

**Commerce Division  
Discussion Paper No. 77**

**THE POTENTIAL FOR EXPANSION  
OF THE ORGANIC INDUSTRY IN  
NEW ZEALAND: A CONTINGENT  
VALUATION OF CONSUMERS  
WTP FOR ORGANIC PRODUCE**

*Caroline Saunders\**

**September 1999**

Commerce Division  
PO Box 84  
Lincoln University  
CANTERBURY

Telephone No: (64) (3) 325 2811  
Fax No: (64) (3) 325 3847  
E-mail: saunderc@kea.lincoln.ac.nz

ISSN 1174-5045  
ISBN 1-877176-54-0

\* Caroline Saunders is a Senior Lecturer in Economics in the Commerce Division, Lincoln University, Canterbury, New Zealand.

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# 1. Introduction

This paper examines the past and current development of the organic industry in New Zealand. Organic farming in New Zealand has changed and grown rapidly over the last 10 years. This has mainly been due to the development and targeting of niche markets overseas. A review of the literature on the development and future prospects for organic products predicts continuing increases in demand in most of the main markets, many of which New Zealand has the potential to target.

However problems still exist in the NZ organic industry. These include problems of insufficient supply, a lack of information, and infrastructural impediments both internally and overseas. A further problem which may affect the expanse of the industry is often only one or two crops in a rotation are sold as organic and attract a price premium. Development of the industry is also inhibited by the lack of consistent and coherent data. The paper reviews existing studies on market trends both in NZ and overseas. This is followed by the results of a survey in the South Island to determine attitudes towards, and consumers Willing to Pay (WTP) a price premium, for organically produced food. The results of this study show a third of consumers purchase organic food and, on average, these were WTP a 20 per cent price premium. The main reason stated by those who do not purchase organic food was lack of availability, although on average the extra this group were WTP for organically produced food was only eight per cent. A survey of retailers indicated that they would like to expand their range and size of organic products, apart from the meat sector, but that (except for the larger retailers) source of supply was a problem.

The review of literature and results of the analysis indicate that there growth potential for the organic industry in New Zealand. This may not just be restricted to organically produced products but may also include food produced under low input or environmentally friendly farming systems this may become more important for continuing access into high value export markets. However, further analysis is necessary to overcome some of the problems, not least the lack of information.

Traditionally the organic sector has been made up of farmers who adopted organic techniques for philosophical reasons, selling primarily to the domestic market (Lamb 1994). Whilst NZ does have this traditional organic sector what differentiates the NZ industry from many other countries is the existence of a growing commercial sector targeting the export market.

In the early 1990s, the increase in organic exports attracted a number of conventional farmers into organic production. Initial success in targeting overseas niche markets presented processing companies with the need to encourage a continuity of supply and to recruit conventional farmers into organic production. However, this growth in production has not kept up with the increase in demand for organic produce from overseas. Thus one problem facing the industry is how to encourage more land to be converted to organic production (OPEG 1999). A number of reports have assessed why farmers are reluctant to convert and found a number of reasons which include technical problems and the lack of information, but also the problem of finding premium markets for crops grown in an organic rotation which are not currently exported (Saunders et al 1997).

Organic farms in NZ can be classed into two types. Firstly, those producing permanent crops and secondly those on rotational systems where the export crop is rotated with other crops. A main limitation for the latter is finding premium markets for all of the crops grown organically within a rotation. Thus, whilst premiums are obtained for the exported crop, premiums are not always obtained for the other produce within the rotation and therefore the producer cannot offset any yield losses or increase in costs that maybe associated with growing organically.

Therefore, finding premium markets for all crops grown organically which are currently sold as conventional produce maybe important to encourage further expansion of the industry. This paper examines the possibility of expanding the market for organic produce both overseas and domestically. To assess the possibility of expanding the domestic market he paper reports the results of a survey of consumers in Christchurch as to their attitudes and willingness to purchase and pay for organic products.

## **2. The Market for Organic Produce**

The organic market in most of the countries reviewed in this report is still relatively small and characterised by being niche markets, with the main distribution being through specialist channels. However, there are indications that this is changing rapidly with greater targeting of main stream distribution channels. A particular problem with assessing the extent and potential of the organic sector is the lack of data. Much of the information available is the result of piecemeal studies which makes it difficult to do cross or intertemporal comparisons.

Organic production is typically under half a percent of total agricultural production in most countries, exceptions being Germany and Austria which have between two and three per cent of their agricultural area under organic production (Lampkin and Padel, 1994). Australia also has two per cent of its agricultural area under organic (Twyford-Jones 1998), however much of this is due to the inclusion of large rangelands. Other countries, such as Denmark and Sweden, have plans to expand the organic area rapidly (Saunders et al 1997).

Estimates of the world market for organic produce vary. In 1992, the world market was estimated to be between US\$3 to 4 billion per year (Verschur 1993). However, in 1997 the market was estimated to have grown to US\$10.7 billion (Lohr 1998). Thus most countries have experienced rapid growth in their organic sectors of between 20 and 30 per cent over the period 1992 to 1997.

The main market in the world is the US, accounting for over 50 per cent of the market. Moreover the size of the organic market in the US over the last few years is estimated to have grown by 20 per cent per year. TradeNZ estimated that the market was US\$2.8 billion in 1995. This was estimated to have grown to US\$4.2 billion in 1997, and to grow to a huge \$47 billion by 2006, (TradeNZ 1996, Lohr 1998). This is despite the fact that only under one per cent of land was under organic production (Klonsky and Tourte 1998).

The US is not a major market for NZ in 1998, only taking 3.8 per cent of NZ exports of organic products. It is, however, a potential competitor on export markets with exports of \$203 million in 1994, most of which were to the EU and Japan, two of NZ's most important markets (Mergentime and Emerich 1995).

The Japanese market for organic foods has experienced rapid growth, with growth rates estimated at 20 per cent per year in the 1980's, growing from an estimated US\$500 million in 1994 to, (including low input produce), US\$1.7 billion in 1997. Ahmed (1994) estimated that between three and five million Japanese regularly bought organic produce for health reasons. Moreover, industry sources estimated that over 300 organic products, including fresh organic fruit and vegetables are distributed in the Japanese market, as detailed in Naka (1996).

However, imports were still a small proportion of the total market at about US\$5 million in 1994, or 1 per cent of the total market, (Foodnet 1997; Lohr 1998). This is predicted to grow

to \$2.6 billion by 2000 (Mergentine 1997). Nonetheless, the Japanese market is the most important for NZ, taking 47.3 per cent of exports (OPEG 1999).

Current estimates of the present and forecasted size of the European organic market vary. Lampkin and Padel (1994) estimated that in 1990 the market was approximately £900m (US\$630 m). This was estimated to have risen to US\$4.5 billion in 1997 (Lohr 1998). Other estimates include the market for organic vegetables growing from US\$200 million in 1996 to US\$510 million by 2003. Also growth was predicted to be especially strong for meat and dairy products with the market estimated to be US\$3.2 billion by 2002. This is a rise from an estimated US\$339.2 million and US\$690.6 million for organic meat and dairy respectively in 1996, (Twyford-Jones 1998). The main reasons given for this are the BSE scare and loss of confidence in hygiene standards. It is perhaps this which will offer the most potential for New Zealand exports, as the market for organic meat and dairy products develop.

The size of the EU organic production sector is estimated at 1.25 million hectares, 1.2 per cent of the agricultural area, with 55,000 producers. Europe differs from New Zealand because the development of organic farming, and the agricultural sector in general, is not necessarily driven by the market but by policy. The recent reforms of the EU agricultural Policy have placed greater emphasis on subsidising farmers for environmentally friendly production systems and, whilst this may still only be a relatively small part of the overall support to EU agriculture, it is predicted to grow (Saunders, 1997).

In the United Kingdom, the organic market is estimated to account for 2 per cent of the total and that the size of the organic market has risen from £77 million (\$US54 in 1991), to £180 million (US\$126 million) in 1996, rising to US\$445 in 1997 (Market Assessment 1997; Lohr 1998). There is renewed interest from major UK supermarket chains in organic produce, of which 70 per cent is imported.

The organic market in Denmark was estimated in 1997 to be 3 per cent of the total or US\$190 million (Lohr 1998). Denmark is expected to experience rapid growth in organic production, especially in dairy products, due to changes in policy and marketing (Saunders et al 1998). It is predicted that by 2000 organic milk production will account for 40 per cent of production and organic potatoes, carrots and onions for 50 per cent, much of which will be exported to the UK and Germany (BIOFAIR, 1997). Denmark is a potential competitor with NZ for

export markets and thus the rise in organic production could have far reaching implications for the marketing of NZ dairy products.

Germany has one of the largest markets for organic products at an estimated size of US\$1.6 billion in 1997. That is two percent of the country's food market, of which 60 per cent was imported (Lohr 1998). This is the result of rapid growth with the industry estimated to have grown annually in double digits over the 1990's, (Twyford-Jones 1998).

The Canadian and Australian markets for organic products and their production sectors are relatively small. However, these are predicted to increase as are their exports. Thus the Canadian market was estimated to be US\$68 million in 1997 and to grow to \$145million by 2006 (Lohr 1998).

### **3. New Zealand Organic Industry**

As stated earlier, the rapid rise in the export sector over the last few years has differentiated the market for New Zealand produce from many other countries. In 1991 estimated output from the organic industry was NZ\$1.1 million, of which a small proportion was exported. In 1994 exports of organic products alone were NZ\$6 million; growing to NZ\$12 million in 1995; NZ\$23.5 million in 1996; and NZ\$40 million in 1998, (OPEG 1999). Adding estimates of output for domestic consumption of around \$10 million this gives total output of \$50 million in 1996, (Campbell 1996).

Organic farming for the export market is concentrated geographically with a small number of processors and sectors. The main two processors are Watties Frozen Foods (WFF) and the Kiwi Marketing Board (KMB) which accounted for 80 per cent of exports in 1994, although their share of exports has declined.

Whilst estimates of the export sector in NZ exist the size of the domestic market is somewhat harder to estimate. Data are available from case studies which suggest a per capita expenditure per year of over \$3, which if extrapolated to the whole of NZ would imply retail consumption of \$10.7 million (Campbell 1996).

The market size in NZ is small, however, the potential of this market is important to determine the possibility of expanding area of organic production for the export market with the residual being sold on the domestic market.

Therefore this paper presents the results of a survey of consumers in NZ re attitudes towards organic products and their Willingness to Pay for organically produced products. The results are compared to earlier studies in NZ to determine if attitudes have changed over time and whether they differ from a similar study in a major overseas market, the UK<sup>1</sup>.

A survey of 205 consumers at selected locations in Christchurch was conducted in January/February 1998. The survey was administered at four supermarkets distinguished by their differing marketing strategies and availability of organic produce.

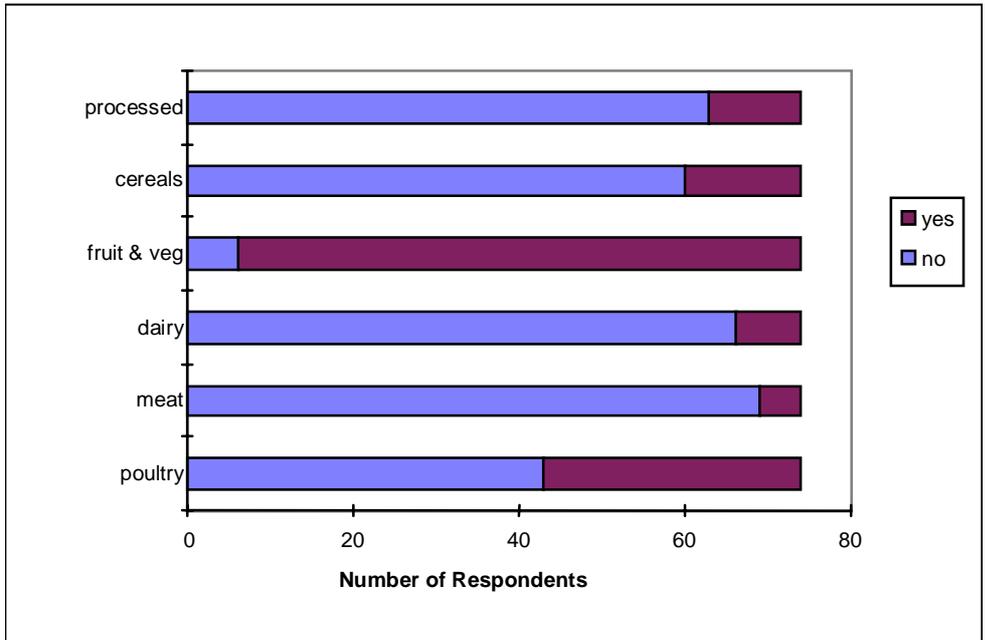
The results of the survey indicate that the awareness of organic food has risen with all respondents surveyed being aware what organic food was. This compares with 46 percent who were aware of organic food in 1987, 75 percent in 1994 (Lamb 1994) and 85 per cent in 1996, (Kristensen 1997).

Thirty eight per cent of the sample purchased organic food and approximately half of these purchased it frequently. This compares closely with the results of an earlier survey where 27 percent were identified to purchase organic food regularly in 1994, (Lamb 1994), but this percentage was lower than found in the 1996 survey where 49 per cent of respondents stated that they purchased organic food, (Kristensen 1997). This result, however, could be explained by the sampling in this later survey which targeted consumers more likely to purchase organic food.

The most common purchases of organic food were in the category of fruit and vegetables followed by poultry as shown in figure 1.

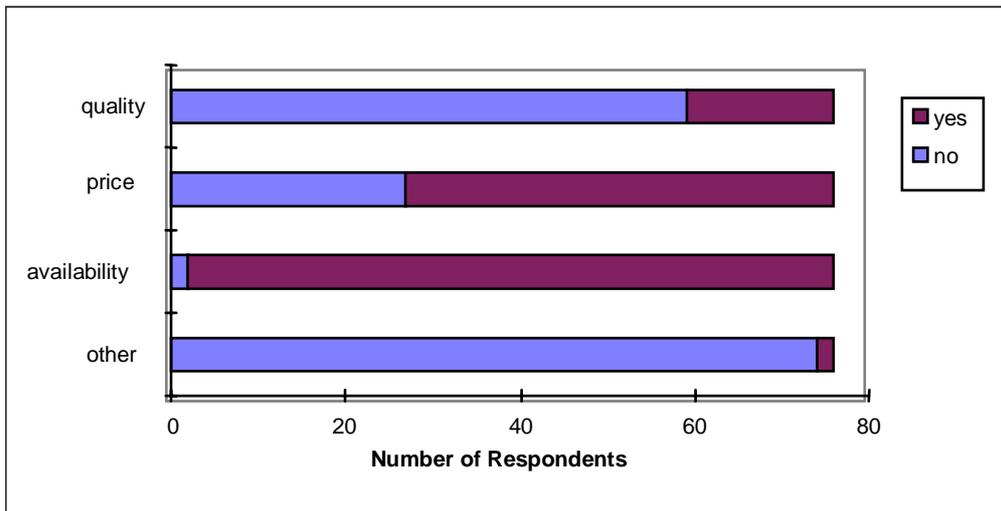
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<sup>1</sup> The two studies of NZ consumers included a telephone survey of 940 households in 1994 (Lamb 1994) and a survey of 151 consumers outside two Christchurch supermarkets in 1996 (one of which stocked organic foods) (Kristensen 1997) and a telephone survey of 153 households in the UK, Tregear et al (1993). Care should be taken when comparing the results of these surveys due to differences in sample selection, sample sizes questionnaire design and analysis.



**Figure 1**  
**Purchases of Organic Foods by Type**

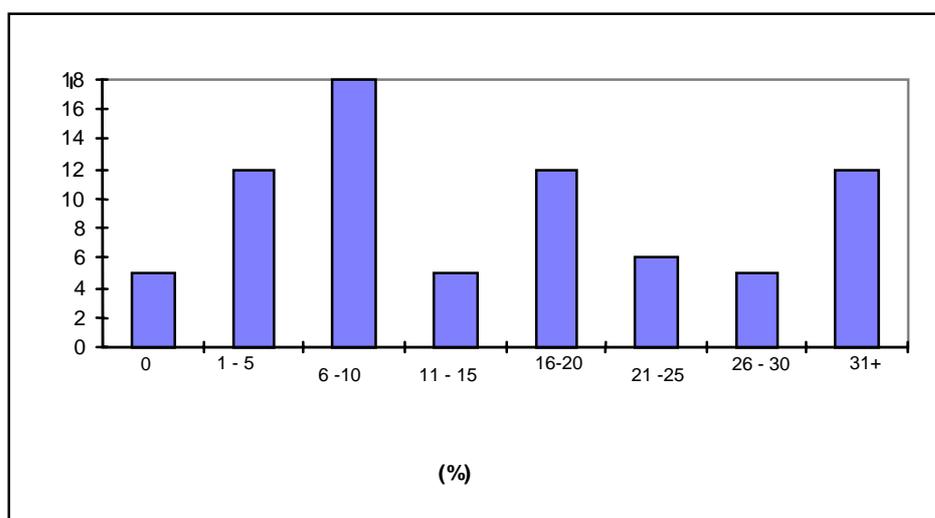
As illustrated in figure 2, availability of organic food was the main criteria affecting the level of purchase (cited by 97 per cent of the sample), followed by price (cited by 64 per cent), and quality was cited by 22 per cent.



**Figure 2**  
**Factors Affecting the Level of Consumption of Organic Produce of Respondents Who Currently Purchase Organic Products**

Most respondents (87 per cent) purchased organic food for health reasons. This is consistent with other studies, both overseas and in New Zealand. Lamb (1994) found that the only significant attributes influencing purchase of organic produce was additives/preservatives and pesticides/ chemicals. This is supported by the survey in 1996 where 86 per cent cited pesticide residues and 61 per cent nutrition as important factors affecting their reason for purchasing organic (Kristensen 1997). In the UK Tregear et al (1993) also found that 54 per cent purchased organic food for health reasons, another 7 per cent due to concern about additives in food and only 9 per cent because of concern for the environment.

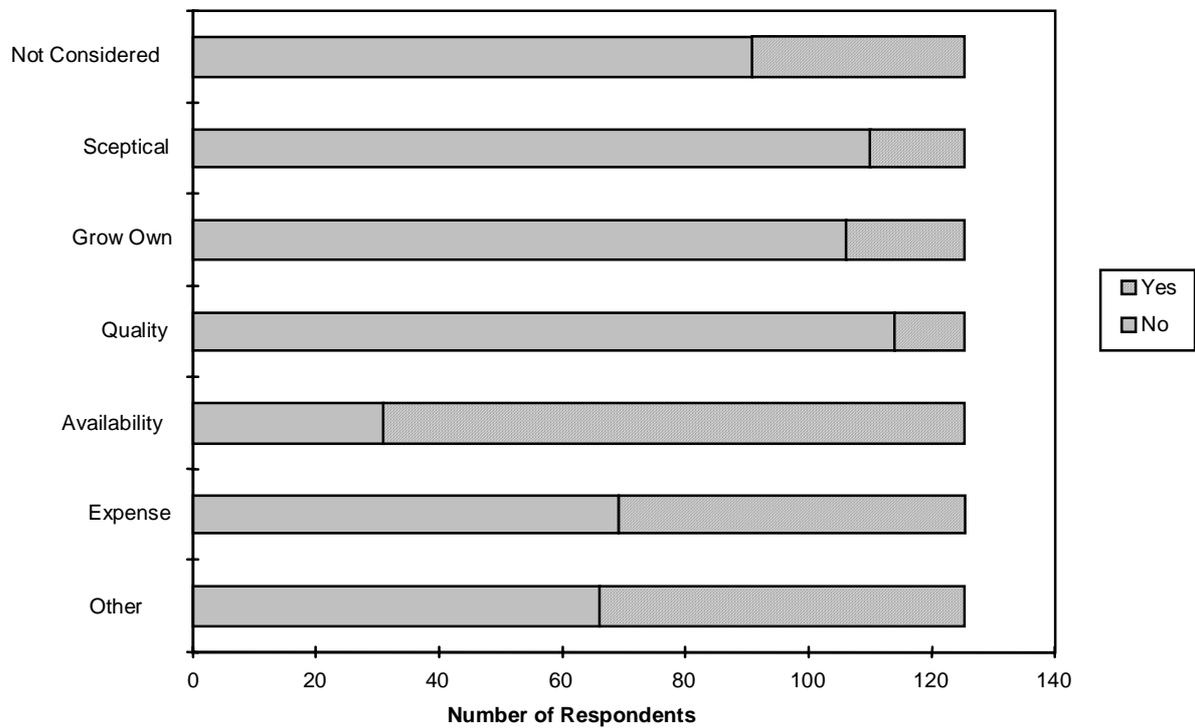
However, for most respondents who purchase organic food only 1 - 5 per cent of their food budget was on organic produce. Most pay a premium for this, the average price premium being 20 per cent. On asked how much extra they would be Willing To Pay (WTP) for organic food the average was similar to what they actually pay at 20 per cent, although this did vary as shown in figure 3. This compares with results elsewhere with consumers in the US willing to pay a 23 per cent average premium (ranges from 10-30 per cent) for food that is certified organic (Sparling et al, 1994).



**Figure 3**  
Consumers Who Purchase Organic Produce Willingness to Pay for Organic Produce

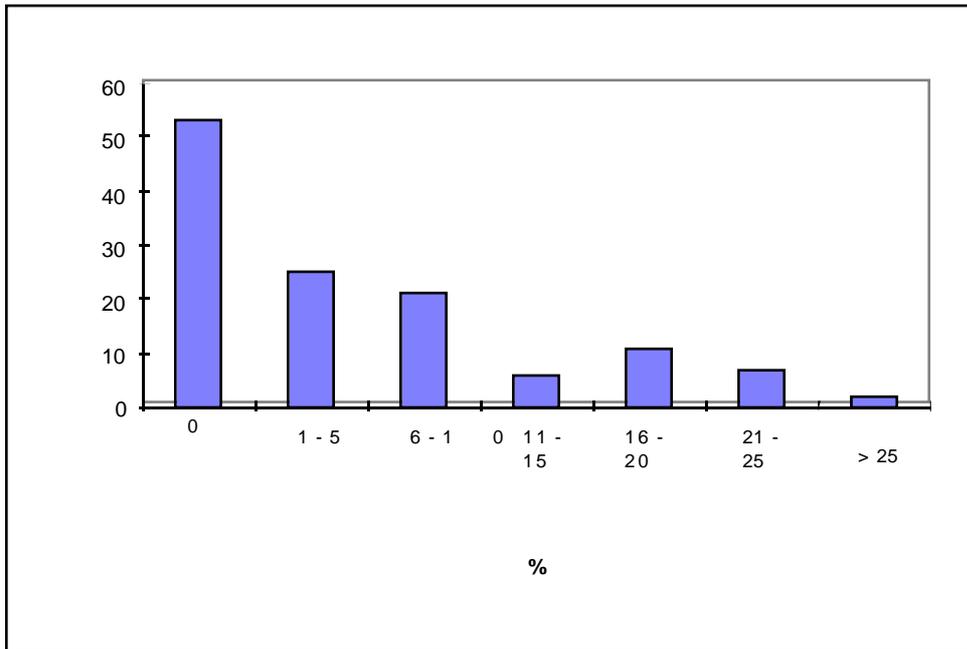
Of the respondents who do not purchase organic food the main reasons were availability (75 per cent) and expense (44 per cent) as illustrated in figure 4. This is contrary to other studies where price was found to be the most important factor. Tregear et al (1993) found in the UK that 32 per cent did not purchase organic food due to the expense; 27 per cent had not thought of purchasing it; and only 9 per cent because of availability. Kristenesen found that 37.5 per

cent didn't purchase organic food because of price; 27.5 per cent due to availability and 25 per cent due to a lack of awareness, (Kristensen 1997).



**Figure 4**  
**Reasons for Consumers Not Regularly Purchasing Organic Food**

Over 90 per cent of respondents who do not currently purchase organic food stated they would consider buying it. Moreover around half of these would be Willing to Pay extra for this, on average by 7.6 per cent, as illustrated in figure 5. Thus why availability was cited as the main reason for not purchasing organic food the fact that few are WTP 20 per cent or over the current average premium might indicate that price is still important.



**Figure 5**  
**Willingness to Pay for Organic Produce by Consumers Who Do Not Regularly Purchase Organic Food**

To determine the factors which affect the decision whether to purchase organic food or not a Logit choice model was used and the results presented in table 1. The probability of purchasing organic foods or not was assumed to be affected by a number of determinant factors including age, gender, household income, attitudes, environmental awareness, and ethical factors. In fact the results of this analysis were indeterminate. Household food expense; the WTP for organic produce; place surveyed; and the most regularly used supermarket were found to be significant in explaining whether or not respondents purchased organic food<sup>2</sup>. Size, and age, of household, income and membership of an environmental group were not found to affect whether organic food was purchased or not which contrasts with the conclusions found by Lamb (1994).

<sup>2</sup> Interestingly the place surveyed and the most frequently used supermarket were not correlated.

**Table 1**  
**Estimated Logistic Model Results**

Dependent Variable: Probability of purchasing Organic food

Number of observations: 201

Number of correct predictions: 73.3%

Log-likelihood: 254.0798

<b>Variable</b>	<b>B</b>	<b>Standard Error</b>
Household food expense	0.0058*	0.0028
Regular supermarket	0.1357	0.0807
Place surveyed	-0.4695*	0.1671
Total WTO	10.2046*	1.7894

\* significant at the 5% level

\*\* significant at the 10% level

To determine the factors affecting WTP for organic produce for all respondents a series of step wise regressions were undertaken and the results presented in table 2. Income and the most regular supermarket were found to be insignificant in describing the WTP whereas the place surveyed, gender, ethical reason, household food expenditure, membership of environmental group, whether purchase organic food or not were all found to be significant. Interestingly income was not significant which contrasts with expectations where the higher the income the more generally we are assumed to be willing to pay for environmentally friendly goods and services. Whether this implies that organic food is not responsive to income or not would have to be the subject of further analysis. As expected, the analysis showed that respondents purchasing organic food were WTP more for that food. Whilst the most regularly used supermarket was not significant where respondents were surveyed was in determining their WTP for organic produce. This is borne out by the results which indicated greater differences between results dependent upon where surveyed than most regular supermarket. Gender was significant in explaining the level of WTP for organic produce with women WTP more than men for organic produce. As expected, whether respondents were a member of an environmental group was also significant in describing why respondents would be WTP more for organic produce, as was the fact if respondents had ethical or medical reasons affecting food purchases. In general, the greater the household expenditure on food the less respondents would be WTP for organic produce. This may reflect the proportion of income spent on food and lower availability of discretionary expenditure.

**Table 2**  
**Estimated Model Results**

Number of observations: 201 Dependent Variable: Willingness to Pay for Organic food

R<sup>2</sup> 0.32  
Adjusted R<sup>2</sup> 0.30  
F statistic 14.55

<b>Variable</b>	<b>B</b>	<b>Standard Error</b>
Whether purchased Organic produce or not	0.1066	0.0165
Ethical reasons	0.1109*	0.0273
Gender	0.0371*	0.0163
Member of environmental group	0.051	0.0283
Household food expenditure	-2.253**	1.23E-04
Place surveyed	0.017421	0.0070
(Constant)	0.0178	0.0272

\* significant at the 5% level

\*\* significant at the 10% level

Thus the potential does seem to exist to expand the market for organic produce. This is both from current purchasers of organic produce, who currently only spent relatively low amounts on organic food, and latent consumers. The former group does seem willing to pay the current level of premiums for organic produce and almost all of these cited availability as the main reason for not purchasing more organic products. Also there does seem to be evidence that those who currently do not purchase organic food would be willing to do so and pay a premium for this, although these premiums may be relatively small. Whether the additional 5-10 per cent would be sufficient to cover differential marketing costs of existing producers would have to be considered.

#### **4. Conclusion**

The organic sector in most countries is still small and typically a niche market. However, whilst these sectors are small relative to the size of their total food markets these are large in relation to NZ export output. In addition many of these are growing, giving opportunities for NZ exports. In fact NZ is in an unique position in the world markets with established marketing channels for organic produce in a number of countries and the expertise and experience of targeting these markets with produce which is consistent in quality.

However, problems still exist in the industry not least problems of supply. This is affected by the fact that producers cannot sell all their produce in the organic market and therefore obtain premiums to offset any loss in yield or greater costs by growing organically. A survey of the domestic market does indicate that there may be scope for expanding this market to provide a market for some of this produce. In particular availability was cited as main factor affecting the level of purchase. Whilst those who currently purchase organic foods seem willing to pay the current average premium those who don't were on average not and therefore whether expansion of this market would be cost effective would require further investigation.

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