

THE STATE OF THE ORGANIC SECTOR IN NEW ZEALAND, 2007

SUMMARY REPORT

August 2007

Janet Grice, Mark Cooper, Hugh Campbell & Jon Manhire

**Report presented to the Organics Aotearoa New Zealand Conference,
Lincoln University, 17th August, 2007**

**Centre for the Study of Agriculture, Food and Environment
University of Otago**

www.csafe.org.nz

Report Commissioned by Organics Aotearoa New Zealand



Te Whare Wānanga o Otago



Centre for the Study of Agriculture, Food and Environment

Table of Contents:

	Executive Summary	3
	Acknowledgements	3
1	Introduction	4
2	Past Research into Commercial Organic Activity in NZ	4
3	OANZ Initiates New Research	4
4	Methodology	5
5	Broad Trends in the Organic Sector: Land Area and Certified Licensees	7
6	The Organic Export Market	8
7	Survey of Retailers	12
8	Survey of NZ Households	13
9	Consumer Perceptions of Organic Food	15
10	Preliminary Conclusions	16
11	References	18

Executive Summary

- Total Land Area in certified organic production has increased from 46,886 ha in 2002 to 63,883 ha in 2007 (36% increase since 2002. 455% increase from 1997).
- The main growth area has been in pastoral farming.
- Organic Licensees in 1997 – 335. Organic Licensees in 2007 – 860 (157% increase).
- The overall export market has continued to grow at a healthy rate since 2002 reaching between NZ\$120-130m in 2006.
- Some important new markets have opened up in Asia. The US and Australian markets have also increased.
- Established organic exporters have continued to prosper, particularly in fresh fruit exports of apples and kiwifruit.
- Second level exporters in areas like Meat & Wool and Honey have continued to consolidate and grow.
- The entrance of Dairy exports at significant levels for the first time hints towards a major potential future contribution in this product category.
- It is important to also note the proliferation of small and niche organic export businesses that have entered the market in the last five years. This new group also promised to underwrite future growth and will prove an important site of innovation for the future.
- NZ\$259m domestic market (+/- \$50m) in 2006.
- Market share is 1.1%. This is around 1/3rd of high organic consumption markets like Denmark with over 3% market share (in 2005).
- Site of purchase results show the emerging niche of farmers markets and continued supermarket growth, but at the expense of specialty organic shops.
- Survey of specialist organic retailers indicates 59% of product is sourced from within NZ, 41% is imported.
- Overall, there was positive consumer sentiment about core organic messages, reinforcing that organic is perceived to be positive for environment, health, and delivers better tasting food.
- There was a low level of consumer support for commonly circulated negative claims about organic food – particularly that organic food is not produced sustainably, or has no tangible benefits.
- Consumers supported the idea that organics was a good option for all New Zealanders.
- The key negative finding in the consumer survey was that organic food is too expensive.

Acknowledgements

This research project was funded by Organics Aotearoa New Zealand. We would like to acknowledge the research contribution of Jon Manhire at The Agribusiness Group. We would also like to thank the organic exporters, certifiers, retailers and consumers who responded to our surveys.

1. Introduction

This Summary Report provides an overview of key findings of a series of surveys commissioned by Organics Aotearoa New Zealand in 2007. This represents the first body of research into the organic sector in New Zealand since 2002, and is also the most comprehensive attempt to link together the current state of organics in both domestic and export markets.

This Summary Report will present key findings from three surveys: *organic exports*, the *organic domestic market* and a household survey of *New Zealand consumers*. Alongside these three major surveys were a group of case studies of different and emerging aspects of the organic sector. The results of these will be reported in the Full Report of this research project.

2. Past Research into Commercial Organic Activity in NZ

This project is not the first to attempt to quantify the organic export and domestic markets in New Zealand. Two prior bodies of work have been undertaken between the years 1997-2002.

The Centre for the Study of Agriculture, Food and Environment at the University of Otago, undertook surveys of the Dunedin retail market for organic food in 1997, 1999, and 2001. These comprised a point-of-sale survey of all Dunedin retailers selling organic food (and easier task in 1997 than now!). The results published in Campbell and Ritchie (2002) showed an increase from around \$350,000 in 1997 to around \$2.1m in 2001. In the context of the wider local food retail market this indicated rapid growth, but from a very low base.

Those surveys used the per capita consumption rate in the greater Dunedin area to estimate a total New Zealand domestic market for organic food of around \$70m. At the time of publishing, this estimate was carefully qualified and considered to be only a broad approximation. Subsequent research would indicate that the Dunedin market under-represents overall organic consumption in New Zealand.

Over the same period (1996-2001), the Organic Products Exporters Group (later OPENZ) undertook an annual survey of its membership to estimate the value of organic exports from New Zealand. Those annual surveys indicated a steady increase in the value of organic exports. In 1996, reported export data indicated a value of \$12m. By 2002 this had risen to \$71m (Campbell and Ritchie 2002).

Campbell and Ritchie (2002) made two further observations on both the domestic and export data for organic products. First, that after an initial period when export value exceeded the value of the domestic market, by 2001, the two had converged and the growth trends suggested that the domestic market would move ahead of the export market in terms of value. Second, that in comparison to international data, New Zealand's per capita consumption of organic food was relatively modest – with New Zealanders only consuming around 20% of the amount of organic food (by value) of consumers in countries like Germany and Japan (see Yussefi and Willer 2002).

3. OANZ Initiates New Research

A long time period that has elapsed since the last set of surveys were deployed in 2001. This is partly due to the completion of FRST-funded research projects at the University of Otago that

had previously funded the domestic surveys. At the same time, OPENZ found it increasingly difficult to gain the cooperation of members in providing export data for the exporters survey.

A report in 2003 outlined an Organic Sector Strategy in New Zealand (Martech 2003). One of the many recommendations of the report was the need ongoing data collection on the growth rates and trends in organic commercial activity. This is somewhat ironic, as it was released in the same year that all such activity ceased.

The longer term result of the recommendations of the Organic Sector Strategy was the formation of Organics Aotearoa New Zealand as a strategic oversight body to guide future direction of the organic sector in New Zealand. One of the Task Teams of OANZ – the Marketing and Market Access team – made the reinstatement of regular data collection on the state of domestic and export organic commerce a central priority. This initiative led to the research that informs this report.

The OANZ Marketing and Market Access Task Team decided to support the deployment of a broad range of benchmarking surveys to try and overcome the problems that led to the cessation of OPENZ's prior data-gathering activities. This resulted in the deployment of three major surveys, and a suite of smaller data-gathering exercises:

- Household Consumption and Consumer Perceptions Survey
- Organic Exporters Survey
- National survey of organic retailers.
- Point of sale survey of the Dunedin Retail Market
- Case studies of certifiers
- Case study of selected exporters
- Case study of organic activity in Farmers' Markets.

Given that the Export and Dunedin Retailer surveys were the only prior bodies of research, it was decided to redeploy these to provide some continuity with past data sets. However, given the problem of reluctance of retailers and exporters to cooperate with survey activities, a large scale household survey was undertaken to provide a solid data-set on domestic organic activities. A national survey of retailers was also added to provide an important check on the validity of point-of-sale extrapolations from the Dunedin retail market. Some case studies were added to selected areas which OANZ deemed to be potential areas of growth in the organics sector.

The timing of these surveys was calculated to take place after the completion of the 2006/07 financial year, but providing enough time to report data to the OANZ conference in August, 2007.

4. Methodology

The series of surveys and case studies was conducted over the period May to August 2007. The purpose of multiple methods was to attempt to triangulate and validate the data from the different sectors involved in the NZ organic market.

Households

The mailed survey of household purchasing patterns and perceptions of organic foods was conducted in June and July 2007. A total of 1000 surveys were mailed to a random sample of New Zealand residents. A three-stage survey method was employed with an initial postcard informing participants of the research, an 8 page questionnaire and explanatory letter followed, with a second questionnaire being sent four weeks later. Using this methodology, a total of 302 usable surveys were returned for a valid response rate of 33%. The household survey contained questions regarding purchasing patterns of organic foods as well as consumers' perceptions of organics and demographic data.

Exporters

A list of certified organic exporters was compiled from the membership of Organic Products Exporters of New Zealand, the New Zealand Food Safety Authority register of organic exporters, the licensee lists of organic certifiers, and internet searches. Surveys were sent to exporters by email or post in June with a second mailing to non-respondents in July with follow-up telephone calls to non-respondents in early August. Organic product exporters were asked to provide information regarding the volume, export value, number of growers/suppliers, proportion of imported components, and destination markets for each of their certified organic export products during the previous financial year. Of one hundred and twenty-nine exporters identified, sixty-seven responded to the questionnaire (52%). Eighteen of these sixty-seven either reported no organic exports for the 2006-2007 financial year or refused to provide their export data. Export value estimations for key non-respondents were made based on available data on export volume and price per unit calculations.

Certifiers

Representatives from each of the four organic certifying agencies (AgriQuality, BioDynamic Farmers and Gardeners Association, BioGro NZ, and OrganicFarmNZ) were contacted to ascertain the extent of their current organic certification programmes. Interviews of between thirty and forty-five minutes were conducted to review the types of organic licenses, the process for conversion to organic standards, the land area under certification, the number of licensees, and the number of licensed operations.

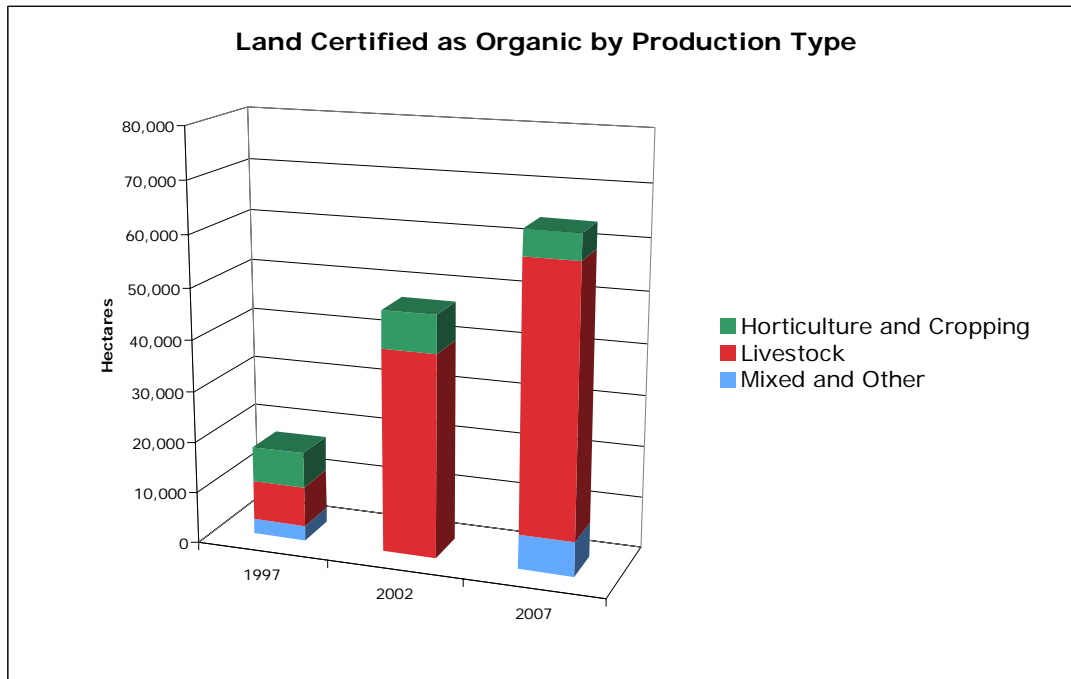
Specialty Shops

A survey of specialty organic food stores was conducted in order to develop an understanding of the volume of organic product sales and the characteristics of the products sold. Surveys were posted to shops in late June and reminder phone calls to non-respondents were made in early August. Twenty-one (49% valid response rate) organic specialty shops returned completed surveys. Other case studies of retailers were conducted in the Dunedin area and Farmers' Markets. These case studies will be reported on in the final report.

5. Broad Trends in the Organic Sector: Land Area and Certified Licensees

The requirements of international accreditation bodies mean that organic certifiers must publicly list their number of licensees and the land area under their certification system. This makes it possible to provide robust data on the current area and broad categories of organic production activity in New Zealand.

Figure 1:



1997 – Saunders et al. (1997).

2002 – Agricultural Census.

The result is a current land area under certified organic production of 63,883ha in 2007. While the changing composition of this land area between Horticulture & Cropping, Livestock and Others is shown, there have been changing methods of categorising land-use between 2002 and 2007. Based on this changing form of categorisation, it is possible to see a clear increase in the area of land devoted to livestock production, but the shifting composition of Horticulture & Cropping and Mixed & Other does not provide any meaningful comparison between the different years.

Table 1: Number of Certified Organic Operations, Licensees, and Certifiers⁽¹⁾

	1997 ⁽²⁾	2007
Number of Licensed Operations	-	1,206
Number of Licensees	335	860
Number of Certifiers	2	4

2002 data not collected

(1) A single licensee may hold multiple organic certifications, for example, an licensee who produces organic apples and processes apples for juice will hold a separate license for each activity. Single licensees may also hold organic certifications for multiple types of operations, if they produce both vegetables and livestock, for example.

(2) Saunders et al. (1997).

While there are a large group of organic operations, many of these represent different activities by the same licensee. Thus, the key figure in this data set is the number of licensees, which shows a 157% increase over the ten years up to 2007. Combining these two sets of data, it is clear that the area of certified land has increased much faster than the number of licensees. This may indicate either the increasing amount of pastoral land being brought into organic production and/or the increasing acquisition of land into more sizeable blocks by existing licensees.

6. The Organic Export Market

The export market for organics has been a key driver of growth in the early stages of organic sector development in New Zealand. Prior research tended to concentrate on this arena of activity.

A survey of exporters was deployed, with multiple follow-up contacts, which achieved a high level of response and cooperation.

Table 2: Size of the Organic Export Market

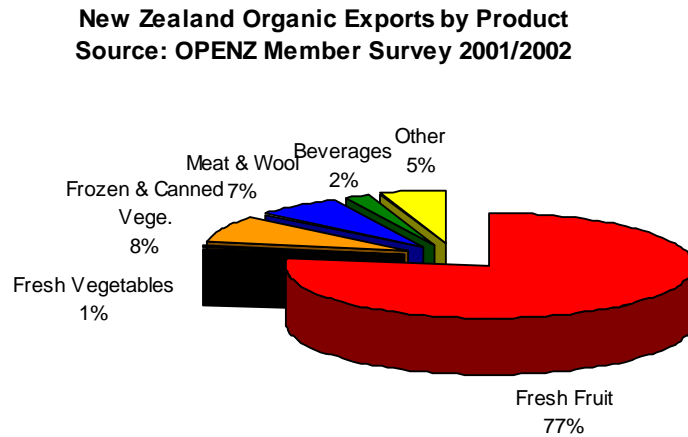
1997	2002	2007
NZ\$32m	NZ\$70m	NZ\$120-130m

1997/2002: OPENZ Surveys.

Of this figure, over NZ\$90m is comprised of actual reporting of export figures through the survey process. The remaining non-reporting firms were estimated to provide another NZ\$30-40m of export value. Estimates were made using OANZ sources, industry consultants or sector-group leaders. These were checked against reported data from similar sized export firms in the same product category.

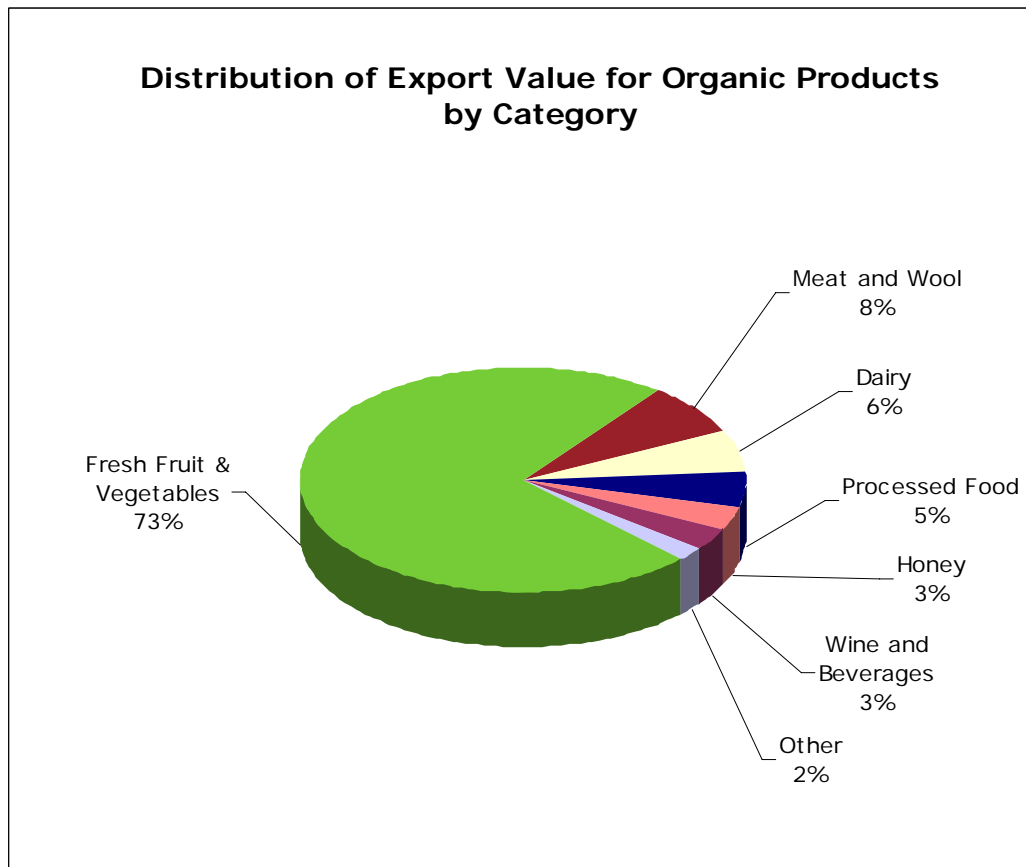
As a result, there is a strong degree of confidence in the total market estimate and its error range.

Figure 2: Exports by Product Category, 2002



In 2002, the organic export market was dominated by fresh fruit exports, with secondary contributions by processed vegetables and meat and wool. There was considered to be a low survey response rate from another second level contributor – honey.

Figure 3: Exports by Product Category, 2007



The 2007 figures show some interesting comparisons with the composition of the export industry in 2002:

- The Fresh Fruit and Vegetables category has remained fairly similar to the earlier figure. Clearly, this product group still strongly dominates organic exporting (comprising primary kiwifruit and apples).
- Most of the second-level export industries – Meat and Wool, Processed Food (including processed vegetables), and Honey - have retained, or only marginally changed their share of the export sector.
- The key emerging sector is Dairy, entering export figures for the first time in a significant way – clearly reflecting the entry of Fonterra (and a small group of specialist organic dairy firms) into organic exporting.

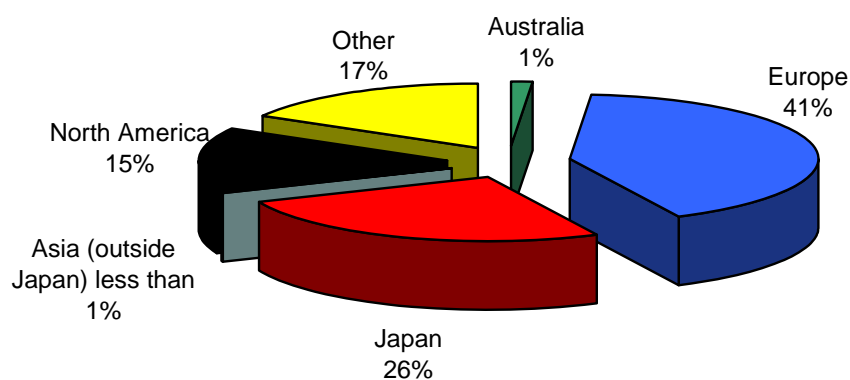
Table 3: Exports by Value, 2007

Categories	Value
Fresh Fruit & Vegetables	\$88,363,045
Meat and Wool	\$8,916,695
Dairy	\$6,986,126
Processed Food	\$6,123,703
Honey	\$3,959,975
Wine and Beverages	\$3,891,492
Other	\$2,168,052
Total	\$120,409,088

While the proportion of export sector share remained similar for many of these product categories, the overall increase in the total size of the export market suggests that for all these first and second-level export categories, there has been strong and continued growth in the value of export markets.

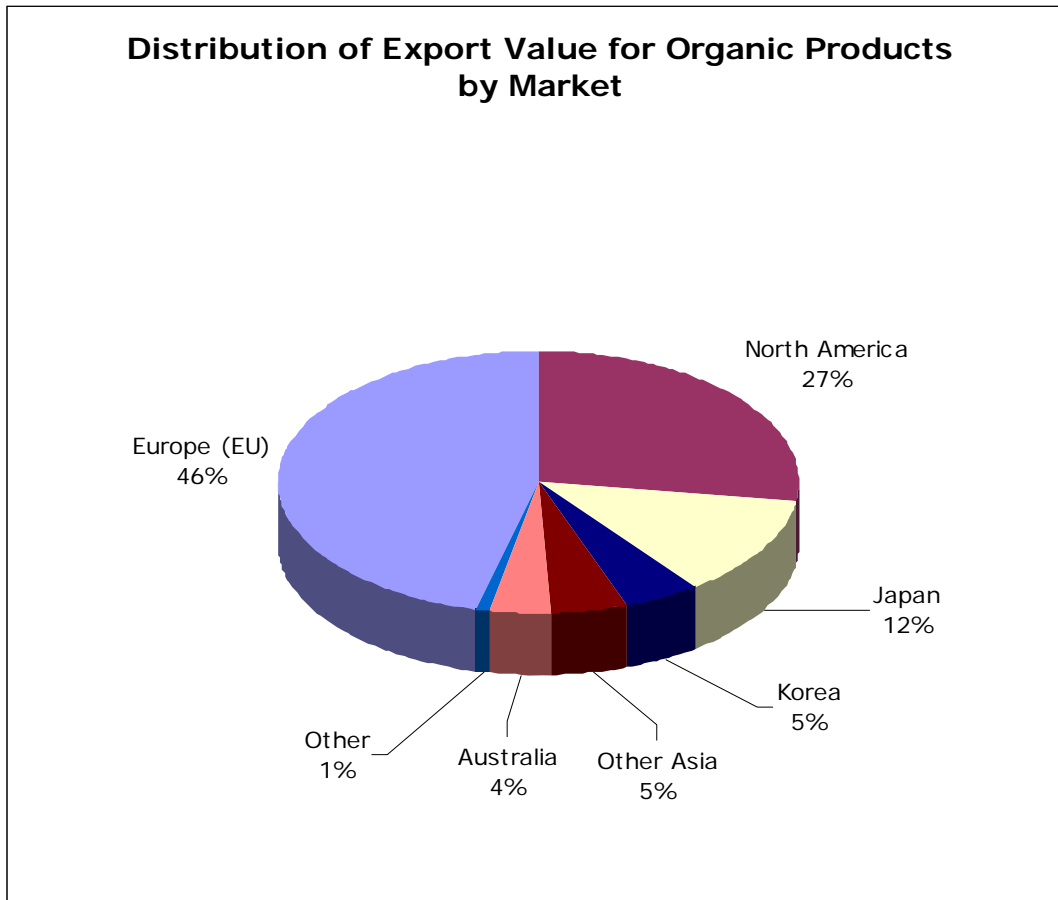
Figure 4:

New Zealand Organic Export by Market
Source: OPENZ Member Survey 2001/2002



In 2002, the organic export market was dominated by demand from Europe and Japan – particularly for fresh fruit exports. This proportion had changed by 2007.

Figure 5: Destination Markets for Organic Exports 2007



The key changes between 2002 and 2007 are:

- A strong increase in the importance of the US market (from 15% to 27%)
- A relative decline in the importance of the Japanese market (from 26% to 12%)
- Emerging markets in Australia, Korea and in Other Asian countries.
- Only a very small percentage of exports outside the major destinations.

7. Survey of Retailers

Three case studies of retailers were conducted to provide some insight on changing retail dynamics in the domestic market for organics:

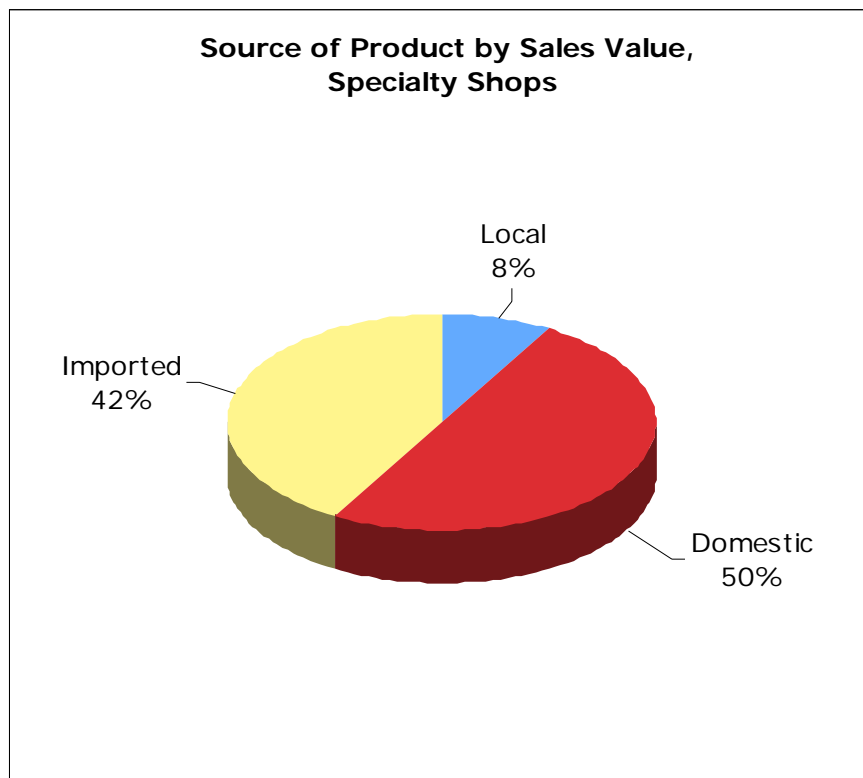
- Point-of-sale study of Dunedin retailers.
- Study of Farmers' Markets
- Survey of Specialty Organic Shops.

The results of the Dunedin retailers and Farmers' Markets case studies will be presented in the Full Report of this project along with case studies of specific emerging organic businesses.

Unfortunately, the survey of Specialty Organic Shops experienced a low response rate. The level of response was too low to allow for any extrapolation of the *total size* of retail activity in these this important organic market channels.

The survey exercise did allow for some interesting data to be collected, and some brief summaries are presented here with the understanding that these do not represent a statistically significant sample of either retail category.

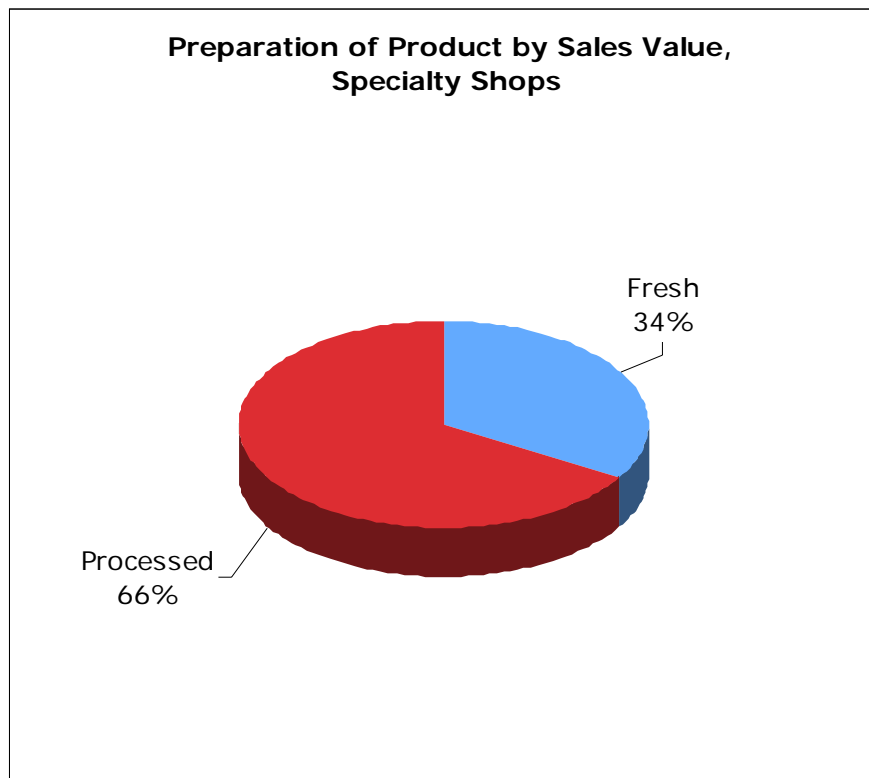
Figure 6:



The specialty shops were surveyed as to the geographical source of their organic products. The category of local food was defined as 'coming from within 50km of their retail outlet'. Domestic represented product sourced from elsewhere in New Zealand.

Even this limited sample of specialty shops showed the importance of imported organic food in the New Zealand domestic market. This proportion is suggested to be much higher in supermarket retailing.

Figure 7:



Specialty shops were also asked about the relative proportion of their products that were fresh or processed.

8. Survey of NZ Households

For the first time, a survey dedicated to organic consumption trends was administered to a random sample of 1000 households across New Zealand. A total of 302 completed surveys were received for a response rate of 33%.

The household survey contained questions regarding purchasing patterns of organic foods as well as consumers' perceptions of organics and demographic data¹. Purchasing patterns related to seven different categories of organic food designed to reflect the exporter's survey – fresh fruit, fresh vegetables, honey, meat, wine and beverages, dairy products and processed foods. Purchasing patterns varied according to category. These results are shown in Table 4.

¹ Comparison of the demographic data with NZ Census data showed that household size and income level of respondents was representative of NZ as a whole. Respondents were predominately female but were the ones responsible for shopping in the household. Respondents were better educated than for NZ as a whole. The sample size - just over 300 - means that proportional data has an error of ± 0.05 at the 95% confidence level.

Table 4: Percentage of Households Purchasing Organic Produce by Food Category

Produce	% of households purchasing	Average monthly cost \$/household
Fresh fruit	23	15
Fresh vegetables	26	10
Organic Honey	7	7
Organic meat	9	30
Wine and beverages	9	10
Dairy produce	17	10
Processed Food	22	15

Respondents purchased products at differing retail outlets according to the individual categories. See Table 5. Some respondents indicated that their organic products were home grown – in the case of fruit and vegetables – or home produced (honey) or from hunting (venison). These respondents were not included as purchasing households.

Table 5: Organic Purchasing Retail Outlets

Produce	Supermarket %	Specialty store %	Farmers' Market %	Total
Fresh fruit	37	30	33	100%
Fresh vegetables	34	30	36	100%
Organic Honey	25	33	42	100%
Organic meat	46	36	18	100%
Wine and beverages	41	14	9	64%*
Dairy produce	71	13	8	92%*
Processed Food	63	25	5	93%*

* Does not include "Other" outlets such as cafes

Different outlets have different market shares according to the category of product. Supermarkets dominate the Wine and Beverage, Dairy and Processed Food categories. Specialty organic stores have the smallest market share for all categories except Honey. Farmers' markets have strong market shares in the fresh fruit and vegetable areas.

Based on the percentage of households purchasing within categories and the average monthly costs, an estimate of national spending was calculated using the following formula:

Total Annual NZ spending =

$$\left(\sum_{\text{categories}} (\% \text{ of households} \times \text{average monthly spending} \times \text{number of NZ households}) \right) \times 12$$

(Number of NZ households = 1,427,386 from Statistics New Zealand)

Using this formula, Total Annual NZ spending is estimated at \$NZ 259million ± \$NZ50m. This equates to per capita spending of \$NZ61 ± \$NZ1. Based on total NZ grocery spending of \$NZ 22billion, organic produce has a market share of 1.18% ± 0.19%.

9. Consumer Perceptions of Organic Food

Respondents to the Household Survey were also asked to describe what the terms “Organics” and “Organic Certification” meant to them.

- For most respondents, “organic” means “grown without artificial inputs – pesticides and fertilizers” but for a small number “organic” means “expensive”
- For most respondents, “organic certification” means “grown organically with some sort of accreditation process to ensure that rules are followed”. There were differing amounts of time given for accreditation from 2-7 years. For a small number, the term had no meaning.

A number of questions to determine, respondents’ perceptions were also asked. A set of questions related to the attributes respondents saw as being important in food (see Table 6). Respondents considered that food should be free of artificial ingredients, pesticides and chemicals, genetically modified organisms, preservatives, and be as unprocessed as possible.

Table 6: Desired Characteristics of Food

	Strongly Disagree		Strongly Agree		Mean	
	%		%			
Contains no artificial ingredients	3	8	29	26	34	3.81
Contains no pesticides and/or other chemicals	2	7	24	28	38	3.93
Contains no genetically modified organisms	6	6	21	20	48	3.98
Has not been irradiated	5	10	26	19	40	3.79
Contains no preservatives and/or artificial flavoring	5	12	32	26	25	3.53
Contains no hormones and/or antibiotics (in meat)	3	7	16	24	50	4.11
Contains all natural ingredients	4	7	27	27	37	3.86
Is as unprocessed as possible	4	5	20	29	42	4.00

Further questions related to respondents’ perceptions of organic produce and production (see Table 7). This list of perceptions was designed to reflect commonly repeated positive and negative claims about organic food. Respondents perceived organic production as being safer for the environment than other production methods. In addition, organic food was also perceived as being better for health than food produced using conventional methods and tasting better than food produced using conventional methods. There was, however, a perception that organic food was more expensive than food produced using other means and is, in fact, overpriced.

Table 7: Perceptions of organic produce and organic production

	Strongly Disagree %			Strongly Agree %		Mean
Organic food is no safer than ordinary food	27	24	30	12	7	2.48
Organic farming uses less pesticides and herbicides than conventional farming	3	3	8	31	54	4.29
Organic food is more expensive than conventional food	3	2	9	24	63	4.42
All NZ farming production is already “clean and green”	35	25	31	6	3	2.17
It is worth paying more for organic food	12	17	39	19	12	3.03
Organic farming is as sustainable as conventional farming	8	16	42	21	13	3.13
Only “greenies” buy organic food	30	26	25	13	6	2.39
Organic farming systems help to improve the environment	3	7	25	30	35	3.88
Conventional farming uses more pesticides and herbicides than organic farming	3	4	13	29	52	4.22
Organic food is more nutritious than conventional foods	9	13	35	23	20	3.31
Conventional farming practices are already sustainable	13	19	49	13	7	2.81
Organic food is overpriced	4	5	21	29	40	3.96
Organic food looks worse than conventional food	10	14	40	26	11	3.13
All New Zealanders could benefit from eating organic foods	7	7	26	27	34	3.75
Organic food tastes better than conventional food	8	9	37	25	21	3.43
Organic food has a premium price for no genuine benefit	15	24	33	19	9	2.83

These results were interesting in that they show that the ‘core’ messages that are promoted around organic food – particularly around organic benefits to environment, health and taste – are reflected in consumer perceptions. Of the main public critiques of organic food, only the charge that organics is expensive was supported by consumers.

10. Preliminary Conclusions

Overall, the evidence points towards steady and sustained growth in the organic sector both in terms of domestic and international markets. While the overall food retail market has been growing at around 5% per annum in New Zealand, the organic market has outpaced this by some margin.

Given that there had been no research undertaken for five years, the eventual findings should provide considerable confidence in many part of the organic sector. Overall land area in certified organic production and the number of licensees and organic operations has grown at a steady rate. The number of licensees was lower than initially expected, but the land area under certification exceeded most industry expectations. Market demand evidenced by positive consumer sentiment both home and abroad should continue to underpin this growth in organic producers and land area.

Early interviews with exporters suggested that many were cautious about the rate of growth of organic exports over the last five years – especially as figures in the 2001/2002 period had

showed some signs of having plateau. This turned out to be a temporary halt in growth. Key export market findings are that:

- The overall export market has continued to grow at a healthy rate since 2002 reaching between NZ\$120-130m in 2006.
- Some important new markets have opened up in Asia. The US and Australian markets have also increased.
- Established organic exporters have continued to prosper, particularly in fresh fruit exports of apples and kiwifruit.
- Second level exporters in areas like Meat & Wool and Honey have continued to consolidate and grow.
- The entrance of Dairy exports at significant levels for the first time hints towards a major potential future contribution in this product category.
- It is important to also note the proliferation of small and niche organic export businesses that have entered the market in the last five years. This new group also promised to underwrite future growth and will prove an important site of innovation for the future.

The domestic market has shown strong growth, although figures in 2001 may have significantly underestimated the then size of the organic domestic market. Key findings were:

- Strong growth in the domestic market was primarily driven by supermarket growth, but also showing evidence of emerging niches like farmers' markets.
- Specialist organic retailers have not retained their prior market share.
- The range of processed organic goods continues to increase and is largely underwritten by imports of such products.

The domestic market proved difficult to survey with a high degree of accuracy due to low response rates from organic retailers. The household survey was used to predict a national level of monthly spending on organics, and this indicated a domestic market of \$259m, but with a wide error of +/- \$50m. This figure suggests around a 1.1% retail market share, which is still low compared to many European countries.

The survey of consumer perceptions of organic delivered some interesting findings that will be useful for benchmarking longer term shifts in consumer attitudes to organics (and food more generally). Key findings include:

- Overall, positive consumer sentiments about core organic messages, reinforcing that organic is perceived to be positive for environment, health, and delivers better tasting food.
- There was a low level of consumer support for commonly circulated negative claims about organic food – particularly that organic food is not produced sustainably, or has no tangible benefits.
- Consumers supported the idea that organics was a good option for all New Zealanders.
- The key negative finding in the consumer survey was that organic food is too expensive.

Overall, these results indicate strong growth in some parts of the organic sector, and steady growth across all parts of the market. More importantly, some of the key shifts since 2002 suggest sites of strong future growth potential in the organic sector.

11. References

Albertson, J. (2007). *The Retail Market in New Zealand: An Analysis*. NZ Retailers Association, March 2007.

Campbell, H. and Ritchie, M. (2002) *The Organic Food Market in New Zealand: 2002*. CSAFE Research Report No. 1. Centre for the Study of Agriculture, Food and Environment. University of Otago: Dunedin.

Coriolis Research Ltd. (2005) *Mapping the Structure of the NZ Food and Beverage Sector*. Coriolis Research Ltd. November 2005.

Martech (2003) *Organic Sector Strategy*. Martech Consulting Group: Wellington.

OPENZ (2002) *Annual Report 2002*. Organic Products Exporters of New Zealand: Christchurch.

OPENZ (2003) *Annual Report 2003*. Organic Products Exporters of New Zealand: Christchurch.

Yussefi, M. and Willer, H. (2002) *Okologische Agrarkultur Weltweit 2002 - Organic Agriculture Worldwide 2002*. Sol Sonderausgabe: Nr. 74. Stiftung Okologie and Landbau (SOL): Bad Durkheim.