relation to current patterns of Maori land ownership.

*A unique history of organics* – Unlike Canterbury, Bay of Plenty and Nelson, there was almost no evidence of a domestic organic industry before the rapid growth of export-oriented organic production and the involvement of large companies. The lack of industry pioneers has strongly influenced the style of development that has taken place in Gisborne District, and has had important effects on the relations among growers, the industry as a whole and BIO-GRO NZ.

Despite the lack of a domestic industry, organic production has grown markedly in Gisborne

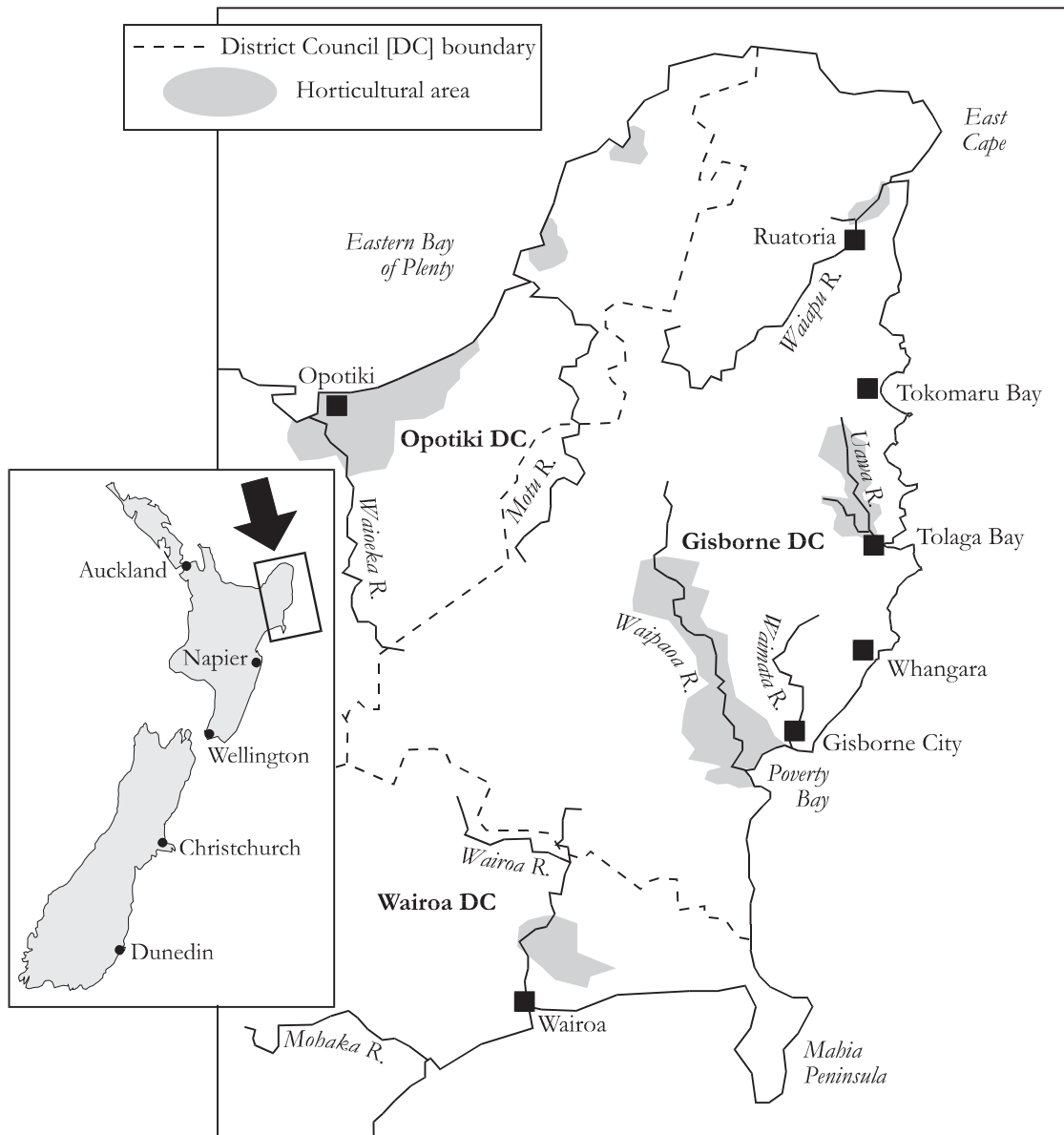


Figure 1.1: Eastland, including Gisborne District study area.



during recent years, with most of this expansion within the sphere of organic cropping. In the 1996/97 season, HWL's Gisborne suppliers grew about 2000t of organic sweet corn (*Zea mays*) and organic peas (*Pisum sativum*), and five other companies exported a total of 650t of squash (*Cucurbita spp.*, usually *C. maxima*). In recent years, organic fruit production has increased and recent conversions of orchardists mean that this growth will continue. Organic persimmons (*Diospyros kaki*) and organic wine are the main contributors to that increase. Experimentation on mixed properties with a full rotation of organic crops involving sweet corn, squash, peas, and green-manure crops grown over the winter is particularly significant. This development places Gisborne ahead of comparable regions like Canterbury which have not yet been able to achieve a full rotation in high-value organic crops and stock. Some stakeholders in Gisborne's organic industry are confidently predicting that the adoption of a full rotation will lead to sustained expansion of the local industry, establishing Gisborne as New Zealand's premier organic growing region.

27 people. The criteria used by these growers in making decisions about organic production were identified and used to assess the relevance of the decision tree derived from the earlier Canterbury study.

### 1.3 Research Process

As was the case in the two reports published thus far in the current series, there were two main research methods employed in this study.

*Strategic Interviewing* – In August of 1997, an interview program was conducted with 25 participants who have a stakeholding in the local organics industry. These interviews were 'interactive' in the sense that the form of interviewing was not the set-survey method. Rather, each interviewee was given as much room as possible to direct the structure of their interview. The composition of members in this interview program is presented in Table 1.1:

*Ethnographic Decision Tree Modelling* – Decision making of growers was assessed by interviewing

Position of interviewee in organics industry	Interview No.
Export/processing company managers and marketers	1, 2, 3, 4 and 5
Agronomists and other advisers	6, 7, 8 and 9
Managers of low-input and/or fruit production initiatives	10 and 11
Stakeholders in the (domestic) organic food movement	12, 13 and 14
Organic viticulturists	15 and 16
Organic crop (pea, sweetcorn, squash) growers	17, 18, 19, 20, 21 and 22
Organic deer farmers (both formerly organic crop growers)	23 and 24
BIO-GRO NZ representative	25

**Table 1.1:** Participants in the strategic interviews.

## Chapter 2

# Contexts for horticultural production in Gisborne District

It will be shown in Chapter 3 that many of the forces which led to Gisborne becoming a significant region for organic production in New Zealand had their origin outside of the District. However, there are a number of internal features which have helped to accelerate the development of organics in the region and have led to the success of organic producers. Several change dynamics have recently encouraged moves into niche production by primary producers. The growth in organic production is related to this broader trend. Three key topics will be examined:

- The growing conditions in the area, which are appropriate for organic horticulture;
- The social situation of Gisborne District, which has made people in the area sensitive to the need for economic diversity and new economic projects;
- The changing relationship between agriculture and horticulture, which has led to the recent and rapid uptake of niche horticultural production.

This brief account will draw extensively on research previously conducted by one of the present report's authors (Coombes 1997). That research also examined the social, physical and sectoral changes in the District which have encouraged its people to search for new economic alternatives.

## 2.1 Physical features

The first aspect of the physical geography of the area which has encouraged the growth of niche production relates to the effects of spatial isolation. Gisborne was one of the more difficult frontiers in New Zealand for European settlers to establish themselves as small producers (Oliver & Thompson 1971). To the north and west of Gisborne City, the Huirau and Raukumara Ranges restricted travel and trade with the northern cities of Auckland and Hamilton (see Figure 1.1). To the south, the rugged terrain through which the Mohaka river flows restricted access to Napier and Wellington. After the establishment of Gisborne City, interaction between the area and the rest of the country was mainly through Port Gisborne which was both shallow and based on an unreliable slipway from the Turanganui River, so even coastal trade proved difficult. Further

north along the East Coast, travel was particularly difficult and until the 1920s no proper road had been formed and towns such as Tolaga Bay, Ruatoria and Hicks Bay were connected by a coastal horse trail. Today, sealed roads have improved access to the District, but travel times to the area remain relatively high. Gisborne is one of the most expensive cities to fly to in New Zealand, and negligible air freight arrives at Gisborne Airport.

There are both negative and positive effects of this isolation. Because they are not on high-volume routes, primary producers face higher costs in terms of transporting their produce to national and international markets. This has meant that agriculture and horticulture in Gisborne District have always been more marginal than in other areas of the country. One of the positive aspects of this isolation is that a constant fear brought about by the marginal nature of primary production on the East Coast has made some of its people reasonably progressive in terms of adopting new production forms and new crops (Interviews 1, 2, 3, 6, 8, 23). This tendency towards adaptation has meant that the typical fears about organic production are, to some degree, negated. Furthermore, there is considerable potential to market isolation as a component of the organic image. With respect to New Zealand's position in global trade, HWL recognised the wider potential of such isolation when it began experimenting with organic production in the early 1990s. After the takeover of that company by H.J. Heinz Co., this strategic potential was further reinforced by Tony O'Reilly (the CEO of H.J. Heinz Co.) who suggested that relative isolation from the environmental problems of the northern hemisphere presented New Zealand with the ability to market itself as a 'green' country producing healthy food.

While the early initiatives were based around HWL, members of the wider organic agriculture movement also lend support to the idea that Gisborne is ideally suited for organic production. Bob Crowder – an important figure in the New Zealand organic industry – met with Gisborne people interested in organics during 1993 and suggested that:

“Gisborne's pastoral and cropping industries have a wonderful chance to turn the District's isolation into an asset and build an environment based on balanced organic principles” (quoted in Scott 1993: 9).

During his 1993 visit, Crowder also noted that the region's growing conditions were particularly suitable for producing organic food (*ibid.*). In general, the District suffers from soil erosion, but this problem is largely confined to the hill country. Large areas of flat land also exist, especially on the Poverty Bay/Waipaoa flats and to a lesser extent

on the Uawa River flat at Tolaga Bay and the Waiau River Valley near Ruatoria. These consist of good quality soils, with a mix of yellow-brown loams and rich alluvial deposits. The quality of the soil is such that out of the 20,200ha of flat land on the Gisborne plains, 17,000ha can be used for horticulture (MAF 1968), the most resource intensive form of primary production. The climate of the area is particularly suited to horticultural production. The mean annual temperature – 14.5°C – is one of the highest for all districts in New Zealand which combines with a high average for annual sunshine hours to create favourable growing conditions (Hessel 1981:12). The combination of high average temperature and a long growing season means that the Gisborne District, and especially the area towards East Cape, is well suited to the growing of semi-tropical and even tropical fruits. It also means that it is one of the best suited areas in New Zealand for sweet corn production. Average rainfall is a moderate 1200mm per annum. In areas where there is a high amount of rainfall, organic production can be more difficult, because these conditions can favour the growth of weeds.

However, there is one climatic factor which negatively affects all forms of primary production on the East Coast. The area is particularly susceptible to cyclones and one such event – Cyclone Bola which occurred in 1988 – persisted for four days and led to millions of dollars of crop and stock losses. Given the rugged and deforested nature of the surrounding hill country, soil erosion is now recognised as the region's primary hazard, especially during abnormal cyclonic events, and is a serious threat to the long-term sustainability of agriculture and horticulture. After 1988, many pastoral farmers abandoned their hill-country land to the East Coast Forestry Project (see Blaschke & Peterson 1994) and other commercial forestry programs. Some farmers have diversified their existing, low-country land to other, more intensive uses, such as horticulture, in order to make up for this loss of revenue. Consequently, this new phase of on-farm diversification has contributed to a recent increase in the extent of horticultural activity in the District.

## 2.2 Social and cultural features

During 1997, a number of high-profile reports on the effects of poverty in Gisborne District were prominent in the national media. Inadequate housing, poor access to health resources and the ineffectiveness of local education systems received considerable attention, and all are symptomatic of the wider effects of poverty. The District's unemployment level has typically been the highest in

the country, with nearly 15% actively seeking work (NZ Census of Population and Dwellings 1991 – Gisborne/Hawke's Bay Regional Report:11). In some towns, such as Ruatoria, the Maori unemployment level is over 70% (*ibid.*). At the governmental, Runanga<sup>3</sup> and District Council level, considerable attention has been given to new employment schemes for the area. In general, the unemployment problems are so significant that there is strong support shown when investors desire to establish a new type of production on the East Coast (Interview 9). As is the case with spatial isolation, a negative factor such as high unemployment can lead to adaptive attitudes.

Gisborne District, along with Northland, is one of only two areas in the country where Maori regularly comprise over 50% of the population in census meshblocks. The official proportion of Maori in the Gisborne District population is 40% (NZ Census of Population and Dwellings 1991 – Gisborne/Hawke's Bay Regional Report:27), but with informal housing arrangements and the fact that many Maori on the East Coast attempt and succeed in avoiding the census (see Coombes 1997), that figure may well be an underestimate. In several of the towns along the East Coast, Maori represent over three quarters of the population (NZ Census of Population and Dwellings 1991—Gisborne/Hawke's Bay Regional Report:26-27). Maori have a considerable history of horticulture in the area. Captain Cook, on visiting Anaura Bay, was surprised by the techniques and technology that were employed by Maori in their gardens, as he was by the quality and quantity of the produce.

In more recent times, Ngati Porou – the predominant iwi – have attempted to renew their interest in horticulture. Considerable resources and land have been returned to local iwi in the 1980s and 1990s as part of successive governments' attempts to meet their obligations under the Treaty of Waitangi. Large areas of land have also recently come out of long-term leases which alienated Ngati Porou from their land. Increased flexibility in how those resources are used has been granted by the Te Ture Whenua Maori Act (1993) and, utilising this flexibility, many land incorporations attempt to diversify their pastoral holdings. Some have entered wine, kiwifruit (*Actinidia deliciosa*) and fresh-market vegetable production. In the research for Coombes (1997), it was found that many local kaumatua were anxious to see the re-establishment of communally-based but commercially-oriented gardens both because of a 'sustainability' ethic and as part of employment initiatives. Notably, several of these leaders commented on the success of one large

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<sup>3</sup> Referring to Te Runanga o Ngati Porou, and Te Runanga o Turanganui a Kiwa – the councils of the two major iwi in the District.

organic farm<sup>4</sup>, and stated that they wanted to follow this lead because it was seen to be particularly appropriate for the nature of their land, and the composition of their hapu.

During the 1990s, Maori have returned to their Gisborne turangawaewae in considerable numbers (Butterworth 1991), but they are not the only group to migrate there in recent times. The migration of 'lifestylers' to the region is a strong dynamic for economic change in Gisborne District (Coombes 1997). Public perception of this group is that they are generally uninterested in pursuing employment. However, not all lifestylers move to the East Coast for recreational pursuits and many arrive with considerable assets. The East Coast is a growing destination for international tourists. Many such tourists have decided to emigrate on the basis of their holiday experiences, and several have already become involved in such 'alternative' economic practices in Gisborne as ecotourism and 'health' industries. In the other reports in this series, migrants from Europe and ex-urban lifestylers were shown to have had an important role in the evolution of organic production. Although there is less evidence for such a role in Gisborne District<sup>5</sup>, there is some potential for future involvement by this group in the Gisborne organic industry if their numbers continue to increase.

## 2.3 Restructuring of agriculture and horticulture

The first European settlers of the Gisborne area believed that the district was most suited to pastoral forms of agriculture. For over one hundred years, extensive sheep farming was the main economic activity on the East Coast and a number of large pastoral estates developed. Likewise, Maori land incorporations also tended to conform to this faith in large-scale pastoral agriculture. Apirana Ngata introduced a series of Maori land reforms in the 1930s which were adopted on a national basis, but the degree of amalgamation and centralisation of Maori land was greatest amongst his own iwi of Ngati Porou. The success of this economic form was dependent on the continuation of coastal shipping around the East Coast. Large wharves were built at Tolaga Bay, Waima at Tokomaru Bay, Waipiro Bay and Hicks Bay, and with each was associated a relatively small freezing works. During the inter-war period, this proved successful but, with the decline of coastal shipping, all of these freezing works had closed by the 1950s. Even though the Kaiti freezing works in Gisborne City expanded to replace the smaller freezing works, these infrastructural

changes threatened the long-term viability of pastoral agriculture. By the late 1970s and early 1980s, it was recognised that pastoral agriculture was considerably more marginal in Gisborne District than elsewhere, and it was accepted that its extent was upheld mainly by state subsidies, especially supplementary minimum prices (SMPs). When SMPs were removed, stock numbers reduced rapidly through the 1980s and the Kaiti freezing works suffered from serious levels of under-capacity. With the post-Bola move to forestry, this problem worsened and, in 1994, the Kaiti works closed.

Although the closure had a considerable impact on the collective psyche of the region, the move was simply the climax of a more long-term shift away from pastoral agriculture. In its place, horticulture has become more prominent. Crop production, especially for tomatoes, grew rapidly in the 1950s when J. Wattie Canneries Ltd. established a cannery in Gisborne City. Pea, bean and sweet corn production further expanded when Watties added a freezing operation to their Gisborne plant in the 1960s. Fruit, especially stonefruit and citrus, were processed for a period of time, and lower quality maize – used mainly as a stock feed – has been significant since the 1950s. Forestry was also part of this program of diversification. The East Coast Forestry Project had its roots in a governmental scheme established in 1967, which had land stability and employment objectives.

From this platform, the process of diversification increased significantly in the 1980s. Around that time, horticultural production was seen as the key to Gisborne's future. Sixteen kiwifruit orchards were established on the Uawa River flat with a pack-house at Tolaga Bay, and many other kiwifruit orchards were developed on the Poverty Bay/Waipaoa flats. The country's largest single vineyard was planted in the Waiapu Valley, near Tikitiki. Other vineyards were established in areas which had no history of grape production. Those areas which did have a history of viticulture, especially the Poverty Bay/Waipaoa flats, saw the expansion of the production of Chardonnay and Riesling varieties. When the citrus industry was deregulated in 1982, orange orchards also increased on the Poverty Bay flats. As HWL consolidated its tomato processing operation in Hastings, Cedenco Foods Ltd. opened a tomato processing factory in Gisborne City in 1986 and sought to increase the level of tomato production. At the time of its peak operation in the mid-1990s, Cedenco was supplied by 8 large growers and another 50 small growers as well as leasing considerable quantities of cropping land under its

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<sup>4</sup> The manager of which was interviewed for the present report (Interview 18).

<sup>5</sup> See Section 3.2.1.



own name. There was considerable optimism in the 1980s that Gisborne was undergoing a period of fortuitous economic restructuring which would see a successful diversification of its primary production.

However, an article in the first edition of the Gisborne Herald for the 1990s, suggested that this diversification program was failing: “The 1980s were a decade that promised much but produced little” (Conway 1980:8). With recognition of oversupply in the wine industry, the vines at Waiapu were uprooted. For kiwifruit growers, declining world prices after 1988 and Cyclone Bola combined to devastate the industry in Gisborne and the kiwifruit packhouse at Tolaga Bay closed down. At one point up to 50 kiwifruit orchards had been planned for the area around Tolaga Bay, but only three survived after the closure of the packhouse. The most notable failure was the collapse of Cedenco in 1996, only two years after a considerable expansion of its Gisborne factory<sup>6</sup>. Nevertheless, these aspects of the region’s diversification from agriculture to horticulture have been replaced by other horticultural ventures which are more small-scale in their orientation. Macadamia (*Macadamia ternifolia*), feijoa (*Feijoa sellowiana*) and avocado (*Persea gratissima*) production in the East Cape region has grown considerably during the 1990s. Other ‘exotic’ foods such as persimmons, mandarins (*Citrus reticulata*) and truffles (*Tuber melanosporum*) have also been grown in recent times on the Poverty Bay flats. Specialist markets also developed, such as the supply of fresh vegetables, especially squash and onions, for export and off-season production of broccoli for the Japanese market. In general, diversification from agriculture to horticulture in Gisborne District did not fail completely, but has increasingly been targeted towards niche operations. With the area’s growing conditions being appropriate for ‘exotic’ fruits and crops which need long growing seasons or off-season production, specialised production of value-added horticultural goods appears to be the best hope for Gisborne District. Organic fruits and vegetables are just one type of these niche products.

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<sup>6</sup> The major part of Cedenco’s operation – its tomato processing facility – was transferred to Australia. Some processing activity remains at the Gisborne plant, but this is very limited compared to the scope of the company’s influence in the area during the period 1992-1996.

## Chapter 3

# Initial development of organic horticulture in Gisborne District

In the previous chapter, it was established that both agriculture and horticulture in Gisborne District are undergoing a period of substantial restructuring. That restructuring has incorporated two dynamics: first, a farm-level move away from dependence on pastoral production and into mixed-production including horticulture; and, second, movement of horticultural operations into value-added and niche production. The purpose of this chapter is to evaluate how those dynamics have affected the evolution of organic horticulture in Gisborne District. The chapter concentrates largely on the activities of one company – Heinz-Wattie Ltd. (HWL) – and its efforts to establish an organic sweet corn operation since 1991. The close attention given to HWL reflects two important characteristics of the initial development of organic horticulture in Gisborne District. Whereas the Canterbury (Campbell 1996) and Bay of Plenty (Campbell *et al.* 1997) cases highlight how commercial exporting of organics can grow out of an existent domestic industry, export of organic food from the Gisborne area grew rapidly despite inherently low levels of domestic production and consumption of organic produce. The second characteristic of the initial moves towards the export of organic produce is the dominance of HWL in organics between 1992 and 1995. Chapter 4 evaluates the increase in small and medium size companies entering the organic industry since that time, as well as the increasing range of organic products grown in Gisborne, but in the first half of this decade HWL and its sweet corn growers were the industry pioneers, so the company warrants specific attention in this chapter.

## 3.1 The structural position of Heinz-Wattie Ltd. in the early 1990s

Given the initial dominance of HWL in the evolution of Gisborne's organic industry it is pertinent to examine the motivations of that company with respect to organic production. The motivations for HWL's organic sweet corn initiative cannot be separated from either the wider 'Grow Organic With Watties' program<sup>7</sup>, the changing fortunes of its conventional products or its

changing status and structure as a company. All these factors have bearing on the type of organic sweet corn operation that developed in Gisborne in the early 1990s.

### 3.1.1 Motivations for organic exporting

In the first report of this series (Campbell 1996), Heinz-Wattie Ltd. was shown to have played a major part in the development of organic exporting from Canterbury. In that case, the main export goods were peas and carrots, but the motivating factors for producing those goods are also relevant to the development of organic sweet corn in Gisborne, especially as the strategy for both provinces emerged in tandem. Campbell (1996:25ff) identified four factors which influenced HWL's decision to pursue organic product lines:

- Preserving access to First World markets. The experiment with organics was only one part of this strategy, but quickly became its most successful component;
- The unfavourable position of bulk commodities in the world vegetable market in the 1980s and 90s which required experiments in marketing. Improved marketing became an even greater priority when H.J. Heinz Co. took over Wattie Frozen Foods Ltd.. The new management brought a more marketing-oriented approach compared to the production focus of the prior owners, Goodman Fielder Wattie Ltd. (Interview 1, see also Roche 1996).
- Organic production was also considered to be desirable because it added value to existing products without requiring a costly restructuring of processing facilities.
- In part, HWL was responding to requests from Japanese buyers regarding the 'clean and green' qualities of HWL products and some companies specifically desired an organic product. While HWL already marketed its mainstream produce as the result of less chemically-intensive production methods than the market alternatives, by linking the mainstream product to a fully organic product, market performance was improved. Organic products could act as a 'keyhole product', improving the market standing of mainstream products, and gaining access to new, previously disinterested buyers.

Campbell (1996) also identified another factor which was the independent conversion of previously conventional and long-term HWL growers to organic production in Canterbury, which provided HWL with some organic product to export. This did not occur in Gisborne where there

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<sup>7</sup> The HWL promotional program for attracting conventional growers to organic production. See Section 3.2.3. Henceforth, **GOWW**.



were almost no existing organic growers who could be contracted to grow sweet corn.

### **3.1.2 The specific need for organic corn in frozen mixes**

There were, however, some factors that separate HWL's motivations for developing organic production in Gisborne from what occurred in its other supply regions. Sweetcorn was always going to be an integral part of the larger HWL organics program as it can be used in combination with peas and carrots to create new products for the Japanese market. Peas and corn are able to be sold separately, but there is less demand for organic carrots and they are not sold as an individual product. Organic carrots have been successfully marketed, however, using a pea/carrot/sweet corn mix which is popular in the Japanese market (Interview 1). Consequently, production of organic sweet corn has enabled HWL to expand its product range from a focus on peas, to include sweet corn, and mixed vegetables. This made sweet corn an important part of the HWL strategy for Japan, and as the best growing conditions for sweet corn in the vicinity of HWL's four freezing plants are in Gisborne, it is clear as to why HWL was particularly interested in fostering organic production in the region.

Furthermore, organic sweet corn tends to attract a higher premium in the market than other organic frozen vegetables (Interview 2), and sells at between 40-50% more (per processed tonne) than organic peas or carrots (Interview 1). These high premiums help to offset higher costs of production. To a significant degree, therefore, the growth of organic horticulture in Gisborne District is accounted for by its suitability to grow one particular crop that meets one company's specific sourcing and marketing needs. Many of the other organic crops/companies in Gisborne have developed in a successional or ancillary nature<sup>8</sup> to the HWL sweet corn operation and there is some doubt as to whether they would have been established so easily in the absence of organic sweet corn production.

### **3.1.3 The status of HWL's Gisborne plant**

A second set of factors which separate the HWL motivations for organics in Gisborne from the company's wider organic strategy concerns the status of its Gisborne plant. Even before the Heinz takeover of HWL, it was evident that the Gisborne factory was the most vulnerable of the four frozen goods factories. Despite having two additional factories on site – "Best-Friend" pet foods and "Asahi" frozen prepared meals – HWL Gisborne was more dependent on one crop (sweet

corn) than were HWL in Hastings, Christchurch or Feilding. Some difficulties concerned the age and position of the Gisborne factory. Given its close proximity to the sea and to the Turanganui river that runs through Gisborne City, and with the requirements of the Gisborne District plan for discharges to water, the possibility of expensive plant upgrades has been mooted for some time (Interview 18).

Other difficulties were directly related to the main product in the factory – sweet corn. There were two main factors that influenced the sweet corn operation during the 1990s. First, the global market in frozen sweet corn has been subject to strong fluctuations in supply which have impacted on world prices. Consequently, in some seasons the factory operated below capacity (Interview 1, 2). Second, the emergence of Cedenco Foods Ltd. in the mid-90s created an increased demand for land previously used for sweet corn. This culminated in 1994/95 when the cost of land rentals soared, as did crop prices, with HWL increasing its sweet corn contract price by around 20% and establishing a system of partial forward payment to growers to meet the Cedenco challenge. While Cedenco's demise can be partially attributed to the unsustainable aspects of this competition, HWL's sweet corn operation survived. The combination of world market fluctuations and competition with Cedenco raised a number of questions regarding the future for the sweet corn operation at the Gisborne factory.

Interviewees from HWL Gisborne drew a clear link between the pressures on the Gisborne factory in the 1990s and the potential for organic sweet-corn (and also pea) processing to underwrite the future of the factory. One HWL staff member highlighted the relationship between these pressures and the development of organics:

"The only future for the plant here is in organics. So we've got out there and promoted it. Our jobs are on the line, so we've been particularly keen for the Grow Organics with Watties program to be a success. We've probably adopted it as our own more than the other Watties field areas have" (Interview 8).

These concerns about the factory's future – which have created a local dynamic within HWL Gisborne towards organics – have been accentuated since the Heinz takeover. The Heinz company sets very challenging targets for returns on investment, targets which have led to a rethink throughout the HWL group about the structure and operation of each of the manufacturing facilities, including those at Gisborne. In July of 1997, these pressures culminated in the announce-

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<sup>8</sup> See Chapter 4, especially Section 4.1.

ment that the pet food and prepacked meal operations would be transferred to Hastings<sup>9</sup>. As this report was being written, further plans are in progress to sell the frozen vegetables plant to a 'co-packer' company, which would then be placed on long-term contract to supply HWL with both conventional and organic produce. This is portrayed as a 'win-win' situation: Heinz would have reduced its exposure in terms of fixed costs and could concentrate on its high-profit marketing activities, while a local company would probably find the return on investment more than adequate compared to the high targets set by Heinz.

Whatever the outcome of these negotiations, the long-term move towards an increasing organic throughput for the HWL Gisborne plant seems set to continue. This is apparent in the current season, for which increased volumes of sweet corn have been provided from a slightly reduced number of contracts. Proportionately, organic sweet corn production continues to increase. In the 1997/98 season, 15% of all crops grown for HWL Gisborne will be organic and this increasing proportion looks likely to continue for the immediate term (Interview 1).

## 3.2 The HWL strategy for converting sweet corn growers to organic production

Therefore, the motivations for HWL's Gisborne interest in organics were a mix of global trends, company strategy, the suitability of the district for sweet corn production and a local dynamic rooted in the status of its Gisborne factory. When these trends combined to inspire a serious attempt at establishing organic sweet corn production in 1992, however, a further complication arose. HWL Christchurch had experienced several problems in establishing its organic operation in the Canterbury province from 1990/91 (see Campbell 1996). Conventional growers had been slow to react to the premium for peas and, initially, few were convinced to proceed with the 2-3 year transition process to obtain BIO-GRO certification. Although HWL Christchurch ultimately depended on its ability to attract conventional growers for the long-term success of its organic

program, it nevertheless proceeded with that operation in 1990/91 without the conversion of many conventional growers. It was able to do so because Canterbury had a history of domestic organic production from the 1970s, with many long-term organic growers already certified with BIO-GRO NZ. A further bonus was the presence of growers who had been long-term HWL suppliers but had independently converted to organic production prior to HWL's organic strategy. Initially, a number of these organic growers signed organic contracts with HWL Christchurch, and many remain as key suppliers. In the case of Gisborne during 1991, however, only two individuals of note were BIO-GRO certified – a wine grower with no available land or desire to grow sweet corn and a deer farmer with limited amounts of potential land. Consequently, the lack of a domestic organic industry posed a considerable barrier to HWL's desire to establish organic sweet corn production in Gisborne District.

### 3.2.1 Attracting long-term organic growers

In this context HWL Gisborne were: "prepared to break our own rules to get the organics program off the ground" (Interview 1). Usually, HWL identify six preferred features of cropping land to decide whether they will contract an individual to grow sweet corn (Interview 1):

- Flat even paddocks for uniform crop development and optimum machinery operation;
- Larger paddock sizes are preferred for operational efficiency;
- Well drained soil, because wet soil reduces yield and quality and impedes the use of machinery;
- Good natural fertility, soil structure and no major weed problems;
- Access for heavy vehicles;
- Fenced to keep out stock.

Aside from the specificities of the land to be used for sweet corn production, there are other qualities that are also preferable for sweet corn suppliers:

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<sup>9</sup> The primary cause of this transfer relates to the closure of Gisborne's Kaiti Freezing works two years earlier. This freezing works supplied the majority of the meat off-cuts to 'Best Friend' pet foods with the rest being transported in through Hawke's Bay. Without the freezing works, "Best Friend" was required to import all its meat off-cuts and offal from other centres and it was deemed appropriate to shift that particular part of the plant to a centre with a meat processing industry sizeable enough to supply all off-cuts from local sources. A second reason for the relocation was that the Gisborne plant was old and needed to be upgraded even if it remained in Gisborne. Overall, the plant relocation demonstrates the Heinz influence on Watties NZ, especially in terms of accelerating the restructuring of the processing divisions in order to meet investment targets.

<sup>10</sup> A considerable amount of land is contracted at some distance to Gisborne, but a sliding payment scale is used which places the burden of extra transport costs onto the grower, not HWL. Consequently, closeness of land to the factory can be a factor in the overall package as to whether a grower should engage in a contract with HWL.

- Land should ideally be situated near to the factory to assist the logistical management of the crop<sup>10</sup>;
- For organic production (and to a lesser extent for conventional), HWL preferred to deal with producers exhibiting a particular ‘mind-set’<sup>11</sup>.

Although HWL committed most of its promotional effort for organics to courting their conventional growers, initially they approached long-term organic growers and growers who had no experience growing sweet corn but had suitable land to convert. This was especially the case if HWL felt their land could comply with the BIO-GRO certification process quickly because they had records showing that chemicals and fertilisers had not been used on it for some time. In fact, HWL’s first organic sweet corn grower (1991/92) did not display a number of the preferred qualities as summarised above: his land was 60km north of Gisborne near Tolaga Bay; his property had been severely flooded by Cyclone Bola four years earlier and suffered drainage problems; and he had never grown sweet corn. He was also (fortuitously) interested in experimenting with organic sweet corn for philosophical rather than purely financial reasons.

The grower initially provided about 1.5ha of BIO-GRO certified land and produced sweet corn at 6t/ha<sup>12</sup>. The following year the land area was increased to 3ha and he achieved 10t/ha (Interview 23). After four years he discarded sweet corn production for two reasons. First, his main interests were in deer farming and he felt “that the sweet corn thing was a bit of a challenge. After it was up and running it was no longer a challenge and I didn’t want it to be a distraction from my efforts in organic deer farming<sup>13</sup>” (*ibid.*). Second, he had become dissatisfied with the overall direction of HWL’s sweet corn operation. He is “fundamentally opposed to monoculture and any operation that preserved the old paradigm of large-scale, soil-compacting horticulture” (Interview 23). In the period 1992-1994, two other individuals from non-horticultural backgrounds became involved in growing organic sweet corn largely for philosophical reasons, but both have since pulled out citing philosophical and other

reasons.

There is an interesting comparison that can be made to Canterbury at this point. In Canterbury, a number of long-term/philosophically-oriented organic growers produced high crop yields for HWL in the 1990s. In Gisborne, no long-term organic growers, who were previously inexperienced with sweet corn, were able to match the average yields of conventional sweet corn growers who converted to organic production. Consequently, HWL Gisborne, even more than HWL Canterbury, began to rely on converting conventional growers to advance the company’s strategy for organic sweet corn.

### 3.2.2 Attracting Maori land trusts

With those three growers and also with two conventional growers certifying small portions of their properties, HWL could source sweet corn from a total of 7ha fully certified and a further 15ha of BIO-GRO transitional land for the 1992/93 season<sup>14</sup>. However, this area was too small to ensure the sustainability of the project. In solving this problem of insufficient supply, HWL Gisborne explored relatively new territory in terms of grower-processor arrangements: it proactively assisted Maori land-use trusts on multiply-owned land into organic production. Despite the fact that only a few trusts/incorporations entered into organic production in the area, this arrangement and its outcomes are given special attention here for two reasons. First, with such a large proportion of available land in Gisborne District under multiple Maori ownership the ability of Maori to enter the industry may be a key factor in the long-term growth of organics in the region. Second, the Maori influence is a local characteristic that separates Gisborne from the three other case studies in the present series of reports.

The first trust to enter organic production – Paripoupou Station – is representative of the situation for much of the Maori land in Gisborne District (Interviews 7, 9). When the government sought to purchase a large block of land ranging from Tolaga Bay (50km north of Gisborne) to Tokomaru Bay (85km north of Gisborne) in the 1860s, a number of Maori owners refused to sell.

<sup>11</sup> “We just know often whether they will be able to do it – most can’t. They have to be innovative, the type of grower that will chase premiums” (Interview 2). For the specifically organic producers, the need for innovation was even more apparent: “We do not want growers who are just financially driven to change to organics. The mind-set must also include a willingness to adapt, to take on a challenge, a preparedness mentally to go against convention. Some conventional growers we recognise do not fit this bill” (Interview 1).

<sup>12</sup> A typical conventional sweetcorn property achieves 18t/ha. However, this particular grower was happy with this as a first effort and considered the premium a bonus.

<sup>13</sup> See Section 5.3.1.

<sup>14</sup> Most of this was to be sold as ‘Transition BIO-GRO’. Although HWL could obtain a premium in Japan for crops ‘in transition’, this was lower than that which could be achieved if the produce was fully certified. However, HWL was prepared to set the ‘Transition BIO-GRO’ sweetcorn price for its growers at 70% higher than for its conventional crops (*ie.* not much lower than the 80% premium for full BIO-GRO certified organic) so that the two years of transition would not act as a barrier to growers converting to an organic regime.



Even though these owners had a shareholder interest in the entire block of land, a contract resulted which gave those owners a 120ha 'reservation' at Three Bridges (Interview 19, Oliver & Thompson 1971:99) – 65km north of Gisborne. Initially, there were 11 owners but over the next 70-80 years the number of owners swelled through multiple inheritance customs to over 600. In the early 1950s, the station fell into rates arrears, largely because it was unable to attract loan finance<sup>15</sup> to expand and compete with Pakeha station-farms. A compromise was established in the Maori Land Court under which the owners would retain title but only if they leased the land on a long-term basis to a Pakeha station-farmer. The long-term lease was due to expire in 1992. In advance of that date, however, Cyclone Bola (1988) had its greatest impact in the Three Bridges area, and up to three metres of silt was deposited on the river flat portion of the property. In the years between Bola and transference, the leasee carried out no remedial activities, applied no fertilisers nor chemicals and allowed weeds and two metre high rushes to infest the property (Interview 19). When the shareholders – now numbering over 1000 – regained management control in 1992 they were in no financial position to remedy these problems and it was used for little more than occasional grazing, with its long-term potential in some doubt.

HWL became aware of the land through a share-cropper who desired to grow maize on the property as a leasee (Interview 2). When that individual asked to switch the contract to organic sweet corn, the shareholders' trust pulled out of the agreement, fearing that control of the land would again be taken from them on a long-term basis (Interview 7). At this point HWL – "desperate for any potential organic land they could get their hands on" – attempted to convince the land trust to convert to organic production because the land had effectively been in fallow for years (Interview 2). The Paripoupou Trust was initially interested in organics because it thought it would be a labour intensive activity which could be used to employ some of the large number of local unemployed (Interviews 7, 19). HWL informed them that this would not be the case because mechanical methods could be used for weeding and harvesting, but the shareholders' trust de-

cided to continue with the conversion of the property. After several months of negotiations, they agreed to year-by-year contracts with HWL to supply organic sweet corn on 45ha – more than double the total of organic and transitional land that HWL had to that point contracted – but still lacked the start-up capital to realise their dreams. HWL became relatively proactive at this stage, enacting the following initiatives to ensure that Paripoupou was successful. The company:

- Made internal preparations to loan Paripoupou development capital if no other source could be found (something it almost never does for conventional growers, Interviews 1, 2);
- Began third party negotiations with the local member of parliament and Te Puni Kokiri (henceforth TPK)<sup>16</sup> to gain Mana Development Fund capital. These negotiations led to a suspensory loan of \$100,000 being made by TPK which was used for land restoration, including a requisite drainage program (Interviews 7, 9, 19). This money also helped the station gain a \$200,000 overdraft from a private bank;
- Gave Paripoupou an "unusually large amount of advice for their initial learning of growing methods", including assistance in finding a farm manager/agronomist to help with financial and crop decisions (Interview 7);
- Mitigated the loss Paripoupou made in the first year by writing off the value of seed. Because of the late decision to plant organic sweet corn, and the considerable effort required to clear 45ha of neglected land and prepare a seedbed, the crops were sown very late in a season which was unusually cool and wet, resulting in a low-yielding first crop. (Interview 1, 19).

By 1997, Paripoupou had changed its status with the Maori Land Court to an incorporation, reflecting its successful standing as a business. It had 65ha of BIO-GRO certified land which were suitable for cropping and had grown sweet corn for five seasons. The Incorporation has recently diversified into squash and peas as part of its organic rotation. All concerned parties appear happy with these outcomes. For its part, Paripoupou overcame its initial problems and in the third season made a \$100,000 profit. Although

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<sup>15</sup> It is prohibitively difficult for land trusts and incorporations to attract private finance capital as banks are not prepared to take the risk that is entailed in lending money to managers of land in multiple ownership. Although, there have been changes to the appropriate Maori land legislation – especially in the form of the Te Ture Whenua Maori Act 1993 – this situation largely remains today.

<sup>16</sup> Te Puni Kokiri had itself been restructured in the year before these negotiations and this represented almost the last payment of Mana funds. The Mana program had been a feature of the old Department of Maori Affairs which had a proactive developmental mandate and start-up capital for innovative developmental projects on Maori land. In contrast to this, TPK has basically an advisory role and there is little capital available for Maori today that would match this loan. Consequently, there is some doubt as to whether similar operations could eventuate at present and the successful conversion to organics by Paripoupou had much to do with serendipity.

some of this money has had to be used to overcome a poor 1996/97 season, it has been able to purchase new machinery and “future-proof itself against another Bola by putting a lot of money in the bank” (Interview 19). The manager of Paripoupou also believes that organics is in keeping with the stewardship beliefs of Maori on the East Coast. Both HWL and TPK showcase the property as “something special, something unique which shows that Maori can be innovative, that large multinationals don’t have to be rotten and that both can work together” (Interview 2).

Despite this success, one could not yet claim that Paripoupou provides a future blueprint for organic development in the area. Because of the difficulties experienced in successfully establishing Paripoupou as an organic producer, HWL has subsequently proceeded with caution in dealing with properties which are characteristic of the Maori norm: land in multiple ownership; land which has been damaged by flooding; or owned by people who are inexperienced sweet corn producers. Some of these concerns have acted as impediments to negotiations with land incorporations and HWL have not rushed to repeat the Paripoupou situation:

“Paripoupou was a classic case of...‘we’ve got to get this program rolling, we’ll take it! Well if that same property came up again we’d run a mile because the land is too marginal and the start-up costs too high” (Interview 8).

“Well it happened because we had to go from nothing to something right away. And getting conventional growers to go organic on any sort of scale at all takes time. Now that we have sufficient conventional growers that have converted we are not likely to go to the same effort again” (Interview 2).

There were a number of other reasons which concerned HWL managers and agronomists about dealing with Maori land. Other individuals from Maori land trusts had contacted HWL and had promised considerable amounts of flat land that could go through the BIO-GRO process quickly but, on further investigation, HWL found that these agents had no authority to do so (Interviews 2, 8). Some Maori owners were also reported to expect HWL to incur more of the start-up cost than was usual. During this period, HWL rejected an offer of 800ha – which would have doubled HWL’s contracted organic land – from another incorporation primarily because its location near Ruatoria was too far from the factory, but also because of other prevailing concerns about Maori incorporations (Interview 2).

Perhaps the greatest threat to the potential for organics on Maori land came from difficulties experienced by a second incorporation to attempt

organic production. From 1994, that incorporation started to convert land previously unused or used for pastoral farming and in 1994/95 produced transitional sweet corn for HWL. However, it had a strong desire to be more than just a ‘supplier’ of an input without a value-added component (Interview 7). Having attracted a loan from a governmental source, it invested large sums of money in a slush-ice machine for the export of organic broccoli, with the desire to grow, process and market produce itself. It also invested heavily in mechanical weeders and other horticultural machinery. With little knowledge of horticulture or international marketing and with a sizeable exposure in terms of fixed-capital, the second incorporation lost a considerable amount of money in the 1996/97 season (Interviews 7, 19) and was subsequently dropped by HWL for being “too risky to deal with” (Interview 8). It will continue to operate for the 1997/98 season and its managers still believe in their ability “to cut out the middle-men: the processors and the marketers” (Interview 4). Given three years of heavy losses, this belief seems somewhat naive. The losses have led to processors and packers who might otherwise have considered fostering Maori organics to be wary about dealing with all Maori trusts/incorporations (Interviews 4, 7, 9).

Given the extent of Maori land, and also the Maori desire to become involved in organics which is seen by some to “conform to our environmental ethos” (Interview 9), there is significant potential for organic agriculture on Maori land in Gisborne District. After a cooling off period following the effort to establish organic production on the two properties, HWL has recently attempted to re-establish the development of organic sweet corn production on other Maori land. In 1995, an incorporation approached HWL with land that met HWL’s criteria, but the resulting HWL offer was met by a better offer from another processor not involved in organics (Interview 2). Another venture emerged in Wairoa where HWL began to lease land from local Maori owners (several properties having multiple ownership arrangements) and to develop what was again silty, weed-infested land, for sweet corn production. In this development, the local owners took no part in the actual production of sweet corn but simply held the leases and cooperated with HWL’s contracting arrangements. By 1997/98, this development included five properties and 100ha of land in transition to BIO-GRO certification for sweet corn. The Wairoa project is seen by HWL as an experiment which may overcome some of the perceived difficulties in working with land that is: in multiple ownership; run by committees; poorly developed because of restraints on the owners’ ability to raise finance capital; and owned by people with no prior experience of sweet corn production, but with a desire to become involved

in organics (Interview 1).

The various successes and failures in the developing relationship between HWL and Maori incorporations indicate both the positive potential of such relations and the barriers that need to be overcome for these developments to continue. A vital factor in Paripoupou's success was Mana funding, and while HWL was prepared to consider a loan in 1992, its supply base is now more firmly established and such an offer is not likely to eventuate in the future. The Wairoa development indicates a possible new phase in this relationship. Recent decisions by the BIO-GRO board to allow certification of long-term leased land have enabled HWL to consider leasing land from both Maori and non-Maori owners.

Leasing of land allows some concerns to be overcome that have acted as barriers to HWL considering Maori land<sup>17</sup>, and this may increase the number of hectares of organic land owned by Maori incorporations in the future. However, while this will extend organic production, the lease arrangement will almost certainly not carry the same range of benefits for Maori development than the alternative model evidenced by Paripoupou. It can be argued that HWL's new direction towards leasing Maori land rather than allowing local owners to work the land themselves is overly cautious and it will be perceived by some as paternalistic. In recent years, there has been a groundswell of Maori concern in Tairāwhiti over incorporations that seek profit over employment in their use of Maori land (Coombes 1997). While the Paripoupou example yielded little in terms of employment, it represented a direction that would be far more acceptable to the impoverished Maori that have fuelled this groundswell than leasing. More importantly, Ngāti Porou development since 1945 has suffered because of a forced dependence on leasing. For this reason, many local Maori will be unimpressed with a new direction towards leasing, even if such a direction appeals to their trustees whose range of options is severely limited by the Te Ture Whenua Maori Act.

### 3.2.3 "Grow Organic with Watties"

The recruitment of growers for organic production in Gisborne differs to the pattern seen in Canterbury where a variety of possible growers were contracted in the initial rush to build a supply base (even though these growers were often, in hindsight, less than suitable). In Canterbury, it was eventually recognised that the main potential for boosting grower numbers lay with the company's established conventional growers. Because of the absence of a significant group of established long-term organic growers in Gisborne, HWL recognised from the outset that conventional growers would most closely conform to the desired criteria for converting to organic sweet corn production. GOWW is a promotional and literature campaign developed in response to difficulties experienced in recruiting growers for HWL's organic program. Its main goals are to dispel misinformation about organic production and to transfer organic information to growers<sup>18</sup>. As such, it was primarily targeted to conventional growers who had long-standing relations with HWL, especially those that were considered innovative and who might follow the lead of the company (Interview 1). It included a series of informational brochures which were sent to growers and outlined the premiums for – and the small amount of change required to enter – organic agriculture, but also included group discussions, a media campaign, showcase exhibits of organic farms and public lectures. Private and individual negotiations with growers have always been the primary strategy of HWL recruitment. From 1993 the more organised and broad approach of GOWW contributed to an increased number of conventional growers interested in organic production contacting the company.

The component of the GOWW strategy that, in hindsight, was of most interest to many growers, was the promotion of a premium for organic over conventional production<sup>19</sup>. It had been considered by HWL Gisborne that conventional growers were unlikely to convert to, and sustain, organic production unless there was a net premium of around 20-25% (Interview 2). This incorporated the need

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<sup>17</sup> It is possible that leasing will also be positively perceived by some Maori growers and, in certain circumstances, by BIO-GRO NZ. Because of the underdeveloped state of some Maori land, potential growers may be borderline in terms of whether they would be certified by BIO-GRO NZ. In this context leasing could reduce the start-up risk for both HWL and the land owners and provide a better chance of certification for the land owner at a later date, after HWL has dealt with land-based impediments to organic production. It is probable that BIO-GRO would favour this use of leasing as a stepping-stone to organic production by the land owner. However, it is too early to tell whether this scenario will be a reality and it is unlikely that more than a few Maori incorporations, which become involved in organics through leasing, will eventually adopt organic production in their own right.

<sup>18</sup> For further information see Report No. 1 (Campbell 1996:25ff).

<sup>19</sup> This has, at times, been a contentious issue. Both in Canterbury and Gisborne, there was some debate within HWL as to the extent to which the premium should be used to convert growers. Some argued that the premium might not last in the long-term and that growers should convert for other reasons. Others countered that many of the growers were primarily interested in the premium, and some agronomists based their discussions with interested growers around the potential premiums.



	Sweetcorn (Jubilee)		Peas	
	\$/t	price premium over conventional	\$/t	price premium over conventional
<b>Conventional</b>	140	–	305	–
<b>Transitional</b>	240	71%	365	20%
<b>Organic</b>	255	82%	380	26%

**Table 3.1:** Average price (in \$NZ) paid by HWL per (pre-processed) tonne to Gisborne growers 1992-1993 to 1995/96<sup>20</sup>. (Sources: HWL Gisborne Gross Margin Report on 1997 Crop; adapted using information from Interviews 1, 2, 8, 17, 18, 20, 22)

to transparently account for the additional costs in growing organically, including an account of additional labour required for mechanical weeding and opportunity costs such as the inability to graze cattle over winter. After some initial ‘guess-timates’ considerable research was conducted to ascertain both sweet corn and, later, pea prices.

In the next Chapter, it will be established that these price premiums result in a gross margin (per hectare) premium of over 30%. Despite this premium, HWL initially struggled to convert its Gisborne growers, especially in 1992/93. A significant turnaround occurred in 1993 when one of the more highly respected of the local growers committed himself to an organic regime. Unlike other conversions, that grower rapidly transferred his entire property through BIO-GRO certification, adding 135ha of land in three years to HWL’s organic sweet corn operation (Interview 18). This has created a growing sense of legitimacy for organics in the district and has led to the conversion of other conventional growers (Interviews 1, 2, 8). Another factor which has accelerated conversions is the success of technology that HWL sourced for growers in 1994 – part of the information transfer objectives of GOWW. Conventional growers had considerable fears of weed infestation on organic sweet corn properties, but machinery imported from the US has countered this problem (Interview 8). By August 1997, HWL had 10 growers either in transition or fully certified with BIO-GRO, with at least a further six growers registered for certification and hoping to be ‘in transition’ by the 1998/99 season (*ibid.*).

In 1998, HWL now has over 2000ha of transitional or certified land under its growers in New Zealand and 405ha of this is in the Gisborne area. While Canterbury has a greater number of hectares of certified land, Gisborne is remarkable for the speed with which new land has been converted. Thus, the GOWW program, as it has been

applied to Gisborne, appears to be even more important than in other areas, especially when one considers the initial difficulties brought about by the lack of long-term organic growers to act as pioneers. The success of GOWW has occurred both despite and because of the uncertain future for the Gisborne plant. While uncertainty has acted as a barrier to some growers convert-

ing to organic production (Interview 1) – particularly given the plant restructuring announced in June 1997 (Interviews 17, 22) – for other conventional growers it had the opposite effect, prompting the move to organics in order to ‘save the Gisborne plant’ (Interview 20).

### 3.3 The development of organic methods for sweet corn production

In many respects, the long-term success of the GOWW campaign is dependent on how its conventional sweet corn growers perceive the suitability of organic methods. If the methods developed thus far appear to work successfully, then the typical fears of many growers – reduced soil fertility, weed infestation and difficulties managing pests – will be proven unwarranted and growers will be more likely to convert. Again, Gisborne differs to other regions, where pioneer growers had already established some (or all) methods required for successful organic production in the region. Consequently, this section will review the methods for organic production of sweet corn and other organic crops produced in Gisborne as they have evolved over the last 6 years.

#### 3.3.1 Growing organic sweet corn for commercial horticulture: fertility issues

There are two main types of sweet corn grown worldwide: ordinary and supersweet. Ordinary sweet corn is mainly grown for processing, while the supersweet varieties (which include both yellow and bi-coloured) dominate the fresh market, but are also being used increasingly for processing. In Gisborne, HWL mainly uses two varieties. Ordinary sweet corn is predominantly

<sup>20</sup> After 1995/96 the premium was markedly reduced. This change is discussed in Section 4.2.2.

the *Jubilee* variety, while supersweet is usually the *SS42* variety (Interview 6). Planting of both *Jubilee* and *SS42* is staggered from late September to mid December, when soil temperature and moisture fall within an acceptable range. Both varieties are harvested from late January to early March.

Compared to other crops, sweet corn is relatively resource depleting and appropriates significant quantities of nitrogen from the soil (McLaren & Cameron 1990:206). Not only does it have a long growing time – 100-110 days for the varieties favoured by HWL – but it also requires consistently high levels of nitrogen at all periods of its growth. This meant that organic sweet corn was a significant challenge for HWL agronomists and growers relative to their other crops – especially peas – which are less demanding on soil fertility. Traditionally, significant quantities of urea have been used to maintain soil fertility on sweet corn properties, which is not acceptable under BIO-GRO organic standards.

Some of the fertility enhancing methods adopted for other commercially grown organic crops were also applicable to sweet corn production. Reactive rock phosphates (RPRs) are slow release fertilisers which are allowable under BIO-GRO standards. Fearing long-term fertility problems, organic sweet corn growers in Gisborne District have applied RPRs at 300-450kg/ha, claiming that this is relatively high compared to use on organic crops in other regions (Interview 18). Fertilisers derived from fish products are also used as a crop dressing two to three times a year. Other typical organic applications include lime and the restricted use of cobalt<sup>21</sup> as a supplement, which are used to counteract a local soil deficiency brought about by high levels of siltation on flood-prone land.

Because of high demands on soil fertility, the first technical barrier to the development of organic sweet corn was the need for a 'green' manure crop – a crop which would aid soil fertility and could be ploughed back into the soil. Essentially, the first experiment – a mixture of lupin (*Lupinus angustifolius*, notable for its nitrogen fixing abilities) and mustard (*Brassica nigra*) grown over winter months and ploughed in one to two months before planting of the sweet corn – has proven reliable in the short-term, though it is still too early to evaluate its long-term merit. Both the lupin and the mustard are ploughed into the soil wherein the plant mass breaks down to release available nitrogen to the summer crop. Some growers have altered this mix by decreasing or removing mustard and replacing it with either black oats (*Avena spp.*) on wetter properties, or turnips (*Brassica campestris*) on properties where

organically certified stock can break down the nitrogen into a soil-ready form. Other growers have been loathe to abandon the mustard because it is reputed to cleanse the soil of pesticide residues from previous land use and fungal pathogens.

Initially, some within the organics movement were less than happy with this arrangement (Interviews 2, 25). It was argued that sweet corn demanded a fallow (in, for example, clover – another nitrogen-fixing plant) every second summer because of its tendency to deplete nitrogen. HWL and growers recognised, however, that if a cash crop could only be produced half as often, growers would consider organics less feasible than conventional production. All parties, including the growers, HWL, and BIO-GRO NZ are in agreement that in the long term repeated summer cropping of sweet corn will most likely be unsustainable. Thus, there is a significant need to develop a system of crop rotation. In the interim, the current system of production has been treated by the inspectorate as an 'experiment' to determine appropriate fertility management strategies for sweet corn. As such, this resembles the BIO-GRO board's position on 'restricted' inputs, which are acceptable in the short term if there is no viable organic alternative, but must act as a stepping stone in the development of more sustainable practices.

With support from HWL agronomists and scientists the option of a winter fallow from other nitrogen-depleting sources (eg. a winter crop such as broccoli) and a green manure crop grown over winter was adopted. Although this necessitates some opportunity costs<sup>22</sup>, it means that the summer work calendar for organic sweet corn growers is manageable and not so far removed from the situation for conventional production that the conversion gap is prohibitive (Interview 2). This position appears acceptable to all parties in the immediate term, although the long-term desire of both HWL and the BIO-GRO inspectorate is to create a sustainable full rotation in organic crops. This closely resembles the situation in Canterbury, although recent developments in Gisborne suggest that a full rotation of squash, peas and sweet corn is now possible and is being used by an increasing number of growers. In the following chapter, this report will present the differing opinions of growers as to whether the full rotation will be sustainable in the long-term or whether a summer fallow will still be required to maintain soil fertility.

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<sup>21</sup> Restricted to a 'proof of need required' basis under the BIO-GRO standards.

<sup>22</sup> See Section 4.2.3.

### 3.3.2 Managing weeds and pests

One merit used to promote conversion to organic sweet corn production is that it involves few management changes: “Essentially it’s the same requirement of preparing a good seed bed and if you do that the rest looks after itself” (Interview 8). While some of the methods used differ between organic and conventional production a primary objective – a seed bed as free as possible from weed seedlings – remains the same. As stated previously, weeds were initially a major concern for growers, especially during wet seasons (Interview 17). However, the solution to this problem was relatively straightforward to implement. Growers merely “turned back the clock to the ‘40s and ‘50s and borrowed our grandads’ methods of weed control” (Interview 7). Essentially, this involved a substitution of mechanical for chemical weeding. After the green manure crop is ploughed and then disced into the soil, the ground is harrowed 2-3 times. Some growers harrow even after plant emergence, but the importation of specialised ‘spider-weeders’ has meant that this relatively risky procedure has been curtailed. These machines utilise a rotating series of spoon-shaped tools which pull out weeds and can be used until the sweet corn plants reach 15cm in height. The technology enables growers to cover over 50ha per day, so mitigates a considerable amount of the added labour time required for organic production. Ultimately, however, organic sweet corn production retains the basic elements of monoculture, so the continued development of crop rotations around sweet corn production will be a major factor in the long-term management of weeds and, indeed, in the maintenance of soil fertility (Interview 2).

This same requirement for crop rotation applies with even greater relevance to the management of insect pests, which have provided more problems for growers than weeds. There are several pests which attack sweet corn. The green vegetable bug (GVB, *Nezara viridula*) inserts its stylet through the outer sheath of the cob and sucks the sugary liquid out of individual kernels. As it is the same colour as the sheath, it is difficult to detect and often the first sign that growers have a GVB problem is a high rejection rate at the time of harvest. Until recently, there has been no conventional solution to the GVB. Now, some conventional growers are managing the pest with chemicals, but the threat posed by GVB is accepted as part of the long-term culture of sweet corn production in Gisborne. In fact, organic growers have one distinct advantage over conventional sweet corn producers. The mustard grown primarily as a winter crop attracts the GVB more than sweet corn and, with cutting and rolling of the mustard, the breeding cohort of the pest is eradicated at just the right time to avoid problems

later in the season. Some growers are experimenting with additional strips of mustard which they will harvest well after crop emergence. Given that no organophosphate pesticides (which do not discern between harmful and desired insects) are used on organic properties, organic growers stand to take greater advantage of a wasp parasite of GVB which has been present in New Zealand for many decades, but was recently re-released by Crop and Food Research funded by VegFed and HWL.

There are a range of pests that affect sweet corn for which biological control mechanisms are now available or in development. A parasite has been released for the Argentine stem weevil (*Listronotus bonariensis*), while biological control mechanisms have recently been developed for cosmopolitan armyworm (*Pseudaletia separata*) and corn ear worm (*Heliothis armigera conferta*). Head smut (*Sphacelotheca reiliana*) – a soil borne fungal disease – can only be prevented on organic properties by crop rotation, but this is also the situation for conventional growers. One major challenge is greasy cutworm (*Agrotis ipsilon*) which is a common pest for both organic and conventional properties. Currently, organic growers attempt to control cutworm using a restricted mix of garlic and pyrethrum which appears to sicken rather than kill the pest. Cutworm has caused significant financial damage recently on both organic and conventional properties (Interviews 17, 18, 19, 20). Investigations into better organic control mechanisms for this pest are currently in progress (Interview 1). In the meantime, it is the most significant pest problem for organic sweet corn growers.

### 3.3.3 Extension of organic sweet corn methods to other crops

Crop rotation is the best long-term solution for both pests and weeds, so HWL was particularly interested in establishing secondary crops which could be grown on organic sweet corn properties. For its part, HWL has encouraged its growers to grow peas. Peas have a shorter, 80-90 day, growing period and an average crop removes fewer nutrients from the soil than sweet corn, with the added ability to fix nitrogen when soil conditions are favourable. They are a relatively easy crop to grow, with few pest problems. A number of soil-borne fungi (eg. *Fusarium oxysporum*) affect peas but, once again, they affect conventional and organic peas similarly and the best remedy is crop rotation. Similar weeding solutions to those developed for sweet corn can also be used on peas. Consequently, in recent years, the green manure crop and mechanical weeding combination that was initially developed for sweet corn has been extended to pea production. While the production of organic peas in Gisborne is still in



its early stages, initial harvests suggest that organic peas may actually grow better in Gisborne than in Canterbury. Consequently, organic peas have the potential to become a vital aspect of organic crop rotations for Gisborne. While it is technically feasible to grow a conventional pea crop followed by sweet corn in one season (thereby providing the growers with two lots of revenue), both BIO-GRO and HWL are in agreement that this practice is not permissible for organic producers (Interview 1).

Many of the organic sweet corn growers have seen that their newly developed methods could be applied to squash production, which like sweet corn and peas, does not require major revision of its production system to become organic. As one agronomist put it, squash “is virtually organic anyway” and “few chemicals have been used on squash in the past” (Interview 6). Nevertheless, soil fertility was a barrier for those attempting to produce organic squash. Both sweet corn growers and those who have grown squash for decades have been quick to adopt the use of green manure crops, as developed for sweet corn growers, for squash production. Indeed, the same mix and procedures for green manure crops tend to be used. Before the adoption of methods used by organic sweet corn producers, squash growers carried out a considerable amount of hand weeding. Although some hand weeding is still required, the suitability of spider weeders imported for organic sweet corn have also helped to reduce the amount of labour time invested in squash.

Another method – disease infection period forecasting – has been adapted specifically for organic squash production. It is derived from analysis of weather conditions and helps growers predict fungal problems on squash. The most detrimental of these is powdery mildew (usually caused by the organism *Sphaerotheca fuliginea* on squash) which, increasingly, is treated with sulphur both conventionally and organically because in the 1990s it has developed a resistance to agrichemicals on some properties. The development of organic squash has provided lessons for all squash growers. No nitrogen is applied to organic squash in such rapid-impact forms as urea. Subsequently, it has been found that the absence of this form of nitrogen has led to longer shelf-storage times, and conventional methods have been appropriately altered. One problem for organic squash production has recently become evident. Japanese authorities have repeatedly called for the fumigation of all squash entering their country as a phytosanitary precaution. This would mean that organic squash could not carry the BIO-GRO label into Japan. At present, however, systems are being put in place to circumvent this and the outlook for organic squash growers is reasonably favourable.

## 3.4 The relationship between local and export organic industries

The lack of any substantial domestic organic industry in Gisborne has already been identified as a major factor influencing the way in which organic production has developed in the region during the 1990s. This section will examine the reasons why there was no domestic industry and the evolving relationship between export and domestic sectors.

### 3.4.1 Accounting for the lack of a domestic organic industry in Gisborne District

There is a common assumption in literature about the organic industry – both of the academic and popular varieties – that the export/commercial organic sector will have a pernicious effect on the domestic/philosophically-committed sector. Three stakeholders in the domestic organic industry, all having an involvement from the mid 1970s, were interviewed to evaluate this assumption. These informants (Interviews 12, 13, 14) recall that nobody advertised produce as organic in the local market before this time. As far as they were aware, only four growers had attempted to grow organic produce in Gisborne for the local market in the last 20 years. Some grow for the New Zealand market, but cannot find a market for their produce within Gisborne District. At present, only one family produces goods for consumption within Gisborne itself but, while their fruit is BIO-GRO certified, most of their vegetables are labelled as ‘spray free’ (Interview 12, 13). Two health food shops occasionally sell organic fruit and vegetables, and then, mainly, to tourists or three regular local customers (Interview 14). All of these factors point to an inherent lack of realised demand for the purchase of organic produce by Gisborne people. Further, it appears that this has been the situation for a lengthy period of time leading to the relative lack of any domestic producers in the district.

Nevertheless, it is premature to suggest that because there is no realised demand for organic produce that there is no latent demand. The three stakeholders, as well as many other interviewees, highlighted four factors as explanations for the current position:

- Growing conditions are so good in the area that anyone interested in ‘healthy’ living will grow organic vegetables for themselves;
- There are many people in the area who are in low-income households, so many who are interested are too poor to pay a premium for

organic food and either go without, grow their own or source them from the informal economy through barter;

- (Conversely) poor people are usually not educated on the merits of organic food and cannot pay for it – a fact which, according to some interviewees, was strongly related to the large number of Maori in Gisborne who were, supposedly, less interested in healthy food;
- Gisborne people were portrayed as conservative: “It’s a rural area that loses its young and has lots of old families who have lived here a long time – a recipe for disaster if you’re trying to set up an organic industry” (Interview 14).

While the general demand for organic produce throughout New Zealand is very low by world standards (Saunders *et al.* 1997) – particularly as New Zealand consumers exhibit a strong belief in the ‘safety’ of conventional food in New Zealand – these four factors may explain why demand is lower in Gisborne than in most regions. There are other factors, however, which point to a possible latent demand for an organic industry. People in Gisborne have recently formed the *Tairāwhiti organic producers and consumers group* – partly because it was felt that it might have gained a regional tour from the IFOAM conference at Lincoln University during 1994, but also because it was perceived that interest in organics was increasing (Interview 13; Russell 1994). Interest in organic produce was said to notably increase after a 1995 campaign concerning the spraying of 2,4D – a herbicide used to eradicate Californian thistle (*Cirsium arvense*) and other weeds on pastoral farms (Interviews 12, 13, 14). Members of the *Tairāwhiti organic producers and consumers group* were also prominent in the *Gisborne chemical awareness group* which raised over 8000 signatures and succeeded in having aerial spraying of 2,4D prohibited under the District Plan (Scott 1995a,b; Spense 1995). The chemical group highlighted the success of organic exporters, as well as their susceptibility to spray drift, as reasons to abandon conventional sprays and subsequently elevated the knowledge of, and interest in, organics in the area.

### 3.4.2 Effect of exports on the local organic industry

However, the important fact is that this increase in the potential demand and interest in organics occurred well *after* the establishment of the export organic industry. Indeed, interviewees point out that the growing export industry is likely to foster growth in its domestic equivalent. Several reasons for this view were given:

- Some of the export growers could be convinced to sell organic produce in the local market.

Some organic produce which falls into this category has recently been sold in Gisborne supermarkets;

- Produce grown for the export market, but not meeting export requirements (‘rejects’), would be sold on the local market. This, as well as produce falling into the previous category, would satisfy the problem of a lack of supply, which has frustrated many potential organic customers in Gisborne and secure their long-term custom;
- Those conventional growers who had converted to organic production for pragmatic reasons would themselves seek out organic food: partly out of interest, but also because of increased personal knowledge of the effects of chemicals;
- The premium for organic produce that can be obtained in the domestic market is less than that in the export market and this restrains large companies from selling organic goods locally. It also provides no incentive for such companies to interfere with, or out-compete, individuals or cooperatives who would sell locally;
- The involvement of large companies such as HWL as well as promotional campaigns such as GOWW have also brought a sense of legitimacy to organic *consumers*, leading others to follow the now-fashionable lead of those consumers.

It might also be argued that the involvement of large companies has helped solidify BIO-GRO NZ as the legitimate certifier of organic produce in New Zealand, helping acquaint New Zealand consumers with the idea of ‘third party certification’. This may have overcome the long-standing tendency for consumers to accept organic trading ‘on trust’ and only within tight networks which has excluded many potential consumers. However, the reasons listed above highlight that a limited supply is the fundamental concern for those already consuming organic produce in Gisborne District. Any move that might increase the consistency of supply or the diversity of available goods is perceived positively by such people. Some northern hemisphere researchers are concerned that large companies may, through their superior marketing and economies of scale, force small/local producers out of business but, in the Gisborne case, few such producers exist. Therefore, the immediate effect of a growing export organic industry is a positive influence on its local equivalent.

## Chapter 4

# Emerging issues

By the 1995/96 season a degree of stability had formed in Gisborne's export organic industry. HWL had found reliable sources of both demand and supply and, while the latter remained considerably smaller than the former, there was a momentum of grower conversions which seemed irreversible. Many technical barriers had largely been overcome and those farmers who had initiated the process of conversion in the early 1990s had increasing areas of fully certified land. Extension of organic methods from sweet-corn to other crops had begun and growers who had initially started with sweet corn had diversified into peas and squash. This diversification, however, has been accompanied by potential instabilities in the structure of Gisborne's export organic sector and these as well as other emergent issues are the foci of this chapter. While the outlook for organics is undoubtedly more favourable than it is for Gisborne's conventional sector, there is some evidence presented below which indicates that it may not be immune to many of the problems typical of conventional food production systems.

## 4.1 Complementary and competing firms: the impact of an increasing range of companies involved in organic exporting

The first set of issues concerns the nature of inter-firm competition in Gisborne's export organic industry. Although HWL dominated proceedings from 1992 to 1995, firms that also established organic production around 1992 have expanded that production in recent years and a number of other firms have entered the industry since that time, further diversifying the array of organic foods available for export. Some of these firms have proven complementary to HWL's

agenda; others have directly competed with HWL for growers and the supply of produce.

### 4.1.1 Synergies between companies in organic production

Gisborne is one of the largest export regions for squash in New Zealand. However, because squash are simply packaged in boxes prior to export, most of the companies that export squash from Gisborne District do not have significant plant or offices locally in the region. Under the 1987 Horticultural Export Authority Act, the New Zealand Buttercup Squash Council was given the "authority to enforce conformity to an approved marketing plan amongst growers, packers and exporters of squash" (Perry *et al.* 1997:293). However, this authority does not give the Council an export monopoly, and squash exporting companies have a relatively high degree of freedom. Generally, companies involved in the exporting of organic squash tend not to compete with companies that export organic sweet corn. Five companies have become involved in the exporting of organic squash from Gisborne: S.C. Murphy Co., Fresh Co., Strongmore Exports, Cox Co. Ltd and Sunrise Coast NZ. Only Sunrise Coast and Cox Co. have an office/packhouse in Gisborne itself. The other companies all use local agronomists and agents to obtain contracts from local growers. S.C. Murphy – the company that exports the most organic squash from Gisborne – uses Agriculture NZ for crop procurement and monitoring. In 1996/97, it exported 200t of organic squash grown in Gisborne, almost all of which was sent to a cooperative supermarket in Japan (Interview 4). It also exported organic squash from the Bay of Plenty, Manawatu, Hawke's Bay, and Canterbury regions. All of the companies that export organic squash from Gisborne source produce from more than one area (Interview 6).

The price premium for organic squash is shown in Table 4.1 and is higher than that for organic sweet corn (see Table 3.1). However, with additional costs in terms of hand weeding and a less reliable yield, the gross-margin premiums for

squash and sweet corn are in a similar range. Like HWL, the five companies involved show a marked tendency to source squash from long-established growers who convert to organic production (Interview 6), but they also show a desire to contract produce from organic sweet corn growers who seek a rotation using squash.

Regime	Price per tonne	Price premium over conventional	Gross margin per tonne	Gross margin premium over conventional
Conventional	330	–	255	–
Organic	680	106%	350	37%

**Table 4.1:** Average price paid (in \$NZ) and gross margins for squash, Gisborne District, 1996/97. (Data supplied in Interview 7 and relates to a study of the prices paid by the three largest exporters of organic squash which source produce in Gisborne District.)



These growers have achieved comparable yields to established organic squash growers (Interviews 4, 7).

According to the export managers and agronomists interviewed, HWL and squash-exporting companies have cooperated in determining the medium-term organic strategy for Gisborne District (Interviews 1-8). A mutual understanding has developed wherein it is accepted that the ideal property will have roughly equal areas in organic sweet corn, peas and squash. This cooperation reflects the fact that sweet corn and squash production are mutually compatible. The advent of organic squash exporting has helped HWL overcome rotational problems with its growers. It has also helped HWL attract growers who are worried about supplying only one processor or packer. Growers who are fearful that HWL Gisborne may close are less concerned about entering organic production given that they will have more than one crop to grow and more than one buyer for their harvest. Even though the pool of BIO-GRO certified land is small, HWL and squash exporters do not always compete for the same plots of land<sup>23</sup>. As one grower states, "After you've grown sweet corn for two or three years on the same paddock, its either squash or fallow so with those options we'll always have at least 20-30% of the property available for squash" (Interview 18). While the move to organic pea production for HWL has increased these options, a number of growers commented that HWL agronomists still recommend that they grow squash for another company (Interviews 18, 20, 21).

#### **4.1.2 Competition between companies in organic production**

These types of synergies also developed in the other two case study areas, but perhaps this reflects the fact that few organic exporters in either Canterbury or Bay of Plenty are in direct competition with each other for established growers. In Bay of Plenty, for example, the organic industry is dominated by Zespri International Ltd. which, as it has a monopoly, experiences no local competition from kiwifruit exporters. In Canterbury, a number of synergies developed, as is especially evident in the relationship between HWL Christchurch and Only Organic NZ Ltd. HWL regards the difficulty in constructing a full organic rotation for its growers as a significant barrier to

the long-term viability of its organic strategy. Only Organic has utilised the pool of growers developed by HWL Christchurch and has created new crop options for those growers to incorporate. This stabilises the supply base for HWL's key crops by providing growers with a more secure outlook and the ability to rotate crops, a situation which is also beneficial for Only Organic. That company also purchases a small amount of HWL rejects which have failed visual quality criteria for exporting, but can be successfully processed into baby food (Interview 1). While these kinds of synergies are characteristic of the other case studies, Gisborne provides one example of direct competition between organic exporting companies. For the coming season, competition over land certified for organic sweet corn will be part of the local dynamic in Gisborne's organic industry, due largely to one company's desire to further diversify its strategy for organic production.

Sunrise Coast is a Gisborne business which formed in 1982 to sell oranges within the domestic market, but it has since emerged as an important exporter of a number of horticultural products. In 1986, it started to export squash and five years later it exported its first consignment of organic squash grown in Gisborne. In other seasons, the company has also exported organic potatoes and carrots which were sourced from other parts of the country. By 1997, 90% of Sunrise's activities were in the export market (Interview 6) and it has created a secure niche as a counter-seasonal exporter. Its strategy has been to develop a system of contract horticulture, which incorporates some of the logic of the 'just-in-time' approach, so as to reduce the time between orders being placed in Japan and the fulfilment of those orders by growers in New Zealand (Interview 3). The company has committed itself to flexibility, especially in terms of discovering new market niches then contracting appropriate growers to produce for those niches on an annual basis. A significant proportion of the food supplied to Sunrise Coast is grown on leased land: a flexible form of tenure which reflects the company's emphases on flexibility and responsiveness to changes in consumer demand. Part of this strategy is to dovetail with the system of direct sourcing favoured by its Asian clientele. For this reason, the company gives its clientele as much say as possible over the nature of the product and the way it is grown, and Sunrise Coast imports Japanese seedstock so their

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<sup>23</sup> Some squash growers have employed MAF Quality Management field officers to act as quality control agents for the organic standards which the Codex Alimentarius Commission is presently finalising for organic production. The commission is a part of both the World Health Organisation and the Food and Agriculture Organisation and is an auditing and standard setting body which aims to harmonise inter-governmental standards for trade. The inter-governmental debate on the Codex organic standards is currently deadlocked. However, with the significant role given to the Commission by the Uruguay Road Agricultural Agreement and especially the World Trade Organisation Agreement on Technical Barriers to Trade (see Campbell and Coombes *forthcoming*), its standards are likely to become increasingly important for the global trade in organic products. Although they are slightly less stringent than BIO-GRO NZ's organic criteria which follow closely IFOAM standards, it is believed that a gross-margin premium which is close to that for BIO-GRO certified squash can be obtained by organic growers producing squash under the draft Codex standards.

produce more accurately reflects Japanese food tastes.

This system has led the company to have a greater interest in organic products, which they export to Japanese cooperative supermarket chains. Sunrise Coast's interest in cropping increased and diversified through the marketing and exporting of processed corn powders for Cedenco in the early 1990s. Later in the decade, Sunrise sought to further develop its own processing facilities and invested considerable assets in developing a process for retort pouche packaging of carrots and sweet corn. Retort pouche products have an outwardly similar appearance to vacuum packed foods. However, the significant difference is that they are cooked in their flexible plastic packaging, with equal pressure applied inside and outside, resulting in a shelf-stable form that remains fresh for twelve months. Although the process yields relatively expensive and individually-wrapped corn cobs, Sunrise Coast has exported over eight million pouched cobs in the last two years (Interview 3). There are a number of difficulties involved in the process. First, pouching has to occur within twelve hours of harvest, leading to a special need for coordination of growers, harvesters and the processor. Second, because the product is sold as a whole cob in transparent packages, crop quality has to be high and there is a relatively high rejection rate (Interview 6). Whereas HWL break down cobs into kernels and can therefore manage cobs with several GVB-spoiled kernels, Sunrise Coast reject cobs that have more than two such kernels. A second factor is that Sunrise Coast uses bi-coloured supersweet varieties which reduces the possibility of developing synergies with HWL. Because HWL's markets demand uniformly yellow kernels, there is no potential for HWL to purchase rejects from Sunrise Coast to use in processed products.

The pouching process has recently been registered with BIO-GRO NZ, and Sunrise Coast actively courted organic growers during the spring of 1997 (Interviews 17, 18, 20). Therein lies the potential for competition in Gisborne's organic industry. In the 1998/99 season, Sunrise Coast's organic operation is set to increase, and it is already the second largest organic exporter in the Gisborne area. But it is less the size of the company's organic plans than its desire to obtain organic sweet corn growers that will engender this competition. The company faces the same difficulties

that HWL experienced in 1992 in terms of convincing conventional growers to convert, but has one option that HWL did not have when it started its organic sweet corn operation: to attract growers already established in organics. Sunrise Coast are relatively open about this being part of their strategy to increase their pool of organic suppliers (Interview 3), but also argue that their long-term strategy for increasing the number of contracted sweet corn growers who are BIO-GRO certified is to convert their existing conventional growers. While HWL will not perceive the latter strategy negatively, the company believes that the former strategy is largely unfair, with companies "free-riding" on HWL's investment in research and the GOWW campaign (Interview 1). One HWL agronomist argues that "Sunrise aren't assisting growers to convert with a technology transfer program and they aren't putting anything back into the industry" (Interview 8).

In contrast to this, Sunrise Coast claims that its strategy reflects "ordinary competition in the food industry" because it is "doing little more than offering growers a better contract"<sup>24</sup> (Interview 3). Because the pouching of sweet corn demands that there are no visual blemishes – whereas the criteria for processed sweet corn are more tolerant of cosmetic variation – it is also true that the requisite skills for growing for each process are different enough for some growers to specialise in one but not the other. Nevertheless, the initial reactions of sweet corn growers who are already certified suggest that most new and established growers will sign contracts with both companies and it remains to be seen what the outcomes of this situation will be. Furthermore, it is necessary to remember that sweet corn is just one of a number of BIO-GRO (and SunGreen<sup>25</sup>) organic products that Sunrise exports. More significantly, however, the company also counters the claim that they are not providing a technology transfer program. While little of Sunrise's R&D expenditure is targeted directly to BIO-GRO organic production, growers producing under the BIO-GRO label will undoubtedly benefit from research funded by Sunrise for its SunGreen project. For that project, Sunrise has established research farms and has evaluated varieties and techniques to grow crops without chemical fertilisers. This is significant because, as is shown later in this Chapter, organic growers now perceive soil fertility to be the most substantial threat to the long-term sustainability of organic sweet corn

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<sup>24</sup> In reality, Sunrise offers a similar price for organic sweetcorn to that of HWL. However, some of the sweetcorn growers who were interviewed believed that Sunrise's pouched sweetcorn was a better advertisement for organics than HWL's frozen sweetcorn because it emphasises some of the reported marketing advantages of organic food, especially its brighter colour and "fresh" image. Even if HWL and Sunrise offer the same price for organic sweetcorn, growers commented that they would offer some of their produce to Sunrise because "we'd like to help grow Sunrise's organic effort as more organic sweetcorn buyers means more security" (Interview 17).

<sup>25</sup> See Section 4.1.3.

production.

The issue of technology transfer *vis-à-vis* competition for organic suppliers is very important in terms of the future for organic production in New Zealand. The competition for certified growers has many similarities to the perennial problems of other highly competitive systems for horticultural commodities, but organic supply is unique in one important respect: its basis in highly skilled production which takes some time to learn and establish. Consequently, issues of skill development may become increasingly salient in the future evolution of organic production in Gisborne. As competition for supply and certified land increases, companies might consider it to be no longer prudent to engage in technology transfer without some more formal control over production<sup>26</sup>. Alternatively, the local industry might begin to reproduce the pattern in Canterbury where grower networks are a major locus of skill development (see Liepins and Campbell 1997), but so far there is little evidence that this will be the case.

Whatever the outcome, the introduction of competition between Sunrise Coast and HWL for the procurement of organic sweet corn raises important issues for the future. The immediate impact of the two companies' activities in Gisborne is that growers have more choice and possibly a better bargaining position. However, this comes at the cost of a slightly reduced level of trust and cooperation between the growers and the purchasers of their product. While increased competition for supply will impact on the processors/exporters (as was negatively instanced by the impact of Cedenco on other horticultural processors) it is not known whether HWL are able to increase the price for organic sweet corn in overseas markets to offset higher payouts to their growers. While competition for supply has important implications, should Sunrise Coast, or other firms, start competing in the same destination markets with the same products, the implications would be much more serious. Even without any direct competition in destination markets, however, the competition for organic growers has the potential to cause instabilities in the structure of the Gisborne industry. It may substitute mistrust for the close working relationship between grow-

ers and processors which has, thus far, proved to be a requisite for the successful development of export/commercial organic production.

### 4.1.3 SunGreen: towards alternative certification systems for organic production

One of Sunrise Coast's more recently formulated strategies for organic production may prove more controversial. For several years, the company has experimented with low-input production regimes, certifying squash under the Codex system and using low-residue produce to dovetail with the 'green' labels of the Japanese supermarkets that it supplies. However, its managers believe that a highly marketable product is one that lies between the low-input/IPM approach and the essentialist stance adopted by BIO-GRO NZ on organic criteria. While the company is expected to further increase the amount of BIO-GRO certified squash and sweet corn that it exports from Gisborne, it has also established its own certification system for "organic" food – the SunGreen label – and has invested considerable resources in its development. 1997/98 was the first season in which the label was used, with SunGreen squash and sweet corn being exported to Japan. SunGreen is both a stand-alone organic label and a scheme which certifies produce that can be absorbed within the green labels of supermarkets in Japan. There are a number of similarities and differences among the criteria for SunGreen and BIO-GRO organic production:

- Both BIO-GRO NZ and SunGreen insist that no chemical fertilisers, fungicides, insecticides or herbicides are used on crops. Thus, both sets of criteria include a list of naturally occurring substances which can be used as substitutes for manufactured chemicals (eg. garlic and pyrethrum mix as a substitute for a conventional pesticide). This list forms part of a written code for organic production which Sunrise Coast, like BIO-GRO NZ, distributes to contributing growers.
- Whereas BIO-GRO NZ uses its own inspectors to audit growers, Sunrise Coast uses inspectors from MAF Quality Management (MAFQual)<sup>27</sup>

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<sup>26</sup> A solution for organic processing companies could potentially be found in lease arrangements. In some forms, leasing may remove the potential for "leakage" from significant investments in human resources. Some companies may prefer to lease land and have their own employees grow crops. Employees trained in organic production by their company are less likely to migrate to other companies than annually-contracted growers/independent land owners who benefit from the technology transfer programs of one company and then sign contracts with another on the basis of higher prices. See also Sections 3.3.2 and 4.4.2

<sup>27</sup> MAFQual is a state owned enterprise formed out of the pre-existing inspection services provided by the Ministry of Agriculture and Fisheries (MAF). MAFQual earns revenue by providing 'quality' management and inspection services. While there is still a tenuous relationship between MAFQual (a state-owned enterprise) and the remaining divisions of MAF (a government ministry), this will cease in the near future with the full privatisation of MAFQual.



as a third-party auditor for SunGreen. The auditing process includes visits to the properties of growers in the scheme, contributing packhouses and Sunrise Coast itself. It also includes checks of the necessary documentation and chemical residue testing in order for MAFQual to verify that the crop meets the criteria set for the SunGreen program.

- BIO-GRO NZ certifies growers not only on the basis of their land and produce but also on the basis of their commitment to organics. Consequently, growers have to convince BIO-GRO inspectors that they intend to eventually certify all of their property. Conversely, the SunGreen system is a seasonal certification of a grower's crop, rather than a label which requires a long-term commitment to organics.
- The main difference between the two systems is that, whereas BIO-GRO NZ insists on a 2-3 year transition/conversion period between conventional production and full registration, there is no such transition period for SunGreen. When a grower either loses certification or decides to pull out of BIO-GRO, they will be forced to endure another transition period for a subsequent re-certification. Because SunGreen is a seasonal certification system, growers would be allowed to apply a conventional fertiliser in order to restore soil fertility after harvesting of the main crop. Furthermore, growers are given a considerably greater level of flexibility to decide which of their paddocks will be used for SunGreen or conventional production. Thus, a typical supplier to the SunGreen label may annually rotate paddocks from SunGreen to conventional production in order to maintain soil fertility and crop yields.

Sunrise Coast's desire for a range of organic labels reflects a number of forces which are motivating the company:

- Supposedly, there are "degrees of organic" in Japan – 100%, 70% and 50% organic thresholds with which consumers are familiar (Interview 6). In turn, these thresholds are said to reflect the expressed food tastes of contemporary Japanese consumers which are influenced less by a broad environmental philosophy and more by food safety issues (Interview 3). This means that there is the potential to market an array of "organic" lines, and produce grown under the SunGreen criteria will be sold in Japan as "organically grown". BIO-GRO organic produce is believed to satisfy only one segment of the Japanese 'organic' market.

- The use of MAFQual to underwrite the program is revealing. The Japanese importation bureaucracy is wary of any label which is not supported by an exporting government's agricultural ministry<sup>28</sup>. Therefore, "Because BIO-GRO isn't government supported there is only a limited opportunity to market its label on our produce in Japan. People over there would like to see 'MAF' stamped on their organic food – but they don't" (Interview 3).
- A considerable advantage of the SunGreen label for Sunrise Coast is that its growers would not have to go through a 2-3 year conversion, as is the case under BIO-GRO NZ. Rather, contracts could be made which reflect the company's desire for flexibility and 'organic' output could be more easily increased or decreased to meet market demands on an annual basis. Likewise, as so much of the produce exported by Sunrise Coast is grown on leasehold land, there was need for a greater degree of flexibility than is evident in BIO-GRO's criteria for certification<sup>29</sup>.
- In Section 4.2.4, it will be shown that a number of BIO-GRO organic sweet corn growers are concerned about the sustainability of their operations. Initially, the prospect for weed and pest infestation formed the most significant perceptual obstacles for the conversion of conventional growers. More recently, the potential for declining soil fertility on organic sweet corn and squash properties has worried growers who are close to converting. The ability to apply conventional fertilisers over winter months and to alternate yearly between SunGreen and conventional production may be highly appealing to growers wary of BIO-GRO's more strict requirements. While only six Gisborne growers were contracted for the SunGreen program for 1997/98, this represents a more promising start than HWL's first year of their plan to convert conventional sweet corn growers to BIO-GRO production.

Several aspects of Sunrise Coast's plans will concern other stakeholders in the organics industry. The SunGreen label is only one of a number of recent approaches which companies have used to sell produce as "organically grown" in the Japanese market but without BIO-GRO certification. Some companies have taken advantage of the relatively loose definition of organics in Japan by selling Codex certified squash to supermarkets which then claim it to be organic. Given that the Japanese government is planning to develop a national standard for the use of the term 'organic'

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<sup>28</sup> BIO-GRO certified produce has only been allowed access to Japan because of the organisation's established links with IFOAM and because it has been known in Japan for several years. Nevertheless, continued access to the Japanese market in the absence of governmental backing is periodically questioned by Japanese importing officials.

<sup>29</sup> See Section 4.4.2.

– partly in response to pressure from consumers' groups and cooperatives who are concerned about the looseness of the use of organic labels – this strategy might be a better reflection of the current state of the Japanese market rather than its future form. Nevertheless, it is unlikely that the Japanese government will adopt an essentialist definition for organic production, so food produced under the SunGreen label may still pass through Japanese food and border regulations. Although food grown under Sunrise Coast's eco-label would fall well short of the strict requirements of BIO-GRO NZ, it may, therefore, be considered a legitimate organic product in Japan. Sunrise Coast both admitted and desired that SunGreen would be more flexible than BIO-GRO's standards.

One of New Zealand's larger frozen vegetable processing companies also attempted to create its own organic label for the 1997/98 season. Because BIO-GRO and the Organic Products Exporters Group<sup>30</sup> are presently petitioning the Minister of Agriculture about this case, few details can be disclosed. However, because of restructuring within MAF over recent years – which has decreased the Ministry's regulatory powers and increased its role as a facilitator of 'market oriented' agriculture – there is some doubt as to whether it will attempt to limit the proliferation of organic labels. Indeed, the fact that MAFQual has legitimised SunGreen in the view of Japanese consumers by auditing the label shows that one possible direction for MAF is already apparent. If MAFQual agents continue to underwrite alternative certification schemes with the blessing of MAF RA, the Ministry may become a force which not only allows the proliferation of organic labels, but actively encourages it.

One difficulty with such a stance is that the range of organic labels in Japan may confuse consumer groups. Interestingly, when asked if their plans might cause confusion in the Japanese market over the 'legitimacy' of individual labels, managers from Sunrise Coast replied that, "As exporting is a system of relationships between executives, you don't necessarily have to be BIO-GRO certified to be known as organic – you just have to be trusted" (Interview 3). The company also claims that the differing perceptions of 'organics' in Japan will absorb a number of alternative organic labels, each with a different interpretation of organic production in its certification criteria. It remains to be seen whether these interpretations are ultimately valid.

There are two other difficulties with the proliferation of organic labels which are potentially more serious. First, the solidification of BIO-GRO NZ as the main certifying agency in New Zealand has been a context within which conven-

tional growers have more easily taken the step across the ideological divide between conventional and organic production. If a new range of organic labels undermines the legitimacy of BIO-GRO NZ in the view of New Zealand farmers, uncertainty may again prevail and the momentum of grower conversions may diminish. It may also be true that many conventional growers will welcome "looser" organic standard and would gratefully convert to schemes similar to the SunGreen example. This would also imply that the momentum of conversions to BIO-GRO NZ will be reduced, yet it has a worthy claim to being the most "legitimate" of potential certifiers for organic food.

Second, access for organic products to the Japanese market is, and always has been, tentative. This is no better exemplified than by the removal of access for Chilean organic kiwifruit growers to Japanese consumers in 1995. Testing of certified organic Chilean kiwifruit revealed fruit with chemical residues. Consequently, all Chilean organic kiwifruit was banned for two seasons until the integrity of organic certification and labelling was re-established. There is considerable potential for a competing range of New Zealand organic labels to bring about conflict which may also lead to the removal of access for New Zealand's organic producers to Japan. This potential is particularly apparent in the case of "seasonal" labels, under which there is a possibility for residues in the soil from previous applications of agrichemicals to contaminate food, even if no agrichemicals are applied directly to the crop. Although Sunrise Coast will, through MAFQual, utilise testing for residues to mitigate this potential, this direction involves far more risks than the alternative practice of 2-3 year transitions employed under BIO-GRO NZ.

In many respects, companies like Sunrise Coast are not at fault for their desire to form alternative labels. The main source for confusion lies with MAF. The lack of security for access to the Japanese market has been brought about partly because that Ministry has not publicly sanctioned one particular certification scheme. There have been several efforts to enlist MAF to underwrite the BIO-GRO label, but the Ministry finds itself in an ideological context wherein any intervention in the market is not a popular direction. The Ministry's new emphasis on a profit-oriented consultancy service has also limited the possibility of it legitimising BIO-GRO NZ. At present, MAF will not support BIO-GRO NZ unless it receives a financial reward but organic growers already complain about the level of certification fees and these would have to rise if MAF insists on such financial rewards. Yet, Japa-

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<sup>30</sup> A group set up to foster the exportation of organic food. The OPEG is partly funded by industry and partly supported by government as a Tradenz Joint Action Group (JAG).



Cost item*	Conventional	Organic
Cultivation	508	740
Seed and Planting	232	218
Fertiliser	238	484
Weed Control	164	80
Pest and Disease Control	43	176
Other	0	36
<b>TOTAL</b>	<b>1185</b>	<b>1734</b>

**Table 4.2:** Typical Costs per ha (in \$NZ): Organic vs Conventional Sweetcorn Production (Sources: HWL Gisborne Gross Margin Report on 1997 Crop; Interviews 1, 8, 18). \*Where appropriate, these include labour time at standard rates per hour.

nese consumers would be less wary of organic produce grown in New Zealand if the New Zealand government legitimised a national standard. In the view of this report's authors, industry, governmental and academic support should be targeted to BIO-GRO NZ. The independence of that organisation from market or political interference and its strong links with IFOAM render its legitimacy with international consumers relatively unquestionable. Such legitimacy will become increasingly important if the international trade in organic food is to continue.

## 4.2 Grower concerns relating to Gisborne's organic industry

In many respects, sweet corn growers welcome the competition between HWL and Sunrise Coast, believing that it may increase organic premiums. However, growers have several other concerns about the direction that the industry is taking and these relate to:

- Opportunity costs of organic production as well as the costs of organic inputs and, given their limited availability, contractors specialising in organic methods;
- Falling returns brought about by reductions in the organic premium, and the variability of organic yields;
- Long-term issues concerning whole property conversion and whether or not they should abandon one year's returns in favour of a fallow;
- The extent to which organic growers can influence processors/marketers and the or-

ganic market.

These concerns apply mostly to sweet corn growers and, as that group represent the significant proportion of growers, these issues are examined in detail. However, all such issues have relevance for the other organic sectors in Gisborne District.

### 4.2.1 Contractors, inputs and costs

The first concern was raised by several growers and involves the cost of organic inputs. In theory, the premium offered by HWL is calculated in a way which compensates the average organic grower for increased input costs.

Thus, growers are largely buffered from the increased cost of organic inputs. Yet, as one grower comments: "Why should growers put up with input prices that are higher than they should be. Sure the grower gets a premium but the largest premiums seem to go to suppliers of organic pesticides and fertilisers" (Interview 22). Given that organic growers evaluate all costs in relation to conventional production a comparison is made of the two cost regimes in Table 4.2.

As is indicated in Table 4.2, total costs per hectare are, on average, higher and amount to a 40% greater cost for organic compared to conventional production. Such averages, however, mask some of the specific input problems experienced by growers. The most frequent complaint related to the price of fish fertiliser which is relatively expensive, but at least one grower claimed that it had: "Almost no noticeable effect compared to urea, so isn't worth the money" (Interview 17). The garlic and pyrethrum mix used as an organic pesticide provides the largest single input cost. The average application is 8l/ha with two sprays per season and current prices of \$320 for a 20l drum. This compares with the much lower application rate and lower price of a typical conventional pesticide, though on a conventional property as many as four spray applications occur in a season. However, the main cost problem of organic pesticides and fertilisers relates to escalating costs in poor seasons. All the organic sweet corn growers interviewed noted that, while conventional properties have to apply little extra fertiliser or chemicals in a cold/wet season some organic growers feel they have to double their applications<sup>31</sup>.

Increasingly, as some sweet corn growers

<sup>31</sup> It may well be obvious that there is need for extra fertiliser applications when plant growth is stunted by poor growing conditions. However, in cold weather, plants remain at a growth stage where they are more susceptible to attack from pests for a longer period of time, requiring extra organic pesticides.

convert a higher percentage of their property, there is a need for specialist machinery for organic production. Three growers have already bought inter-row weeders costing over \$10,000 each and a similar price is paid for spider-weeders. Some have found their tractors unsuitable and have replaced them with specialised or newer models, and others complained of apparent duplication of equipment, especially the need for separate spray gear to apply conventional and organic mixes on different parts of their property. A small number of contractors specialising in organic methods have become established in Gisborne District. Such contractors – especially those that apply organic pesticides – usually have to be BIO-GRO certified and given that few have gone through the process, those that have charge high hourly rates. It may well be that as more growers enter organic production the cost of contractors and specialised inputs and machinery will reduce. At present, however, growers believe that the return on their investments is relatively poor.

Most growers agreed that labour time effectively doubled, largely because of extra cultivation and mechanical weeding. Again, this was particularly the case in bad growing seasons, when growers not only had to weed more often but had to spend a considerable amount of time monitoring their crops for pests. While the organic premium appears to make up for these costs in the longer-term, growers repeatedly highlighted the extra costs in both labour and inputs that occur in bad years as being difficult to manage. They also point to increased stress levels, which are caused by a greater degree of uncertainty, that are not necessarily experienced by conventional growers. There are also problems with opportunity costs. Some growers believe that they are not adequately compensated in the organic price structure for their inability to graze stock over winter. One grower will leave the industry this year, partly because he is able to obtain \$500/ha for winter grazing if he abandons organic production (Interview 22).

#### **4.2.2 Variability of yield and reductions in premium**

Of course, in a bad year conventional production also declines and growers who produced both conventional and organic sweet corn pointed out that yields decreased by about the same amount (Interviews 17, 20). Some were surprised that this had been the case and had expected organic yields in a bad season to reduce by a considerably higher proportion *vis-à-vis* conventional yields. However, even if yields for organic and conventional growers reduce by equivalent proportions and costs per

hectare do not increase disproportionately for the organic properties during a bad season<sup>32</sup>, the reduction in profit is larger for the organic producer. This is because costs are (at best) fixed at a constant rate per annum and for organic growers they are fixed at a higher rate (Table 4.2). So, in a year with reduced yields, costs are a disproportionately higher percentage of total revenue on organic properties.

The notion of the ‘average year’ also plays a part in growers’ evaluations of their progress under an organic regime and this has at times become a contentious issue. While some growers have been able to obtain close to or above the average of 14t/ha for organic sweet corn, one grower’s yields have decreased each year to the point where he had a yield last year of only 6t/ha and he will abandon organic sweet corn for 1997/98 (Interview 22). Yet another problem in poor seasons is a higher rejection level at harvest, even though HWL rejects few cobs (Interview 17). The more crucial discussion of expected yields occurs when HWL agronomists meet on a face-to-face basis with growers. Nevertheless, ‘average’ data for organic versus conventional production – which is now published in the form of a five-yearly cumulative mean because the HWL sweet corn operation has lasted for long enough for a suitable collection of data – has been reported twice by HWL in GOWW newsletters. In both cases, however, the data were for single seasons and evaluated a relatively abundant harvest. Growers contend that there are two issues of concern:

- The variability among organic sweet corn growers is more marked than is the case for conventional production;
- Inter-seasonal variability is greater for organic production.

The first issue probably relates to the fact that soil fertility is much more important as a determining factor in sweet corn yields than it is for other organic crops. Under a conventional regime, urea and other artificial fertilisers can level-out the differing skill levels among growers and the differing levels of natural fertility on individual properties, reducing variability so that conventional sweet corn properties tend more closely towards the average of 18t/ha. Because the smoothing function of artificial fertilisers cannot be used on organic sweet corn properties, and because organic fertilising systems take both time to establish and skill to perfect, there is a much greater potential for variability from the mean, especially at such an early stage of HWL’s organic sweet corn operation.

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<sup>32</sup> As has already been suggested, there is some evidence that organic costs do increase relative to conventional costs in a bad season.

	Conventional Jubilee		Organic Jubilee	
	Average 1992/93-1995/96	Expected Average 1996/97+	Average 1992/93-1995/96	Expected Average 1996/97+
Yield (t/ha)	18	18	14	14
Price (\$) per t	140	115	255	210
<i>Change in price per t</i>		-18%	—	-18%
Income (\$) per ha	2520	2070	3570	2940
Costs* (\$) per ha	1190	1190	1735	1735
GM (\$) per ha	1330	880	1835	1205
<i>Change in GM per ha</i>		-34%	—	-34%
<b>GM premium per ha over conventional</b>			<b>38%</b>	<b>37%</b>

**Table 4.3:** Gross Margin (GM) Analysis of HWL Sweetcorn: Organic Production vs Conventional Production and 1996/97 Price Reductions. (Sources: HWL Gisborne Gross Margin Report on 1997 Crop.; adjusted for longer-term conditions with information from Interviews 1, 8, 18, 20, 22) \* See Table 4.2

This problem is further accentuated by the fact that the sample of organic sweet corn growers is small and, with two of the largest Gisborne properties also being highly productive compared to the rest, the resultant mean may be skewed towards the maximum. In time, with the solidification of systems for organic fertilisers and with growth in the number of suppliers, the problem of 'averages' may reduce, but it is likely that there will always be a greater degree of variability among organic growers as compared to the case for conventional growers. The conventional mean does not mask variability among conventional producers to the same extent that the organic mean obfuscates variability among organic producers. Because this logic is not particularly clear to growers, an ex-conventional grower who has for a long time produced under conventional conditions will expect to come close to the mean for organic production after conversion, but this is not assured. Now that HWL has moved to a mean created on the past five seasons of data, inter-seasonal variation will be better accounted for in the data that it publishes. Furthermore, some of the concern about inter-seasonal variation can be accounted for by the fact that the season immediately prior to interviewing was particularly cold and wet.

Nevertheless, some growers have claimed that the averages which were initially published and discussed by HWL agronomists have been the basis on which they converted. Consequently, when some growers failed to reach an expected average, they begin to question their continued participation in organic production. While the same problem of 'averages' probably exists for

conventional growers who fail to produce average yields, the remedies for organic growers require a much longer-term development of management techniques and skills rather than the short-term contingency of increased inputs common to conventional production. Consequently, the issue of 'average' production levels has become a source of frustration for some organic growers.

In most respects, growers make decisions on the basis of gross-margin analysis, rather than only on price information and simple averages. A gross margin (per hectare) analysis of organic against conventional production is presented in Table 4.3. The table shows that despite changes in 1996/97, there is still a significantly higher gross margin for organic sweet corn production compared to that for conventional production. With a gross margin per hectare premium of 38% in the period 1992/93 to 1995/96, organic growers with relatively poor land could afford to grow at under the 14t/ha average yield.

However, the single most significant complaint from growers relates to the reduction in prices for organic sweet corn for the 1996/97 season and the effects of that reduction are also evaluated in Table 4.3. For that season, HWL reduced its organic price per tonne by 18% to \$210/ha, but it also reduced its conventional price by the same percentage. While many growers recognised that currency movements had adversely affected market prices, what most concerned them was that both organic and conventional prices decreased by the same amount. The key difference between conventional and organic sweet corn was that world demand for conventional sweet corn was declining relative to organic,

yet both prices were reduced for growers. While the price setting process in a large corporation is complex and opaque, there were two identifiable factors behind this decision to link the prices. First, organic and conventional sweet corn are often linked in HWL's marketing strategies for Japan, making a price slump in one influential on the pricing of the other<sup>33</sup>. Second, the primary difficulty influencing HWL revenue was not only changing demand but fluctuations in the New Zealand dollar. The latter declined dramatically relative to the yen in 1996/97, leaving HWL with two options: either increase prices in destination markets (which they believed would compromise the long-term market position) or reduce payments to growers.

Despite these explanations, many growers were not convinced and were understandably dissatisfied. One suggested that:

“Watties had no reason to reduce the premium because they still get the same price for organic sweet corn in Japan. Sure, they had to reduce the conventional price because the prices they receive for it went down, but they did not have to reduce the organic premium – they're just taking more profit from it” (Interview 18).

Regardless of the validity, or lack thereof, in this argument the premium for organic producers relative to conventional production is almost identical in the period after organic price reductions. While the average gross margin per hectare for organics reduced by 34%, the relative premium for organic produce remains almost the same because of the equivalent reduction in gross margins for conventional sweet corn (Table 4.3). HWL suggests that these trends will continue into the future – both sets of prices will fluctuate relative to demand for sweet corn lines but the relative advantage in organics will be retained (Interview 1, 8).

Nevertheless, the organic price reductions have partially soured relations between HWL and its growers<sup>34</sup>. Consequently, despite the relative premium remaining the same, these reductions in net income, and also the uncertain future for the HWL Gisborne plant, have reduced the loyalty of some of the core organic growers to HWL. One grower refused to accept a contract with Sunrise Coast because of the assistance that he received from HWL to establish his organic sweet corn property (Interview 19). Others said that they would have been similarly loyal to HWL – mainly

because of the degree of technical and, occasionally, financial assistance given in earlier years – but, because of the price reductions, would accept offers from Sunrise Coast (Interviews 17, 18, 20). Growers also point to other factors to justify their reduced loyalty to HWL. Several stated that the level of technical assistance from the company was once exemplary but has since reduced to what they consider unsatisfactory levels. Many repeated the notion that “Watties only offered us a high level of support at the start to get us hooked into organics...Since getting us hooked we haven't been helped at all” (Interview 18). This concern is perhaps acting as an outlet for other deeper issues like net income, as HWL offers all growers free-on-request access to an agronomist, but admit that pro-active advice is targeted towards new growers (Interview 2).

This situation reflects the evolution of organic production in both Canterbury and Bay of Plenty. In both those regions, companies engaging in the initial development of organic processing and/or export enjoyed considerable grower loyalty for several years, especially when the initial market windfalls for organic products were passed on. Then, with a reduction in premiums and/or the development of alternative outlets for organic produce, growers either parted company with the original businesses or protested over a range of grievances. For the NZ Kiwifruit Marketing Board, this phase was seemingly short lived as its premium and net returns for organic kiwifruit increased markedly in the 1996/97 season, effectively silencing most critics and perhaps pinpointing the real source of their discontent. However, the Board is a monopoly and in sectors where competition is more open, the long-term loyalty of growers – which is very important given the sizeable investments in human resources (“up-skilling”/technical transfer) required for organic production – may become an important issue. In Canterbury, the best example of this dynamic is actually a grower cooperative/processor and these issues remain unresolved as grower payments are still a matter of contention between growers and the processor.

In conclusion, it is evident in the Gisborne case, as well as in the other study regions, that there are positive aspects to the relationships between organic growers and their processors, with the potential for considerable good<sup>00</sup> will to develop, particularly in the development of new organic growers and technology transfer. However, these relations are not immune to many of the stresses and pressures that characterise the

<sup>33</sup> See the comment on organics as 'keyhole' products in Section 3.1.1.

<sup>34</sup> This was, of course, also the case with conventional suppliers. However, it might be argued that they are more frequented with such fluctuations. This was the first major reduction in price for organic sweetcorn producers and their dissatisfaction probably relates to their initial beliefs that organic prices would be more stable than those for conventional production.



production and processing of other, conventional commodities. This becomes particularly evident when financial returns for organic products decrease. While the results from the different regions are similar in that all growers react negatively to declining returns, the long-term outcomes of this disenchantment seem to vary by region. Gisborne is particularly significant as it is the first region where growers have mobilised to attempt to control returns<sup>35</sup>. Possible explanations as to why the Gisborne growers differ from their counterparts will be discussed in the next section.

### 4.2.3 Grower involvement in processing and marketing

A tendency which is related to concerns over falling prices for sweet corn is that organic and conventional sweet corn growers are increasingly looking for new outlets for their produce. Some have shown interest in forming their own companies to take on more responsibility for arranging downstream processing and marketing, and this is not only restricted to sweet corn growers. For example, Leader Brand Products Ltd. developed largely out of the success of one grower who produced a range of vegetables – capsicums, potatoes, onions, broccoli, tomatoes and squash – for both fresh-market and processing industries (Interview 5). Through the 1990s, the manager of Leader Brand became the largest single horticultural grower in Gisborne District, owning 1000ha and leasing a further 2000ha. He was New Zealand's largest tomato grower and had a close relationship with Cedenco but, when Cedenco's tomato processing facility closed, the company sought to diversify its options<sup>36</sup>. It has initiated plans to convert land to organics, with the intention to grow organic squash on 30ha, and has also shown interest in producing organic broccoli in the off-season. Previously, Leader Brand's squash has been exported by Sunrise Coast, but it has also at times exported some of its own produce and believes that there may be further potential to export its own organic lines to Japan under the Leader Brand label. Whether this occurs or not, it is the manager's belief that scale economies will enable the company to get a better deal with exporting companies (Interview 5).

While Leader Brand provides an example of how conventional growers have recently restructured their activities, similar developments had already occurred locally in the organic sector. Managers from the three largest organic sweet corn properties, along with a new entrant to horticulture, formed the company Kiwi Organics

in 1996. Like Leader Brand, Kiwi Organics was also formed with the belief that scale economies could provide leverage in the organics market. Indeed, the company has already had some success in obtaining such leverage. Its members successfully negotiated a higher rate for the transitional squash grown on all four properties in return for selling fully certified squash on two of the properties to the same exporter. With organic supply limited, the pooling of produce from a number of farms into large consignments provides an added incentive for exporters to give Kiwi Organics special attention. The aims of the company are:

“To have it driven by the grower. We're trying to get some power back to the farmer. I mean we are price setters rather than price takers – that's going to be a basic principle of the group because so many farmers just take what's given. We want to have a bit of control and we'll only grow things if we know what we are going to get for them” (Interview 21).

While all four growers intend to maintain their relationship with HWL, the formation of the company has led to increased diversification of the types of produce grown. The group is about to invest in equipment for pressing organic linseeds (*Linum usitatissimum*) to oil and for making powders and purees from organic kumara (*Ipomoea batatas*), sweet corn and squash. This will allow its members to add value by processing their own produce in the winter. They have already succeeded in pooling equipment, with one grower owning a much-valued but highly expensive harvester which he also uses on the other properties (Interview 20).

There is a degree of naive optimism in the suggestion that growers can be “price setters”. In the history of capitalist agriculture, growers' cooperatives have seldom been able to influence the market, although well organised groups can sometimes exert leverage on the returns generated by processors and exporters of high value goods. What currently distinguishes Kiwi Organics from other attempts to organise growers into ‘price setting’ structures is that, because the company's members own the major part of certified organic land in Gisborne, they have some control over the supply of organic sweet corn and squash – produce which requires a considerable skill-factor for its production. Consequently, it is difficult for purchasers of their products to easily substitute from other sources. Evidence from wider agricul-

<sup>35</sup> There have been episodes of organic grower rebellion against the NZ Kiwifruit Marketing Board in the early 1990s, but these have since subsided.

<sup>36</sup> Leader Brand now grows no tomatoes, but the land on which tomatoes were grown is now devoted to other crops.

tural developments suggests that, in the long term, a proliferation of suppliers to market niches eventually undermines these kinds of attempts to control the 'price setting' process. On balance, the development of this type of company reflects the fact that organics is slowly heading in the same direction as other agricultural spheres, with skilled growers increasingly attempting to cooperate with each other in response to limited power in the market. Their long-term success in maintaining such attempts remains to be seen.

#### **4.2.4 Long-term issues: fertility vs premium and total conversion of property**

As a case study area, Gisborne can be usefully compared to the developmental path taken in other regions. This section highlights three significant differences between Gisborne and other regions, all stemming from the fact that no significant organic industry existed prior to the development of exporting. These three issues are:

- Relations between growers and BIO-GRO NZ;
- The need to balance returns against fallowing periods;
- Whole conversion of properties.

The latter two issues apply, in particular, to sweet corn growers. While their motivations for converting to organic production will be discussed in detail in Chapter 5, for the purposes of the immediate discussion it is important to note that organic sweet corn growers appear to be more pragmatic and driven by the desire for premiums than some of their colleagues both in Gisborne and in other regions who do not produce sweet corn. This is especially so in the case of a small group of growers. While this group is not numerically large, they represent a large proportion of the total volume of organic food produced in Gisborne and, therefore, their position requires elaboration.

The first of these issues is the relationship between growers and BIO-GRO NZ. In every other region, some growers expressed discontent at some aspect of BIO-GRO NZ's operation. This level of discontent has become an accepted feature of the industry<sup>37</sup>. To date, Gisborne growers appear to have had good relations with BIO-GRO NZ, and commented that the BIO-GRO certification procedures were simple to follow and straightforward to grow under. This raises an intriguing question which cannot be elaborated on here, but warrants further consideration at a later date. Namely, to what extent is lingering discontent with BIO-GRO NZ in other regions attributable to long-term debates and conflicts over organic growing in each region? As a region,

Gisborne was a blank slate in terms of organic history and BIO-GRO NZ is perhaps able to operate there unfettered by past conflicts. The positive tenor of current relations may not last forever. As an independent certifier, BIO-GRO NZ may be called on to make decisions in the future which greatly displease some growers, and the following two issues will warrant close attention in forthcoming years.

The first is the possibility that pragmatically oriented sweet corn growers – primarily interested in premiums – may exploit soil fertility for short-term profits, rather than protect their soil for longer-term sustainable production. Because of the pioneering nature of organic sweet corn production in Gisborne District, there is some debate as to how long growers can produce organic sweet corn in individual paddocks before there is a requirement for a summer fallow (eg. in clover). In Section 3.3.1, it was explained that sweet corn depletes nitrogen from soils at a relatively high level for an organic crop and that there had been some controversy over the fallow requirements for organic sweet corn. This controversy quickly receded after the first two seasons as growers succeeded in using a green manure crop over winter. However, with some growers having now produced organic sweet corn in the same paddock for five seasons, the issue has once again become salient. Although rotational options are now available, some growers were reluctant to utilise them because they would not receive the same revenue as they do for organic sweet corn. Furthermore, it is possible that there will come a time when a summer fallow will have to be built into the medium-term plan, because rotation of crops alone will be insufficient to protect soil fertility. One grower, having noticed progressive reductions in yield on some areas of his property, has already placed three paddocks into clover for the 1997/98 season (Interview 19). Nevertheless, while they recognise the need for this requirement, other sweet corn growers are delaying such a fallow until it is either absolutely necessary, or until BIO-GRO NZ compels them to in order to retain certification. Given the level of the organic premium, they would miss out on a considerable amount of revenue, but this will surely lead to some conflict with BIO-GRO NZ.

A second issue that relates to the longer-term strategies of growers is the requirement under BIO-GRO NZ for total conversion of properties to an organic regime. One of the significant changes in the practice of the BIO-GRO board in the early 1990s was the acceptance of partial conversion of properties as a stepping stone towards full conversion. Although there are no rigid time-criteria set, and while it is allowable to certify paddock by paddock, it is the stated intention of BIO-GRO NZ

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<sup>37</sup> In fact, some would argue that this was also the case in the 1980s.

that individual growers should be in the process of converting their entire property. While most Gisborne sweet corn growers appear satisfied with this situation, some have no intention of doing so:

“We are really using the organic thing – because of the premium – to get the farm in good order before my son takes over. You know, we’ve also expanded with more [stock-grade] maize production over the hill. You can’t get an organic premium for [that] so there are parts of the property that we never intend to convert. Then you’ve got to think of the hill sections where we have stock. Maybe one day you could get a premium for organic beef, but not today. There’s no way an owner on a mixed property would want to certify the full property. We aren’t even intending to certify all the sweet corn land...” (Interview 20).

BIO-GRO NZ were aware of this type of problem and suggested that out of all of the regions it was most prevalent in Gisborne District and especially with sweet corn growers (Interview 25).

In combination, the issues of fallowing and whole-property conversion concern only a portion of the sweet corn growers, but because of their preeminence within the local organic industry that group warrants further discussion. Three possibilities are open to these growers. The first is that they will respond to declining returns caused by fertility depletion by exiting from organic production. Chapter 5 discusses this option in more detail. A second possibility is that growers that are currently pragmatically oriented will undergo ‘progressive conversion’, adopting more of the wider goals of organic production as they continue to participate in the industry. This has certainly happened to many growers who were initially pragmatists in other regions, particularly the Bay of Plenty. Indeed, there is some evidence that this has in part occurred in Gisborne. While this possibility exists, BIO-GRO NZ will not, in the short term, initiate punitive measures against these growers. However, initial signs are that some sweet corn growers in Gisborne are resisting wider changes in their outlook. Should this situation persist into the medium term then the third option will take force: BIO-GRO NZ will probably revoke their certification.

It is difficult to pinpoint exactly why this situation has emerged in Gisborne. Three factors, however, might need to be addressed by the local industry to avoid a conflict over certification in the future:

- The lack of any organic history obviously contributes to this situation. Unlike other regions, Gisborne has only recently formed an

organic grower body and a lack of grower networking in the past needs to be remedied. It is revealing that few of the commercially-oriented sweet corn growers have joined the *Tairāwhiti organic producers and consumers group*, even though some of the other export growers have become members.

- The importance of premiums is a contested issue among companies, growers and BIO-GRO NZ, and even within the promotional strategies of companies like HWL. In Canterbury, GOWW details on premiums and average yields did not result in growers adopting pragmatic responses to issues of long-term sustainability. In Gisborne, the same GOWW material resulted in the opposite outcome for some sweet corn growers, with the organic premium perceived by them as the main reason for conversion. This may hold wider implications for the extension of organic development to other regions with no prior history of organic production.
- The issue of ‘progressive conversion’ – in which initially pragmatic growers start to adopt wider organic goals – is vital for all organic producing regions and must play a major role in determining the rapidity with which the BIO-GRO inspectorate acts to withhold or revoke certification. The degree to which Gisborne growers experience a level of ‘progressive conversion’ will become apparent in the next few years.

Whatever the case, it appears that the notion of an organic premium as it has come to be understood by Gisborne growers is a dynamic which has encouraged some growers to exploit soil fertility in the short-term, possibly at the expense of longer-term sustainability. This may be an important lesson for companies desiring to establish an organic program through the conversion of its conventional producers. It appears that the way the organic premium is initially sold to and perceived by growers is a crucial element in long-term sustainability of the organic industry.

### **4.3 Emergent organic industries in Gisborne District**

Potential conflicts over the process of BIO-GRO certification are also noticeable in some of the emergent organic industries in Gisborne District, but these stem from very different causes to those for sweet corn. Although BIO-GRO NZ has a “catholic attitude to all production spheres” that can be incorporated under its auspices (Interview 25), it has thus far tended to deal mainly with vegetable producers and with some fruit growers, particularly kiwifruit orchardists. Perhaps for this reason, its organic criteria are sometimes difficult



to apply to potential organic industries that fall outside of this norm. In this section, three emergent industries – deer, wine and ‘exotic’ fruits – are examined. Local innovation and near sub-tropical growing conditions, which were explored in Chapter 2, make the Gisborne District a site for the evolution of new primary industries. It is notable, however, that the first people to attempt certified organic production in Gisborne were a deer farmer and a viticulturist. Yet, it is those very industries which have had the most stunted evolution of all the production sectors to experiment with organics.

### 4.3.1 Venison and velvet

Although this series of reports mainly concerns horticulture, organic venison farmers in the district were interviewed because of the relative uniqueness of their operations<sup>38</sup>. Generally, the meat production sectors have been the slowest to adopt organic production methods in New Zealand. Consequently, the BIO-GRO standards for meat production are still evolving. However, the venison industry has, since its inception, been targeted to niche markets, so it is likely to move into organics more quickly than other meat sectors. In Gisborne, two farmers made moves towards organic husbandry of deer, representing some of the first primary producers to consider the export of organic meat. Significantly, both these farmers have since abandoned their attempts to produce certified organic venison. While one still hopes to continue under an organic regime and awaits changes in the industry which will permit re-certification, the other has abandoned deer farming altogether. Difficulties brought about by the structure of the deer industry as well as difficulties meeting the BIO-GRO standards were seen as the prime reasons for the failure of organic deer farming.

The first farmer to attempt the production of organic venison was also HWL’s first organic sweet corn grower<sup>39</sup>. Generally, this farmer has a philosophical commitment to organics, but he also desires to prove that organic deer farming can be conducted in a profitable manner (Interview 23). The second farmer decided to convert to organic production because of a concern about the effect of drenches on overall stock health and also because of the influence of a business partner who wanted a high-value and niche-oriented agricultural investment to which he could apply a marketing degree (Interview 24).

For both farmers, three barriers need to be overcome: parasite control, industry infrastructure and problems with taking velvet under organic

certification. Given that parasites only occur in one year out of a deer’s lifespan – after weaning – there is some hope that the first problem can be overcome. Both have experimented with a mixture of cider, garlic concentrate and seaweed which, while administered in the manner of a drench, does little more than act as a tonic. In the initial seasons, both had concerns about convincing MAF veterinary staff that they were not being unduly inhumane to stock. Under MAF legislation and the BIO-GRO standards, farmers can be prosecuted or de-certified for failing to come to the aid of distressed stock, including stock badly infested with parasites. Because the general health of their stock was good, neither had encountered this difficulty, but this issue highlights some of the infrastructural difficulties for farmers of organic stock which do not apply to organic horticulturalists.

After considerable research on how deer were farmed in Europe during the 1930s, the second farmer decided that “old fashioned management techniques of keeping clean, good quality pasture in front of the deer” adequately countered the effects of not using drenches (Interview 24). For the long-term, the first farmer wants to experiment with a mixture of wormwood (*Artemisia absinthium*), black walnut (*Juglans nigra*) and cloves (*Syzygium aromaticum*) that will act as a true organic drench. This would be permitted under BIO-GRO NZ rules. Initially, however, both growers found it difficult to apply BIO-GRO criteria to their operations. Because of the relative novelty of organic deer farming and the amount of time devoted by BIO-GRO NZ to developing standards for major organic products, it is possible that the BIO-GRO standards for pastoral farming have not evolved as far as those for horticulture. For this reason, one farmer only certified his property under BIO-GRO after abandoning the deer industry to grow crops.

While many technical issues appear to have been overcome, the inability of the farmers to market their venison as organic has been their ultimate difficulty. Like other producer marketing boards, the Game Industry Board has a monopoly on marketing. The two growers involved suggest that the Board is very progressive compared to other such Boards, but has not yet established an export organic line. The Board argues that while the demand might be sufficient there is not yet the volume of supply to warrant such a move. Of course, this stance further dissuades farmers from converting to organics and so further restrains the growth of supply. Both the organic deer farmers interviewed argued that because the Board is progressive, it would eventually establish an

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<sup>38</sup> Initially, they were chosen for interviewing because of their early role in organic sweetcorn production, but the information they provided on the organic deer industry was too important to leave out of this report.

<sup>39</sup> See Section 3.2.1.



organic line. Nevertheless, in the meantime, the Board's ambivalence has severely affected the merit of being organic for the two farmers. Because they could only sell their produce as organic on the national market, they failed to receive the full premium which is potentially open to them through exporting. Not long after the second farmer abandoned deer farming, the first pulled out of BIO-GRO NZ certification because "there was no economic benefit in being BIO-GRO certified if I had to export my venison as conventional" (Interview 23).

These infrastructural difficulties are amplified for the case of organic velvet. The market for organic velvet is potentially large because its main use is in health food remedies, and those interested in such remedies show a marked tendency to buy organic produce. However, MAF criteria state the need for an anaesthetic to take velvet, and anaesthetics are not permitted under BIO-GRO NZ standards. While there are humane methods for taking velvet without an anaesthetic, these are as yet not permitted under either MAF or BIO-GRO regulations. The two organic deer farmers made formal requests to the Game Industry Board, asking that it negotiate with MAF to allow these methods. However, there are specific political issues which have prevented the Board from being proactive in this case:

"In most European countries it's illegal to take velvet: they consider it inhumane, which is an emotive argument not based on anything at all – but it's good for us because it reduces the amount of velvet on the market. It does, however, provide some ammunition for the animal welfare lobbyists and potential trade barriers. It's a politically sensitive issue and it's not something you can rush. So with that as a context, the organic velvet thing is going to take a long time" (Interview 23).

In the second report from this series (Campbell *et al.* 1997), it was established that the Kiwifruit Marketing Board acted in a manner which accelerated the uptake of organic kiwifruit production. However, the opposite can also be true of producer marketing boards. Those boards with an ambivalent attitude to organics, especially when they have a monopoly in marketing, can inhibit the growth of organics, as is shown by the case of the Game Industry Board. Similarly, it is not always easy to be industry pioneers in organics when the development of organic standards for individual products is at an early stage.

### 4.3.2 Wine from organic grapes

Given that it is generally consumed by people with a high disposable income, there is a strong potential premium for wine produced from

organic grapes (*Vitis vinifera*) because such people are able to pay an organic premium. Wine producers also have the ability to market the identity of their wine unlike many other food or beverage products because the product typically travels from winery to table in the maker's bottle. Consequently, there is added scope for marketing an organic identity for wine. However, this market potential is seldom realised because of the difficulties of growing grapes, which are particularly susceptible to fungal and pest infestation. Traditionally, viticulturists have been dependent on high quantities of lower-order fungicides. As resistance has built up to these, however, there has been increasing use of even more environmentally detrimental chemicals, including the use of systemic fungicides. Compared to other horticultural industries, there is a relatively higher degree of scepticism in the wine industry as to the ability of growers to produce organic grapes (Interviews 15, 16). Regardless of this scepticism, two growers have succeeded in establishing an organic regime in Gisborne District and have been rewarded with considerable premiums.

The first established his organic regime in 1984, and was the first certified organic grape grower in NZ. Utilising some Biodynamic/Steinerist methods, he produces Chardonnay and Riesling on 25ha (Interview 16). He also owns his own winery and now sells 15,000 cases of organic wine each year, with his largest single buyer being an English supermarket chain. The other organic viticulturist makes a small amount of organic Pinot Noir, but most of his organic grapes are blended with non-organic grapes sourced from other properties and, consequently, his wine is not sold as organic (Interview 15).

Both argue that strictly they produce "wine from organic grapes" rather than "organic wine" because it is not yet possible to make wine in Gisborne without a preservative, usually sulphur dioxide. International organic standards - including BIO-GRO - allow for up to 110ppm of sulphur in organic wine. This is a more than sufficient level to preserve the growers' wine, so their caution about their product relates to their own perceptions of what organics should be rather than their inability to meet specific criteria. Despite their caution, both sell their product as organic. Australian viticulturists have recently pioneered a system of making organic wine without sulphur dioxide, but have done so on land with a much lower pH level than is evident in Gisborne District. It is difficult to abandon the use of sulphur dioxide on soils with a high pH, because high alkalinity will advance the oxidising process (Interview 16). Both growers contended that the requirement for less than 110ppm of sulphur was one of the few specific rules that BIO-GRO has for viticulture. One complained that "the

standards for BIO-GRO in relation to a vineyard aren't that specific, but that actually makes them more prohibitive" (Interview 15).

Vines are also attacked by powdery mildew (caused by the organism *Uncinula necator*) and mealy bug (*Pseudococcus longispinus*). The former can be managed under an organic regime with application of sulphur; the latter can be brought under control by use of garlic and pyrethrum, but only on relatively healthy vines. On vines under stress – which is generally the case in the years after grafting of rootstock or in particularly wet or dry years – mealy bug is extremely difficult to control on an organic basis (Interviews 15, 16). In terms of soil fertility, viticulturists have the exact opposite problem to most organic growers. Soil nitrogen must be kept to low levels as the objective is to grow fruit not leaves. Fertility on both properties was managed simply by composting grass cuttings and prunings. In order to lower the level of rapidly available nitrogen in the soil, growers also plant oats and chicory between rows of vines to take nitrogen away from the roots of the vines and also to absorb excess water.

Both were convinced that it was possible to convert most established vineyards to organic production. However, they also contended that it was extremely difficult to start a new vineyard under organic criteria. With a larger demand for his wine than he could supply, the first grower attempted to certify a new vineyard on a hillside from 1989 but could not successfully control a weed problem. He believed that, "In retrospect it was only economical to run that using herbicides. I tried a line-fed weed cutter but even that did too much damage to the vines" (Interview 16). The problem of establishing a new organic vineyard relates mainly to the transplanting and grafting of rootstock. It is usually seven years before a new vineyard will reach adequate vine health and production. Transplanted rootstock comes under stress in those years, and, in a stressed state, the first grower's vines were attacked by mealy bug, but the allowable soaps, oils and pyrethrum and garlic mix failed to make a difference. Frustrated by two years of such problems, he used Applaud – a conventional insect growth regulator – on some of the vines. Reprimanded for this in 1994/95, when he used Applaud again in the subsequent year, his BIO-GRO certification was revoked – a notable event because the past successes of the grower with a difficult crop had brought considerable legitimacy to BIO-GRO NZ on the national level (Interview 25).

The grower's reasoning behind this breach of rules is also notable:

"BIO-GRO hardly kicked me out. I

committed 'suicide' on purpose. I knew they would kick me out if I used Applaud again, but by that stage I believed that I no longer needed BIO-GRO. Success in the wine business is based on personal knowledge of the viticulturist's label and winery. I had gained a good reputation for producing great wine and everyone knew it was organic. So why bother with BIO-GRO? There was also the fact that neither the Wine Institute nor BIO-GRO support the development of organic wine. I thought that our reputation would carry us through and I wasn't going to change the organic production process because I'm committed to Steinerist philosophies. But when the European market found out they said 'Hang on we only bought your wine because it was certified organic'. So now I'm in the process of getting the certification back"<sup>40</sup> (Interview 16).

The other grower also commented on the lack of support from the Wine Institute of New Zealand as being a fundamental problem. Without their endorsement, and without endorsement from any of the large-scale wine producing companies, few growers are convinced to go organic. Some wine varieties are made by blending grapes from several vineyards, so even though both these growers have their own wineries, they cannot maximise the throughput of their wineries or the composition of their wines. This is particularly the case for the second grower because he has only 8ha of organic grapes but needs grapes from over 50ha to derive the best capacity for his winery. At present he sources grapes from eight other growers and while he "offers a premium to these growers to go organic none of them will do so without an industry lead" (Interview 15). Because of these problems he will not renew his BIO-GRO certification for the coming season but will nevertheless continue to produce grapes under an organic regime. He believed that the fees paid to BIO-GRO provide no financial benefit because it was difficult for him, a small grower, to market his produce as organic overseas without a Wine Institute marketing campaign for organic wine. He had also experienced too many problems with spray drift – to which grapes are particularly susceptible – to continue to be certified as organic.

Both growers have more hope for an Integrated Wine Production (IWP) scheme, which mirrors the low-input approach of Kiwigreen for kiwifruit (see Campbell *et al.* 1997). The first grower has signed up his troubled hillside vineyard and the second his entire vineyard for this scheme. It is based on a score-card system developed in Switzerland, and is therefore a voluntary

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<sup>40</sup> The grower's certification status has now been restored.

system which seeks to reduce post-emergence sprays as well as reduce other fungicide and herbicide residues. Whereas the evolution of organic wine has floundered, the two growers believe that IWP will be successful because the large company Montana has encouraged its growers to become involved. Montana have a target of no herbicides on all its grower's properties within three years, showing the extent to which wine producers are prepared to act to meet health and safety concerns in the market.

In recognition of the potential for market access problems in the long term, the Wine Institute has initiated an industry-wide response. One cause of this change occurred when its motto – 'the riches of a clean green land' – received bad press in overseas media, especially in a Canadian publication which stated that New Zealand wines had the highest level of residual fungicides in the world (Interview 16). Nationally, 130 growers have already agreed to the IWP program which will start in full during 1997/98. With the prospect of even more growers becoming involved in this project, the two organic growers in Gisborne believe that they can only stand to benefit. First, they will be able to source more low-input grapes with which they can blend their own grapes and can then market the result as an alternative to their organic wines. They even suggest that growers will use the IWP program as a step towards full organic production. Second, they believe that the IWP program will lead to much lower levels of spray drift.

Despite the move towards IWP, development of organic production within the wine industry has experienced similar difficulties to the case of organic venison and velvet. Wider structural features of the wine industry affect the pursuit of organics by small and medium sized viticulturists. Although the Wine Institute is not a monopoly marketer, its reluctance to formally endorse organic production has undoubtedly restrained growers from converting their vineyards. Further, both viticulturists in Gisborne District could not develop their wineries to the extent desired because they could not obtain organic grapes from other growers for blending. In the case of wine production, a high level of structurally-necessary inter-dependence among growers has acted as a barrier to the development of organic production.

### **4.3.3 'Exotic' Fruits: towards both organic and green labelling**

The previous section suggests that some industries may see a more rapid development of low-input systems than organic systems. This may especially be the case for large industries with a producer marketing board, such as the kiwifruit

industry. But it may also apply to smaller, niche-oriented industries such as those of exotic fruits. As is the situation for wine, many such fruits are consumed by wealthy consumers and so they may desire to pay extra for low-input or organic produce.

This is already the case for the persimmon industry on the East Coast. Gisborne is one of only a few districts in the country where persimmons can be grown commercially because they require relatively hot summers. Generally, the Japanese persimmon tree is grown in New Zealand, yielding a red-orange fruit of high quality and commanding a high price. The advantage that persimmons have for organic growers is that the fruit is produced in a manner which is close to organic from the start. Persimmons have relatively few problems with pest infestation and so few chemicals need be applied (Interviews 4, 10). They are relatively low-yield and so cause few problems with soil fertility. Organic persimmon orchards have proven popular with lifestyle, especially retirees desiring a low-fuss and small orchard but with high profitability to act as retirement income. Consequently, organic persimmon orchards in Gisborne District tend to be small. Currently, 3 orchardists produce organic persimmons on 16ha in Gisborne. They are exported mainly by one firm which specialises in niche products.

Mandarins also grow well in Gisborne District. Although there are as yet no organic growers, the president of the local branch of the Fruitgrowers Federation believed that "some growers are very close to converting" (Interview 10). This is for similar reasons to those growing organic persimmons. Mandarins are also grown in a manner close to organic production when grown conventionally. Except for weed control and the occasional use of fungicides, very few chemicals are used. Although Japanese growers produce enough mandarins for the fruit to be one of Japan's few export crops, the Japanese off-season dovetails with the Gisborne growing season. Several mandarin growers also grow kiwifruit. Although every kiwifruit grower in Gisborne is now in the Kiwigreen program, none are yet organic (Interview 4). This is set to change for the coming season. Kiwifruit production grew rapidly in Tolaga Bay during the mid-1980s, but with the closure of the Tolaga Bay packhouse, only three of the original sixteen kiwifruit orchardists remain<sup>41</sup>. All three of these growers will convert to an organic regime from next season (Interview 17). It is inherently costly for them to transport their crop to Opotiki to be packaged. To make up for this cost, the growers now seek an organic premium.

Many other fruit growers are signing up for another low-input system, the locally organised Eco2000 initiative. Eco2000 was established to showcase Gisborne District sustainability pro-

<sup>41</sup>See Section 2.3.

grams for the year 2000 celebrations (Interview 11). In that year many executives from global companies will visit New Zealand after the Sydney Olympics (Interview 10). It is hoped that this program can merge with other tourism initiatives to advertise local organic and low-input industries. So far the program has gone little further than educative and knowledge-transfer objectives, but has nevertheless proven popular with orchardists. Its objectives are working in parallel to the government and industry funded national trust – Project98 – which has similar objectives of fostering low-input agriculture and horticulture. Tradenz is helping to promote Eco2000 and hope to have it confirmed as a Hanover exhibition (Interview 11)<sup>42</sup>. Organisers of Eco2000 suggest that it has been far easier to convert growers to the merits of the project than it is to convert them to organics because there is not the 2-3 year conversion period inherent in BIO-GRO certification (Interviews 10, 11). Undoubtedly, this is because it is far easier to state a preference for sustainable land management than it is to practice it. Nevertheless, it seems likely that parallel systems of organic and low-input horticulture will continue to develop in a mutually reinforcing manner in Gisborne District.

## 4.4 Impediments to the expansion of organic production in Gisborne District

Despite the rapid uptake of organic production by growers in comparison to other regions, especially by sweet corn growers, there are some identifiable industry-level barriers to accelerating the uptake of organic production in Gisborne District. Constraints at the grower level will be considered in the next chapter. Throughout the interviews two industry-level impediments were regularly highlighted:

- The fact that Gisborne does not have a significant research institute and is isolated from those of other centres;
- The general lack of flat land in single title which is accentuated by the difficulties growers experience when attempting to lease land for organics.

### 4.4.1 Lack of a research base

The Eco2000 initiative, which was considered in the previous section, was established partly out of recognition of a technology-transfer problem in the Gisborne organic industry (Interviews 10, 11). In both the Canterbury and Bay of Plenty case studies the influence of local polytechnics or

universities on the evolution of organic production was shown to be positive. While many of the skills for organic production represent a simple borrowing of techniques from the pre-chemical history of horticulture, information transfer is a key ingredient in the mix of factors that contribute to a region becoming an important growth centre for organic production. Lincoln University researchers helped growers with such technological advancements as flame-weeders (see Campbell 1996). The Tauranga Polytechnic developed several biological pest controls and new techniques for composting which assisted organic kiwifruit growers (see Campbell *et al.* 1997).

Although Gisborne has its Tairāwhiti Polytechnic, that institute is relatively small and courses in horticulture are limited. No specific courses on organic methods are offered. Consequently, growers complain that they are at a disadvantage compared to growers in other regions who can hire labourers who have been well-trained in organic methods. Some have circumvented this problem by joining such organisations as Willing Workers on Organic Farms (WWOOFers), thereby allowing foreign tourists trained in Europe to work for keep on their properties (Interviews 13, 18). Nevertheless, it was generally difficult for growers to attract suitable workers on a long-term basis. Labour was considered an extremely important issue because, “You could have just one ignorant, untrained or lazy employee ruin your organic status for years” (Interview 15). Gisborne is 300km from the nearest university and 150km from the research station at Hastings and some believed that the region’s isolation from research centres was a serious impediment to the growth of organics (Interview 4). This was especially the case for wine growers: both viticulturists interviewed believed that if they had been closer to a research institute or MAF research station then they would have attracted more research which could have aided their organic regimes (Interviews 15, 16). One of those growers has had researchers from Massey University complete studies on his property in the past – projects which considered the use of bicarbonate of soda to control powdery mildew and biological controls on mealy bug – and found these invaluable. However, this research has been curtailed, partly because of the travel distances involved.

In this context, the technology transfer programs of the larger companies are of immense importance. HWL have invested a considerable amount of time and money into organic technologies and biological control measures. Attention has been paid by the company to biological controls and recently it has co-operated with the

<sup>42</sup> Hanover is a large expo of sustainability projects from around the world.



activities of a Ph.D. student who is examining methods of biologically controlling the GVB. However, many of the other companies involved in Gisborne District are either too small to afford this level of research commitment, or have not yet approached any of the government funding channels open to small businesses, and the problem of research remains an impediment to the future growth of organics.

#### **4.4.2 Leasing and organics**

With the extent of land in multiple ownership, the issue of leasing for organics has recently become a significant issue in the Gisborne organics industry. Some of the growers who pioneered organic production in the early 1990s have reached the point where they can no longer certify any more land on their own property. Having benefited from their early conversion in terms of five or more years of organic premiums, those growers want to expand. However, there is little land available to buy which could be subsequently converted and leasing is the more obvious route to follow. One grower who has already certified all the land on his property is particularly keen to find land available for lease but has so far been unable to obtain it (Interview 18). Alongside these growers, HWL itself is showing more interest in leasing land for organics, and at least one other company, Leader Brand Produce Ltd., is interested in registering leased land with BIO-GRO for organic certification.

There are two difficulties in leasing land for organics: one concerning the status of leasing under BIO-GRO NZ and the other concerning the ability of Maori with land in multiple-title to lease their properties. One interviewee summarises the first of these difficulties:

“I think that leasing is a very grey area that BIO-GRO haven’t made up their mind about yet – they don’t know how to deal with it. There’s been a couple of instances lately where there was organic land being farmed but not very well by the landowner. Subsequently they’ve lost a lot of money and the bank has said ‘well, we’re not prepared to finance you this year’ and they’ve had to lease the land out. The problem in that case is that when they lease their land they don’t want to lose their certification. Now, the BIO-GRO certification is based on property, person and product, so immediately if you take the person out.... You’ve got to find someone who is already certified or can prove that they are suited to be certified” (Interview 12).

The philosophy of BIO-GRO NZ is that organics should be a long-term proposition. Therefore, it is wary of those wanting to lease for organics

because such an arrangement implies a lack of long-term commitment. One grower has even experienced an ambivalent reaction from BIO-GRO NZ to his plans to convert a section that he leases from his wife (Interview 20). Nevertheless, BIO-GRO have some legitimate concerns about leasing for organics. It is particularly difficult to see how the idea of a summer fallow after several seasons of organic production, or even extensive use of crop rotation, could be built into a lease arrangement. Lease contracts are usually dependent on a reliable and consistent annual income – there are generally few margins for error in a lease arrangement and land management takes on a more short-term orientation. Therefore, there is little scope for organic leasing when every fifth year or so may require a fallow. Consequently, the prospects for leasing are linked to the successful development of organic rotations including sweet corn which may not require a fallow period. While Gisborne is the first region to trial a sweet corn/pea/squash and green crop rotation it will take several years for it to be confirmed whether it will provide a viable solution to this set of problems.

These issues are particularly relevant to Maori land. Under successive Native and Maori Land acts, Maori have only been allowed to alienate their land through leasing in certain circumstances. Under the more recent Te Ture Whenua Maori Act (1993), restrictions on leasing have been clarified so that it is now probably easier to lease out Maori land. However, restrictions still exist which make the leasing of Maori land for organics by an alien less than straightforward. Land trusts are not allowed to lease at all and incorporations can only do so for a maximum period of three years. A grower with management control guaranteed only for three years is only likely to be certified by BIO-GRO NZ if there is evidence that the overall owning group is committed to long-term organic production. Furthermore, with the build up of natural soil fertility – through the use of RPRs and organic composting – taking about five to seven years before peak condition is obtained (Interviews 6, 23), growers would need more than a three year lease to see the merit in committing the necessary resources to convert. Consequently, there are barriers to successful development of leasing as a mode of organic development which are only currently starting to be addressed by BIO-GRO NZ, HWL and local Maori incorporations.

## Chapter 5

# Grower decision making in Gisborne District

In this study of grower decision making, the general purpose is slightly changed from that in the earlier studies of Canterbury and Bay of Plenty. For Canterbury (Fairweather and Campbell 1996) and Bay of Plenty (Campbell et al. 1997), the research was unprecedented and generous samples (43 and 48 cases respectively) of farmers and growers were used to develop decision trees that represented and explicated how farmers and

growers decide whether or not to grow organic products. The decision trees in each study had a similar overall structure. The results from each of these earlier studies have been used to develop a decision tree based on a combination of the two data sets (Fairweather, ND). Given this prior knowledge of decision making, based on diverse types of farmers and growers, we expected to find similar patterns of decision making in Gisborne District since it has a broad mix of land uses which parallel those in Canterbury and Bay of Plenty. Thus the decision tree should be similar. However, there may be some distinctive aspects of the Gisborne District situation which manifest in some modifications to the decision tree. The

general purpose then was to interview a variety of farmers and growers and identify their decision criteria in order to assess how well the existing decision tree applied to Gisborne District. As the following results will show, our expectations were justified and the original decision tree is relevant to Gisborne District. Some slight amendments were necessary, and we will show that these minor changes reflect the particular situation in Gisborne District.

## 5.1 Existing Decision Tree Applied to Gisborne District

The decision tree for the organic/not organic decision developed in earlier research was found to be relevant to the situation in Gisborne District, and only minor modifications have been made. To avoid repetition of detail from previous reports in this series, the details of how this method was applied to Gisborne can be found in the Appendix. In the following figures, the decision tree for the Canterbury study (Fairweather 1996) is reproduced here. Two new decision criteria, which identify additional motivations, are shown in italics. As before, the decision tree comprises three main parts: the elimination criteria, motivations and constraints. The elimination criteria, if they

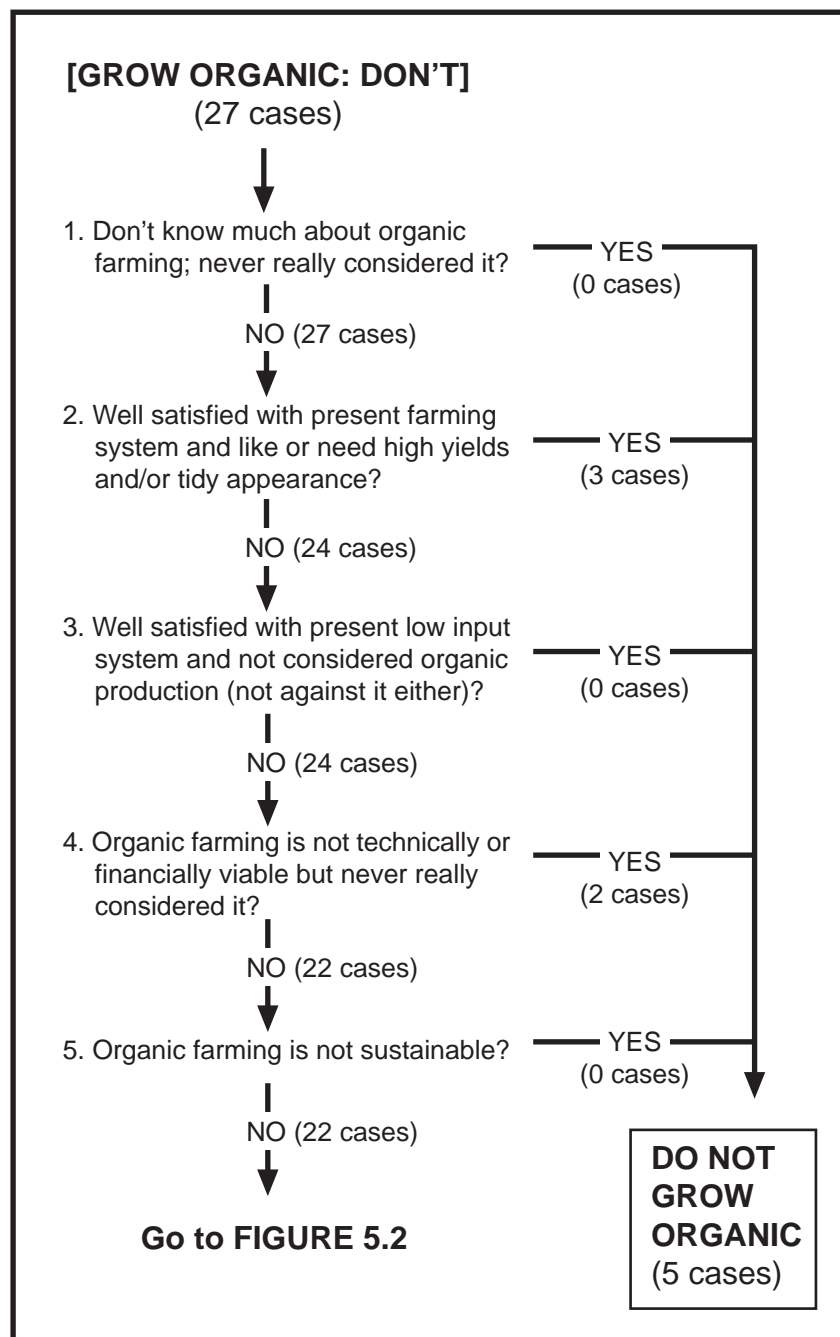


Figure 5.1: The organic decision – elimination criteria

apply, mean that the grower does not seriously consider organic production and does not grow organic products. The motivations specify the main reason for either growing organic products or seriously considering growing organic products. The constraints identify situations which mean that growers who want to grow organic products are unable to.

Returning to the elimination criteria, Figure 5.1 shows that only two were found to be relevant in this study of growers in Gisborne District. Criterion 2 applied to three growers who were well satisfied with their present farming system, had little need to change it, and therefore had not really considered organic production. Criterion 4 applied to two growers who believed that organic production was not technically or financially viable even though they had never really consid-

ered it. Figure 5.1 shows also that three criteria (criterion 1, 3 and 5) were not identified among the 27 growers interviewed. It is inappropriate to conclude that these criteria are not relevant to Gisborne District since the sample is smaller than in the earlier studies and it may be that a larger sample would include growers who would express these criteria. Further, this sample contained larger proportions of organic growers and processed crop or horticultural growers and smaller proportion of pastoral farmers compared to the Canterbury study. It is amongst this latter group that we would expect growers who have little interest in, or experience of, organic production.

Moving on to motivations for growing organic products, Figure 5.2 shows that all five of the motivations that drive growers to grow organic products were identified in the Gisborne District

study. Eight growers adhered to an organic philosophy, one grower was interested in organic production as a consumer, one grower had experienced ill health, three were attracted to premiums and one had experienced basic problems with conventional production.

Figure 5.3 lists criteria which, if they apply, drive growers to seriously consider organic production and includes, in italics, the addition of two new criteria, (criterion 13 and criterion 14). Criterion 11 applied to one grower who used chemicals but preferred not to use them, while Criterion 12 applied to one grower who was concerned with the soil. New Criterion 13 applied to two growers who emphasised that the market may demand organic product, even though there may be no actual price premium for organic products. New Criterion 14 applied to four growers who have learned that they do not have to spray so much. This criterion highlights an important feature of the growers' context in Gisborne District: there is widespread appreciation of the potential in using fewer chemical inputs. This awareness has a number of sources. In one case, a grower had kiwifruit and was aware of the Kiwigreen programs, in another, the wine industry movement towards sustainable viticulture made

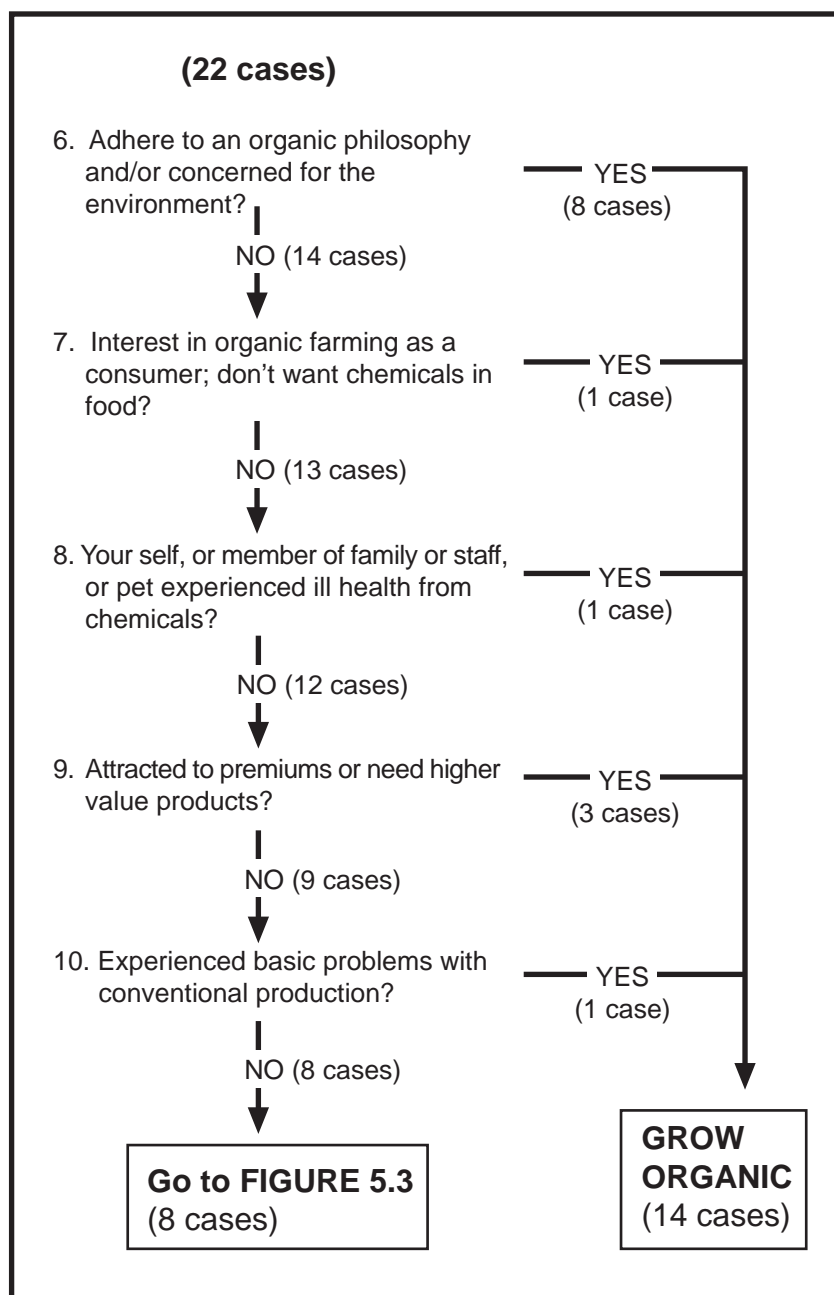


Figure 5.2: Motivations for growing organic

him realise the potential for reducing chemical usage. These are examples of industry-level changes influencing growers. In another case, the grower accidentally learned that sprays were not essential at regular and high levels of application, after a contractor failed to apply chemicals. Finally, one grower was a contractor and his observation of organic properties on which he worked

made him realise that organic production should be considered. These four cases all serve to illustrate an awareness of the potential in using fewer chemical inputs. There are multiple sources of the idea but it is nonetheless a palpable part of the growers' context in Gisborne District.

Criteria 11 to 14 apply to eight growers who have seriously considered organic production.

However, only three of these eight go on to grow organic products. Criterion 15 applied to one grower who believed that organic production was not technically feasible, and Criterion 16 applied to four growers who believed that organic production was not economic.

Figure 5.4 shows constraints to the organic farming decision. In the Gisborne District study there were no constraints applicable, so there were no 'Hopeful Organic' or 'Frustrated Organic' growers. This result is not surprising since the Canterbury study started with approaches to organic growers who had contacted HWL and expressed interest in supplying peas. Many of these enquires were from organic smallholders. If similar proportions of organic smallholders were present Gisborne District, similar results may have been obtained. However, the reality is that the total number of organic smallholders near Gisborne City is vastly less than the number around Christchurch, and it would be unreasonable to expect these criteria to be an important aspect of decision making in Gisborne District. Finally, Figure 5.4 shows how organic growers would react to this hypothetical situation of a decrease in organic premium. Of the 15 growers for which there were premiums, there were three who would change to conventional production and 12 who would stay with organic production; two of whom would use a combination of organic and conventional methods.

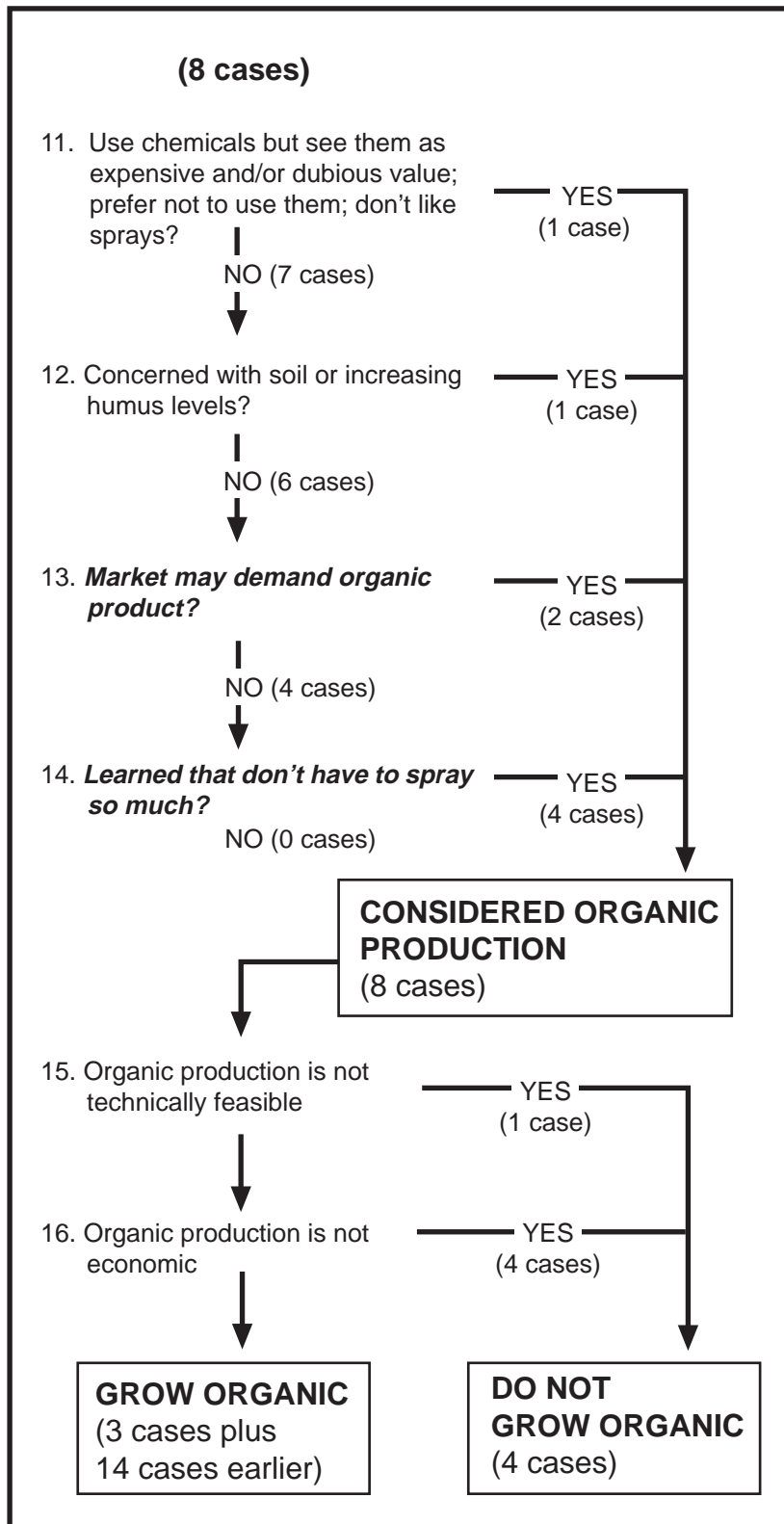


Figure 5.3: Further motivations and some constraints for growing organic



## 5.2 Discussion of Decision Making

While it is interesting to note that Gisborne did add two new criteria to the existing decision trees, it is equally important to reconcile the findings from the decision tree with other sources of information in the Gisborne District itself. The findings from strategic interviews with sweet corn growers in Gisborne District highlighted concerns about premiums and a pragmatic approach to organic production that may cause problems in the future. In contrast to this, the overall organic grower group provided a much more familiar picture with growers generally converting for a wider range of reasons.

Two issues, therefore, need to be discussed. First, the unusual features of the wider grower group, and second, the position of the pragmatic sweet corn growers.

There are two notable responses in the wider group. Criterion 7 indicates that compared to other regions, there is a low level of demand for organic food as a motivating factor. This confirms the interview findings in Section 3.4 that the domestic industry for organics did not provide a starting point for organic development. Criterion 8 is perhaps even more interesting. All other regions - especially Bay of Plenty - had growers that were sensitive to health concerns relating to intensive agricultural methods. The low levels of chemical

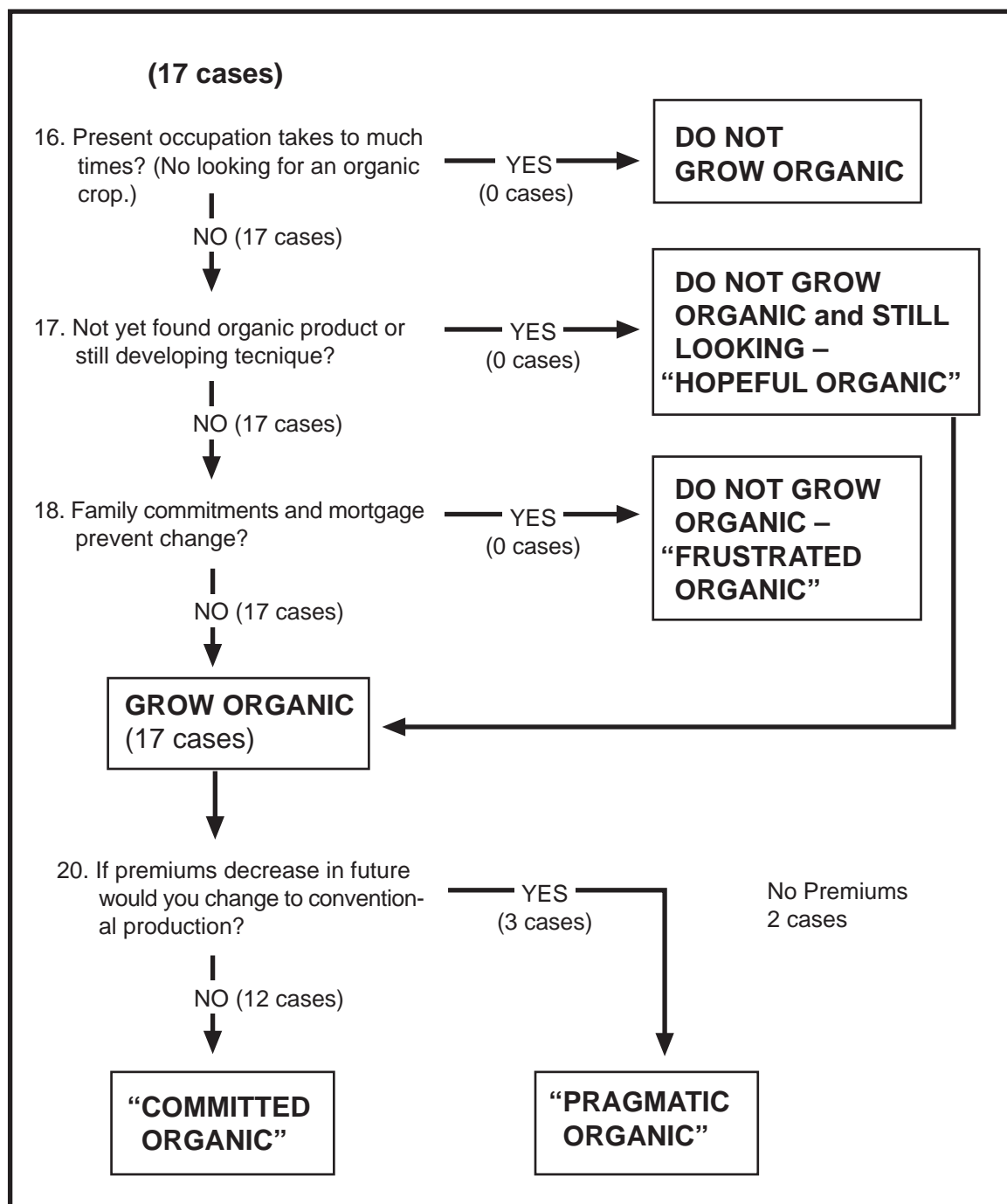


Figure 5.4: Further constraints for growing organic

usage in many Gisborne crops perhaps created a farming environment where health concerns were not as prevalent.

The pragmatic sweet corn growers are an interesting exception to the general pattern. Due to the specificity of answers given in constructing and presenting a decision tree, coupled with the small sample size, it is impossible to tag responses *within* the tree by farm type or respondent confidentiality would be potentially compromised. It is possible to comment, that while 3 cases were listed under Criterion 9 (attracted to premiums) and 2 cases to Criterion 13 (market may demand organic product), this group was disproportionately dominated by sweet corn growers as well as representing a large percentage of the hectares of certified organic land in the district. On observing the decision tree, one industry interviewee (Interview 1) suggested that the recent controversy between growers and HWL over premiums may have prompted some growers to disguise their intentions with regard to premiums, or had caused some growers to change their minds about why they were staying in the industry. While this could be construed as a criticism of the decision tree method, it could equally be argued that it simply reinforces the need to combine the findings of the decision tree interviews and the strategic interviews.

## Chapter 6

# Conclusion: the evolution of Gisborne's organic industry

It is evident from the material presented in this report that there are a number of differences in the evolution of organics in Gisborne District as compared to that in Canterbury and Bay of Plenty. Once all four regional case studies in this research program have been completed, a full comparison of the various factors working for and against the successful development of organic food production will be presented. In the interim, it is useful to summarise the specificity of the evolution of organics in Gisborne District. This goal is achieved in Section 6.1, while Section 6.2 considers some lessons from the Gisborne case study that can be applied generally to the organic industry in New Zealand.

## 6.1 Key issues specific to Gisborne

Some of the factors which distinguish the history of organic horticulture in Gisborne District can be attributed to the social, cultural and biophysical features which were identified in Chapter 2. The organic sweet corn growers who are evaluated in detail for this report exhibit a distinctively autonomous psyche towards organics and it is possible that the effects of spatial isolation (which have – according to some accounts – engendered self-dependence and initiative in local economic actors) contribute to these attitudes. Likewise, such obvious social problems in the district as the high level of unemployment command that any new form of development is rapidly accepted. In this context, it is not surprising that organic horticulture has evolved so quickly in Gisborne: a sense of economic frustration, isolation and desperation is a force which breaks down barriers to what might otherwise be seen as a fringe form of development. In 1991, there were less than 10ha of certified organic land in Gisborne, but six years later there were over 400ha. Although there has been an increase of certified organic land in all horticultural areas of New Zealand during this decade, the acceleration of conversions in Gisborne – despite the lack of any significant history of organic production – has been impressive. It is highly probable that this trend is also related to the rapidity of agricultural restructuring within the district. That restructuring has seen the transference of land from pastoral to horticultural production, yet it is also associated with a move away from mainstream forms of horticulture to

niche production. Although organic horticulture in Gisborne has been largely evaluated in isolation from these trends, it is useful to reiterate at this point that it is strongly associated with the local move to niche production.

Above all, however, the form and speed of the move to organic production in Gisborne District has been determined by the desires of one particular company: Heinz-Wattie Ltd. Although the dominance of HWL in the local organics industry is no longer as marked as in the period 1991-1995, many of the lasting features of the industry can be explained by the specific supply and marketing needs of HWL, especially its need to establish organic sweet corn production in order to solidify its overall organic strategy for frozen vegetables. This case study attests to the significant influence that individual food processing companies can have on the evolution of organic production, and on the more general trajectories for local economic development, in rural areas of New Zealand.

Yet, it is also true that the longer-term survival of organic production in Gisborne – which now appears to be relatively assured – is also dependent on local diversification in terms of organic crops and fostering synergies among a variety of organic processing firms. Increasingly, the success of HWL's organic sweet corn operation is dependent on organic squash and pea production. Diversification is required for a successful evolution in organics because it facilitates crop rotation and inspires technological development. Although Gisborne's organic crop industry started from a less advanced position than was the case for organic cropping in Canterbury, it has already advanced well beyond the situation in Canterbury in terms of developing a potentially effective rotation of organic crops. At least in the initial stages of the local evolution of organics, however, diversification has had an even more important role: it has led to the establishment of a range of purchasers which has, in turn, provided security for conventional growers who are otherwise wary about converting to organic production. Nevertheless, diversification can – in other forms – lead to destructive forms of competition. Whereas the development of organics in the other case study areas has not led to active competition for organic growers, there appears to be considerable potential for such competition in Gisborne, principally for sweet corn growers.

While the diversification of organic crops, techniques and companies within Gisborne District may result in a secure future for organic production there, one initially promising form of local diversification appears less certain. In the early 1990s, it may have appeared that local Maori had a significant role to play in the development of organic horticulture in Gisborne: the previous use and form of management of their land as well as what some consider to be a collective ethic of

sustainable land management may have facilitated the Maori adoption of organic production. However, six years of interest shown by local iwi for organic horticulture have yielded only one example which can be heralded as a lasting success. Organic farming – like any other form of economic production – is not a panacea for the problems which face contemporary Maori society. These problems are more structurally rooted, so cannot be confronted by adopting one form of economic production over another: structural change needs to take place in New Zealand society for Maori to adequately take advantage of new economic opportunities in such sectors as organic horticulture. In this report, the legal restraint on the use of Maori land has been highlighted as a particularly difficult problem for Maori, as it prevents the innovative use of land in multiple ownership. Given the prevalence of such land on the East Coast, the resolution of the issue of leasing Maori land may be a significant determining factor for the future form of organic production in Gisborne District.

Thus far, however, a more significant factor in determining the characteristics of organic production in Gisborne has been its *terra nullius* status in terms of organic production at the start of the decade. In many respects, this is the defining feature which separates the Gisborne case study from those of Canterbury and Bay of Plenty. The history of organic production in these other regions was strongly contested and negotiated by a variety of actors – some with a long-standing, ideological commitment to organic production and others with a more recently-formulated and pragmatic stance. The resultant form of organic production in each of these areas reflected both positions: a strong emphasis on organic exporting and the need for secure financial returns, tempered by an equally strong desire not to compromise established principles of organic farming. With an inherent lack of organic production for domestic consumption in Gisborne, both before and after the advent of organic exporting, similar negotiation and contestation has only occurred to a very limited degree. As a result, a different range of attitudes to organics are presented by local members of the organic industry in comparison to newly-converted, conventional farmers in the other case study regions.

This is most obvious in the uniquely local perception of organic premiums, especially in terms of the organic sweet corn premium as a principal motivating factor in the decision to convert. In Chapter 5, it was established that this perception applies only to a small number of growers but, because these growers lead the local organic industry through the relative size of their operations, it has had a significant impact on local attitudes to organics. The *terra nullius* condition and the attitude to premiums also account for

concerns over some aspects of organic sweet corn production which may cause difficulties between growers and the BIO-GRO inspectorate in future. The highly pragmatic attitudes of some Gisborne growers appear to have led them to favour short-term profit over longer-term issues relating to soil fertility. Although growers were initially concerned about weed and pest infestation in all case study areas, the issue of soil fertility on organic properties is now more salient and requires further research. Furthermore, some growers have an ambivalent attitude to the issue of whole-property conversion and exhibit less “progressive conversion” to the wider (philosophical) merits of organic production than comparable ex-conventional growers in either Canterbury or Bay of Plenty.

## 6.2 Wider issues relevant to the organic industry in New Zealand

The way Gisborne growers perceived organic premiums provides an important lesson for companies and institutions with a desire to accelerate organic production. The process of grower recruitment and the way growers perceive recruitment strategies are both more important, and less predictable, than might have been expected. Identical GOWW material produced significantly different results in Gisborne and Canterbury, suggesting that promotion of organics should be more attuned to regional conditions and local attitudes. Ultimately, the long-term retention of growers will be dependent on a range of factors, not just organic premiums. Satisfaction with, for example, the level of productivity can only be obtained when growers begin to take a long-term perspective on such issues as soil fertility, nutrient (re)cycling and the nurturing of bio-diversity. Such a perspective implies some form of conversion to the wider merits of organic horticulture. Eventually, even the most pragmatic of ex-conventional growers will, therefore, have to confront their attitudes to horticultural practice. While the possibility of “progressive conversion” is real, it would be preferable if this occurs much earlier, even at the recruitment stage. Furthermore, because there is the potential for organic premiums to dissipate in the long term, especially if organic food becomes more mainstream and attracts a greater percentage of growers, premiums alone should not form the sole basis of a grower’s commitment to organic production.

This last point leads to the question of whether organic horticulture, especially in the highly-commercialised, export-oriented form which is becoming increasingly important within New Zealand, is ultimately different in its *social* makeup from other forms of horticultural production. Organic farming has been the recipient of



some of the more naive forms of romantic futurology. Some academics and lay individuals tend towards the suggestion that organics has some inherent ability to solve *all* the characteristic problems of food commodity production: falling prices, tension between growers/processors, agricultural unemployment, the cost/price squeeze, environmental degradation and so forth. While there are undoubted environmental benefits that accrue from conversion to organic production, the social organisation of production for organic exporting in New Zealand still closely mirrors the pattern for conventional horticulture. The export form of organic production in New Zealand retains the basic elements of capitalist commodity systems which have caused instability in other food production sectors. Consequently, it would be naive to suggest that organic production under capitalism will also be a social panacea for food commodity producers.

At present, however, there is one advantage that organic growers have in terms of their relationships with wider circuits of capital. Given that demand for New Zealand's organic produce is high in overseas markets and that relatively few growers who operate on a considerable scale have, as yet, converted to organics, those that have enjoy more downstream control than is typical for conventional farmers. Furthermore, because the requisite skills for organic production – and the farm-work required for the establishment of suitable biological rhythms on organic properties – take a considerable time both to learn and to take effect, the labour of some organic growers is, at present, a highly valued commodity. This means that cooperatives of organic growers, like Kiwi Organics<sup>43</sup>, have some degree of market leverage, even though this is not likely to last for long. There is no scope in this report to consider the degree to which organics in its export/commercial form is different from either domestic-oriented organic production or other forms of modern horticulture in terms of its impact on biophysical systems. However, the short-term attitudes of some growers to soil fertility on sweet corn properties in Gisborne suggests that there is need for future research on this issue.

Nevertheless, some of the other fears that have emerged about the commercialisation of organics are, in part, allayed by information in this report. Some North American reviewers (see, especially, Friedmann 1993) are concerned about the commercialisation and commodification of the organics industry, which was once an inherently local phenomenon. In conventional agriculture's zenith, those interested in selling organic produce were largely left alone by large companies and sold goods to people in their local towns or regions.

With the increasing universalisation of 'green' and 'health' concerns in the 1990s, however, large companies have become involved in organic production with the express desire to transfer produce over considerable distances to affluent urban consumers. The fear of reviewers such as Friedmann (1993) is that the domestic and philosophically-committed movement will be either subsumed or deformed by the inherently pragmatic concerns of companies seeking to trade outside of local food production areas. The Gisborne case does not fit into this schema, revealing that the applicability of such theories might be restricted to North American or European domains. As is shown in Section 3.4, the reasons for the Gisborne case being an exception to the theories of overseas researchers relate to the fact that little or no organic farming existed in the district before the advent of corporate actors and their export-orientation.

In the next case study of this series – Nelson/Golden Bay – it will be confirmed that the export/commercial sector has not been a parasitic influence on its domestic/philosophical equivalent in New Zealand. Indeed, it can be argued that the two sectors are, to some extent, becoming interdependent, with growth in one having a beneficial impact on the other (Coombes and Campbell, *in press*). That this mutual dependence has developed can be partly attributed to the mediating function of BIO-GRO NZ. Thus far, large companies with an involvement in organics have been vulnerable to bad press and, consequently, product failure in overseas markets, so they have been particularly concerned that their practice is seen as acceptable to BIO-GRO NZ. This has meant that the potential for conflict between agribusinesses involved in organics and the more long-standing members of the alternative agriculture movement in New Zealand has been reduced. If a proliferation of organic labels occurs – especially in the form of MAF-accredited but firm-specific criteria for organic production which is already evident in Gisborne – then harmful divisions could develop within the New Zealand organics industry, because the mediating function of a single organic certifier will be lost. While the expansion of organic production in Gisborne and, indeed, New Zealand during the 1990s has been successful and relatively harmonious, there is no guarantee that this will always be the case.

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<sup>43</sup> See Section 4.2.3.

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## Appendix

# Methods for understanding grower decision making

The results presented in this chapter are derived from an interview program focussed on a variety of growers<sup>44</sup>. The interviews were used to identify key ideas and attitudes held by farmers and growers themselves when making management decisions, and from these to identify their decision criteria. The principal element of the research design was to compare the decision making of two distinct groups, namely organic and conventional growers. To this end, interviews were arranged with a total of 27 growers, including 15 who were organic, seven who were conventional and five who were changing between conventional and organic (see Table A.1). Since the objective was to identify most of the reasons for organic farming or for conventional farming it was appropriate to use not a random sample of growers but a theoretically ordered sample in which diverse types of growers were sought and included in the study. Thus, the

<b>Farm status:</b>	part time	13
	full time	14
		<u>27</u>
<b>Farm type:</b>	Livestock: sheep/beef	3
	deer	2
	Horticulture: processed crop	9
	citrus	3
	pip fruit	3
	grapes	3
	persimmon	3
	honey	1
	<u>27</u>	
<b>Certification status:</b>	Organic (in part or in whole)	15
	Changing from organic to conventional	1
	Changing from conventional to organic	3
	Conventional	8
		<u>27</u>

**Figure A.1:** Summary of Characteristics of Growers in the Sample

full range of farm sizes, farm types, level of activity (full or part time) and farm locations was included, where possible, since it is likely that these factors have a bearing on decision making. In this way the essential elements of decision making can be identified but not their frequency in the population.

Table A.1 shows the characteristics of the growers in the sample. There was an approximate balance between the part-time and full-time growers. Inclusion of part-time growers recognises that for many growers in Gisborne District their horticultural operations are frequently complemented by off-farm work. In terms of farm type, there were mostly horticultural land uses (21 cases) supplemented with some livestock land uses (five cases).

All the predominant land uses in Gisborne district were included, with a relatively larger number of horticultural and processed crop growers (sweet corn, peas, and other vegetables). The selection reflects the significance of organic fruit and vegetable production in Gisborne District. It should be noted that the classification has taken the predominant land use for each grower: in many cases there are a number of different land uses, including cases that have significant livestock and horticultural activities. The table also

shows the certification status of the growers. Most (15) were organic as stated by them and about one quarter (8) were conventional. However, three conventional horticultural growers had modified their conventional management by decreasing their use of sprays to the extent that they were very close to organic in practice. They were not planning to seek formal certification.

The sample of growers interviewed provided suitable diversity in order to obtain a variety of decision criteria. However, compared to the Canterbury study, there were fewer conventional growers and fewer conventional land uses such a pastoral farming.

To obtain names of growers, a variety of techniques were used. The BIO-GRO list for Gisborne was used to locate 22 organic growers and all except four were interviewed. In addition, each grower interviewed was asked to provide the names of other growers in order to obtain an extended list of names. They suggested conventional

<sup>44</sup> Including both pastoral and horticultural producers.

growers, typically with land uses similar their own. Finally, growers were visited without prior contact and requested to participate. A total of 29 growers were interviewed on their properties during April 1997.

All growers were interviewed in person. The interviewing procedure consisted of an introduction followed by a brief explanation of the overall project and its general objectives. Then an explanation was provided for the focus of this study on the decision making process of organic and conventional growers in an attempt to learn the reasons why, or why not, people farmed organically. The interviewer stated that his expertise was in social science, not in farming or organic production. All interviews were tape recorded and detailed notes were made while subjects were speaking. Nearly all interviews were located in the subject's house and typically at the kitchen table.

The interview began with the subject giving a thumb-nail sketch of the farm situation, including a brief description of the type of farm. It then moved on to details of what stock or crops were grown and why. Then the farmers were invited to talk about why they had their particular approach to farming. A check list of questions was used occasionally through the interview, but more typically at the end of the interview, to ensure that key topic areas were included in discussion. However, most of the interviews proceeded in their own way to cover all of the relevant topics. Growers generally enjoyed explaining their views and there was little need to ask any questions. Each interview took about one hour. The objective of the interview was to record thoroughly all of the main considerations the grower brought to bear on decision making with respect to organic or conventional production.

The ethnographic decision tree model approach was used in order to develop an understanding of growers' attitudes and decision making regarding organic production. Decision tree research examines real world decisions where any choice is made and, while it is based on individual interviews, the decisions of a group of people are examined and interpreted to develop a decision tree model. The method uses ethnographic interviewing to elicit from the decision makers themselves their own decision criteria. Ethnographic interviewing involves approaching farmers or growers in a way that acknowledges their expertise in managing a farm or orchard, and is attentive to what they believe and why they manage in the way that they do. Interviews explore farmers' or growers' thinking and record in their own terms their reasons for actions, and constraints that determined some outcomes. It is this kind of approach which distinguished ethnographic decision tree modelling from other ways of analysing decision making. Other approaches have tended to form decision making models

prior to surveying growers with two consequences. First, growers are forced to answer according to categories that conform to the researcher's expectations, and second, that the researcher is unable to assess unexpected or unanticipated factors that the growers themselves can immediately identify.

Once the interviews are completed the decision criteria identified in the interviews are then combined in the form of a decision tree, or set of 'if-then' rules. Ethnographic decision tree modelling seeks to develop a complete decision tree comprising a series of connecting decision criteria. The decision criteria are discrete questions, answers to which are either true or false for any particular interviewee. The tree must allow each interviewee to move progressively through a set of criteria to arrive at an outcome which is true for that interviewee. In addition the tree must combine criteria for all members of the sample group in a logical way. The tree thus tells why a particular outcome is reached because the outcome is preceded by a particular set of criteria relevant to that particular interviewee. However, the criteria are not imposed by the researcher but are derived carefully from analysis of the open-ended interviews to record what the farmers or growers themselves state and believe. The interview data must be carefully examined to learn what criteria motivate the subjects' decision making, and then these criteria are gradually integrated into a complete decision tree. In this Gisborne study the identified decision criteria were compared with those found earlier using the existing decision tree.