VG98007

Export Opportunities for Frozen Organic and Low Chemical Residue Vegetables in East Asia and the European Union

R Ada, M Lakin and P Shannon
Department of Primary Industries
Queensland

Know-how for Horticulture™

VG98007

This report is published by the Horticultural Research and Development Corporation to pass on information concerning horticultural research and development undertaken for the vegetable industry.

The research contained in this report was funded by the Horticultural Research and Development Corporation with the financial assistance of the vegetable industry.

Cover price: $22.00 (GST Inclusive)
HRDC ISBN 0 7341 0102 3

Published and distributed by:
Horticultural Research & Development Corporation
Level 6
7 Merriwa Street
Gordon NSW 2072
Telephone: (02) 9418 2200
Fax: (02) 9418 1352
E-Mail: hrdc@hrdc.gov.au

HORTICULTURAL RESEARCH & DEVELOPMENT CORPORATION

Partnership in horticulture

Report Series QO00008

Export Opportunities for Frozen Organic and Low Chemical Residue Vegetables in East Asia and the European Union

Project Number: VG98007

Rick Ada
Michelle Lakin
Prue Shannon

QUEENSLAND GOVERNMENT

DPI QUEENSLAND DEPARTMENT OF PRIMARY INDUSTRIES

HRDC

Department of Primary Industries, Queensland • Brisbane • June 2000

QO00008
ISSN 0727-6281

Project Number VG98007 Export of Frozen Low Chemical and Organic Vegetables to East Asia and the European Union is a Horticultural Research and Development Corporation funded project and was completed in June 2000.

Project Leader

Mr Rick Ada
Principal Agricultural Economist
Department of Primary Industries, Queensland
(07) 46881388

Team Researchers

Ms Michelle Lakin
A/Senior Marketing Officer
Department of Primary Industries, Queensland
(07) 54662268

Ms Prue Shannon
Marketing Officer
Department of Primary Industries, Queensland
(07) 54662271

The authors acknowledge the assistance of Kerry Miles and Rob Doolan in the development of this project.

TABLE OF CONTENTS

TABLES

FIGURES:

APPENDICES

Acknowledgments

The authors are grateful to the Horticultural Research and Development Corporation (HRDC) for providing funding support for this project.

The authors express their appreciation to the Senior Executives and Category Managers from importing, wholesaling and retailing organisations in Japan, the United Kingdom, France and Germany who contributed their time for interviews and provided valuable information for compilation of this project.

The authors also thank Nigel Trail from the Queensland Government Office in Tokyo, Peter McDonald and Catherine Casey from the Queensland Government Office in the United Kingdom, Veronica Comyn from the Queensland Government Office in Paris, and Ralf Schindler from the Queensland Government Office in Munich for their assistance with the in-market research.

We give special recognition to the project consultative committee members, Ray Huggins, Pat Consen, Kevin Niemeyer, Peter Deuter and Craig Henderson for their advice and input into the research and findings. Special recognition is also extended to Brett Tucker (Rural Trade Officer, Bundaberg) for his assistance with the in-market research.

Kerry Miles and Rob Doolan (Department of State Development), Andrew Monk (Biological Farmers Association), Adam Wilson (Soil Systems) Ross Cowling (United Organics) and Warwick Lee also provided assistance with this project.

The economic analysis has been prepared with assistance from Julian Wynch, Valley Crop Monitoring, Gatton, Brian Richardson and Rod Menzies, Farm Financial Counselling Services, QDPI, and technical staff at Queensland Horticulture Institute, QDPI, Gatton Research Station.

EXECUTIVE SUMMARY

In-market research revealed significant potential for Australian organic products in both the European Union and Japan. The consumer is now demanding that they be given the *choice* between organic and conventional food, based on their concerns for health, food safety, genetically modified products and environmental issues.

The study found that in each country, there were significant variations in the demand and availability of organic food products. While demand is stronger for fresh organic food, the demand for frozen organic products continues to rise. Demographic changes, such as the increasing number of women in the workforce, rising single households, and consumers spending less time on food preparation, are factors increasing the demand for convenience products and expanding the market for frozen organic foods.

Within each target country the frozen organic market was found to be clearly underdeveloped, with a limited range of frozen organically produced foods available for purchase. New products that can match the range available in conventional produce are in high demand.

Interviews with major supermarkets and importers of organic products within each target market, confirmed that price premiums for organic products are generally 20–40% higher than conventional produce. However, premiums of between 100–200% are being paid for products in extremely short supply. Premiums depend on product availability (i.e. the shorter the supply the higher the premium) and normally reflect additional costs of production incurred by producers. Prices can also be distorted as a result of the costs associated with handling small quantities.

The demand for reduced-chemical products appeared to be low, with the emphasis on organic food. However, there may be future opportunities for food produced under Integrated Crop Management (ICM) techniques, with an increasing number of large food companies supporting ICM practices.

Many farmers across the European Union are aware that consumers are keen to purchase value for money, safe and environmentally friendly products, and have therefore undertaken to reduce chemical inputs, without sacrificing supply and quality. The Japanese have also developed a reduced chemical standard, with an increasing number of Japanese retailers sourcing reduced chemical residue products for their stores. This is in response to the difficulties faced by Japanese farmers in being able to deliver a certified organic product due to hot growing conditions that enhance pest and disease problems.

Major retailers however, are still concerned that it is difficult for customers to distinguish low chemical products from conventional ones, as there is no certification system. Jusco recognises the need to establish their own set of standards for low chemical produce, in order to send a clear message to consumers.

1.0 United Kingdom

Demand within the UK for organic foods continues to rise. The market for organic food in the UK is valued at around A$2.5 billion, and is expected to increase to A$14 – $17 billion by the year 2006.

The high level of imports of organic vegetables (accounting for approximately 70% of organic vegetables sold) is due to low domestic production.

The Soil Association is Europe's leading certifying organisation and is a membership charity dedicated to research and promotion of organic agriculture and its links with health and the environment. The Soil Association is active at all levels in establishing organic farming as part of mainstream

agricultural policy, globally, in the European Union, with the UK government and locally through its Local Food Links initiative. It is the largest and most respected scheme in the UK and offers an unparalleled promotional opportunity for businesses wanting to identify themselves in the organic marketplace (Soil Association Certification Limited, 1998).

Sainsbury's and Tesco are the UK's two leading supermarkets and together control over one third of the organic market. Interviews with the major supermarket chains (Tesco, Sainsbury's, Waitrose and Marks and Spencer) confirmed that they are attempting to cater to the increasing demand for organic foods by providing quality organic produce on their shelves. The supermarkets reported however, that they are finding it difficult to fully satisfy demand due to specific climate requirements for production of certain produce, and the high cost of becoming an organic producer.

All major supermarkets within the UK prohibit the sale of genetically modified products in their stores and have developed quality assurance programs accordingly to prevent genetically modified food entering their food supply or retailing systems. This is also in response to consumer demands for foods that are free of genetically engineered ingredients.

The study found that frozen food consumption within the United Kingdom is twice that of any other country within the European Union. The reluctance of consumers to spend time on food preparation has resulted in this strong demand for frozen organic vegetables with the most popular products being vegetable mixes, peas and beans.

In 1996, 613 000 tonnes of frozen vegetables were sold in the UK, a market worth approximately A$4084 million. Actual import figures for frozen organic produce are not available, as frozen organic vegetables do not have a specific code. Imports of frozen organic vegetables are therefore included in total frozen vegetable import figures.

2.0 France

Many French consumers are concerned about the healthiness of their food and are seeking organic products. Surveys have identified two types of organic-food consumers in France. First, those who will purchase only organic products, and do so on a regular basis (6% of all consumers), and second, those who will buy organic foods occasionally (23% of consumers). According to Bonneterre Director, Mr James Serive, consumer surveys indicate that more than 50% of France's population would purchase organic foods with product price not being an initial purchasing consideration.

The organic market in France is still small at around A$100 million per annum, with organic food sales believed to be between 0.3% and 0.6% of the market. The market is however, growing at a rate of 15% per year and represents a rapidly growing niche market. The frozen food sector also represents a rapidly growing market. Increasing demand for convenience in food preparation will continue to boost sales of frozen food products. The market is predicted to increase by 29.6% in volume and 24% in real value, an indication of the creeping commoditisation brought about by a significant own-label presence within the frozen food market.

Organic food products in France are distributed through four different retail segments: health food stores (which represent 39% of total organic food sales); supermarkets (27.5%); open air markets and direct sales (23.5%); and the 160 'Bio-Coop' organic cooperatives (10%).

At present, 500 of Bonneterre's retailers are selling frozen organic vegetables. Sales average A$24 billion dollars per annum. Cold shelf space, limited product range and poor availability are the major restricting factors to increasing sales.

Interviews with major retailers in France communicated a significant impediment in their ability to service the organic foods market principally due to the lack of regular and reliable volumes required in large retailing. Naturalia (a specialist retailer in France) believes that while this situation exists small specialist retailers will be able to compete with large retailers, however as supply increases and consistent volumes are available, smaller retailers will lose this competitive advantage in being able operate on smaller volumes.

In 1997, France imported 8846 tonnes of frozen vegetables, valued at approximately A$13 276 000. The study found that frozen organic vegetables have only recently entered the market in early 1999. The market has received positive consumer acceptance and has good future potential.

3.0 Germany

Germany is the largest market for organic foods in Europe, with organics representing 1.5% of all food sold in Germany. The study found that German consumers have not only been demanding that a wider variety of wholesome and environmentally friendly products be made available, but they are also becoming increasingly interested in the methods of production, processing, and packaging used to bring the product to the market. This means that from the beginning of the production process to the marketplace, consumers expect all parties concerned to follow environmentally safe procedures.

A number of German retailers, including Rewe, Metro and Tengelmann have begun marketing their own lines of organic food. The Rewe Group, with its Fuelhorn brand of organic products is Germany's market leader in organic foods. Germany has recently opened Europe's largest organic shopping centre. 'Rommelmuehle' contains approximately 6500 square metres of retail space, featuring a broad spectrum of organic, natural and environmentally friendly products under the one roof.

In-market research also confirmed strong growth in the frozen food sector. In 1997, Germany imported 11 344 tonnes of frozen vegetables, valued at approximately A$22 million. Frozen product is generally imported in bulk and repackaged by the importer or manufacturer.

Frozen organic vegetables that are most popular include garden peas, cauliflower, green beans, cut celery, chopped spinach, baton carrots and kernel sweet corn. Demeter (a German organic and bio-dynamic farming cooperative established in 1971) has the largest frozen organic product range in Germany and now includes fried potatoes, carrots, garden peas, cauliflower, corn, spinach, and soup vegetables. Demeter is the oldest and largest organic distributor in Germany, and imports organic product from a variety of countries including Austria, Belgium, Holland and Spain. This organisation looks to source from suppliers in Germany first and then to neighbouring countries for product.

4.0 Japan

With total sales expected to reach US$30–40 billion within the next ten years, research has confirmed that the Japanese market for organic products is forecast to become the largest per capita consumer worldwide.

Important changes to the Japanese food industry have taken place in recent years with an increasing number of consumers placing high priorities on health, safety and value for money. Concerns relating to food safety are increasing, particularly among consumers living within large cities who are becoming more aware of pollution problems and the use of post harvest chemicals.

The Japanese Ministry of Agriculture, Forestry and Fisheries (MAFF) confirmed that there is a wide recognition among Japanese consumers of organic products, and that more than 60% of housewives

purchased organic vegetables for the health and safety aspects of the product and because they 'taste good'.

Organically grown vegetables are attracting the attention of consumers and the food industry alike. They can be purchased through specialty supermarkets dedicated exclusively to organic farm products, special sales corners in major supermarkets and department stores, as well as food service chains that are adding organically grown vegetables to their menu offerings.

In addition to this, Japan's food service industry and manufacturers are also demanding greater quantities of organic frozen vegetables, as they are convenient, easy to use and of high quality.

Jusco, a leading Japanese retailer prefers to stock only organic frozen vegetables as they are currently priced 20–30% higher than conventionally produced vegetables. Jusco would be prepared to drop conventional frozen vegetables from their product range altogether if manufacturers could supply organic in the 10–20% higher price range.

Product categories for which demand is expected to increase include potatoes, spinach, taro (satoimo), broccoli and mixed vegetables. Visits to retail outlets identified that the most popular frozen vegetables in Japan are edamame soybeans and other beans, corn, potatoes, pumpkin and spinach.

5.0 Market Access

All European Union countries have an import tariff of 15.6% on all frozen vegetables. This is a uniform tariff applicable to HS 0710 '*vegetables (uncooked or cooked by steaming or boiling in water), frozen*'. (APEC Tariff Database, 1999).

Australia's certification system is internationally accredited and recognised throughout Japan and the European Union. Australia is seen as having distinctive global strengths and credibility which enables ready access to these markets. Discussions with overseas buyers and importers revealed that Australia is perceived to have:

A clean environment and responsible government approach to maintaining environmental sustainable development.
A large land mass suitable for various food production systems.
Well developed production systems and technical expertise in producing food efficiently.
International recognition and credibility as a food producer.

It should be noted however, that ongoing market access would depend on Australia's ability to maintain the distinction in food sources within the system.

Overall, Australia is perceived by target markets as having major potential to supply both fresh and processed vegetable products, due to counter-seasonal production, and future potential to supply large volumes required to suit consumption needs.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- In-market research supports desktop research and indicates that the market is developing at an even greater rate than initial desktop research indicated.

- A number of organisations, such as Bio-Coop (a retail chain network and producer co-op in France) have been able to adopt and respond to this new market opportunity in a positive and profitable manner over a relatively short period of time (8–12 years). Bio-Coop now operates over 200 retail outlets throughout France, offering over 5000 organic food products with 450 people shopping in each store weekly.

- Conventional consumers are becoming increasingly aware of health and food safety issues, and demanding choice when purchasing food, whether it be conventional, reduced chemical or organic food.

- Consumers **expect** and demand similar or the same products as offered in conventional products. Within each target market, the frozen vegetable market is underdeveloped, with a limited range available for purchase. Frozen organic vegetables and vegetable mixes that can match the range available in conventional products are in high demand.

  Specific products offering the greatest market potential (by target market) include:

United Kingdom	pre-packaged legume products; ready products/meals; catering slim pre-prepared meals.
France	a variety of fresh, dried and frozen fruits; onions; carrots and tomatoes.
Germany	frozen corn; herbs; broccoli; berries; and a variety of fruit.
Japan	frozen potatoes; taro; broccoli; mixed vegetables; fresh lettuce; celery; cucumbers; cabbage; tomatoes and leafy vegetables.

- While the market is underdeveloped, opportunities exist for smaller companies to grow with the market.

- While the demand for reduced-chemical products appeared to be low, with the emphasis on organic food, there may be future opportunities for food produced under Integrated Crop Management (ICM) techniques.

- Australia's certification system is internationally accredited and recognised throughout Japan and the European Union. Australia is seen as having distinctive global strengths and credibility which enables ready access to these markets.

Recommendations

- The in-market research emphasised the fact that there are good market opportunities for Australia in Europe and Japan, however there is a need for rapid action if we are to take advantage of these opportunities.

- The lack of reliable information available relating to organic fruit and vegetable production and market survey data in Australia makes it difficult to assess the rate and pattern of organic

production and market growth. This is hindering our ability to assist the industry to develop and take advantage of the growth in the markets. There is a need to undertake further research to collate production and market data and to develop our extension capacity to ensure that this information is made available to industry.

- There is an opportunity for a more coordinated approach, which would be well received by the marketplace.

- To overcome the difficulties faced by Japanese and European consumers in identifying reduced-chemical produce from conventional produce, reduced-chemical standards need to be developed. An Australian national standard should be developed in accordance with target market requirements, enabling Australian producers to supply this small and expanding niche market.

- Project research report be circulated in food processing circles to inform the market and processors of the opportunities in this market.

- Producers and processors should be encouraged to visit the market and develop networks with key players and appreciate the rate of growth and diversity of product innovation, and to understand the value chain.

1.0 Introduction

1.1 Background

This study was initiated by the Department of Primary Industries Queensland and funded by the Horticultural Research and Development Corporation (HRDC), to identify the potential to export frozen organic and low chemical vegetables to East Asia and the European Union.

This project builds on opportunities identified by the RIRDC Japanese Consumer Cooperative project (Ada R., Queensland Department of Primary Industries, and Kawasaki H., 1997); Fresh and Processed Asian Vegetables (Pan C., 1995), and the current RIRDC 'Clean Agriculture' project, (Parlevliet G. and McCoy S., Agriculture Western Australia, 1998). The project also extends on the market analyses "The International Market for Organic Food" (Doolan R. and Twyford-Jones P., Queensland Department of Primary Industries, 1998).

Certain countries within East Asia prohibit the import of Australian fresh vegetables that have not been sprayed upon departure. Researching the potential for frozen organic vegetables therefore, proposes that phytosanitary procedures in the importing country (in this case Japan), which would destroy the product's organic status, are no longer applicable. Other advantages include:

- enabling producers to tap into a high value and expanding niche market;
- the raw product is value added;
- extended shelf life of the product (enabling the use of sea fright);
- product blemishes which would result in rejection or price reduction can be removed during processing; and
- the product has increased storage life.

1.2 Objectives

The purpose of this study was first to identify and prioritise the major markets for frozen vegetables (including low chemical and organic products), and second, to prepare a detailed analysis of the market opportunities for frozen organic and low chemical vegetables in the East Asian and European Union. A review of production and marketing costs was also undertaken to determine the economic viability of entry to the target markets.

1.3 Methods

The information contained in this report has been compiled from a combination of desktop research, in-market interviews with importers, distributors, retailers, staff from Queensland Government Offices and Ministry of Agriculture Forestry and Fisheries (MAFF) in offices in Tokyo, London, Paris and Frankfurt.

The target markets were chosen on the assumption that the most attractive countries will have strong demand for frozen vegetables (indicating a high level of convenience required); have a high level and growth of frozen vegetable imports; a strong awareness of food safety and environmental concerns; and low barriers to entry. Due to the product being of high value, a high level of income was also considered to be important.

Interviews were conducted with key representatives from the following organisations within each target market. Organisations were selected because of their established presence in and/or knowledge of the organic market in each country

United Kingdom:
Organic Produce Co-operative
Organic Marketing Company
Waitrose Supermarkets
Tesco Supermarkets
Sainsbury's Supermarkets
The Soil Association

France:
Bonneterre
Ministry of Agriculture
Qualité France
Naturalia
'Organic Grower Co-op of the Paris Region'

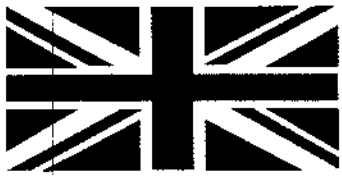
Germany:
Demeter
Austrade
Naturelistik

Japan:
Nichimoto Trading Co. Ltd.
Nichirei Corporation
MOS Food Services Inc.
Ministry of Agriculture, Forestry and Fisheries
Jusco Co. Ltd.
Mammy Mart Corporation

1.4 Approach and Structure

The report consists of two sections: first, a summary of the opportunities existing in the United Kingdom, France, Germany and Japan for Australian frozen organic and low chemical residue vegetables, and second, a review of production and marketing costs to determine the economic viability of entry to the target markets.

2.0 KEY FINDINGS



2.1 United Kingdom

Interviewed:
Organic Marketing Company (Importer/packer/distributor of fresh produce)
Organic Marketing (Importer/distributor of organic products)
Sainsbury's Supermarkets
Tesco Supermarkets
Waitrose Supermarkets

2.1.1 OVERVIEW

The UK is one of the world's largest trading powers and financial centres, with an economy ranking among the fourth largest in Europe, a population of 57.6 million and a GDP per capita of A$20 400.

2.1.1.1 Organic

Demand within the UK for organic products continues to rise. Demand within the UK for organic foods continues to rise. The market for organic food in the UK is valued at around A$2.5 billion, and is expected to increase to A$14 – $17 billion by the year 2006. This market is expected to increase to around US$45 billion by the year 2006. Recent health scares, such as the Mad Cow Disease crisis in the beef industry, greater awareness of nutrition issues and increasing environmental concerns, are increasing the market for organic food by more than 21% per year.

Interviews with the major supermarket chains (Tesco, Sainsbury's, Waitrose and Marks and Spencer) confirmed that they are attempting to cater to the increasing demand for organic foods by providing quality organic produce on their shelves. However, these supermarkets are finding it difficult to meet this demand because of constraints faced by primary producers, including climate constraints and the high costs of becoming an organic producer.

The United Kingdom has one of the highest levels of per capita consumption of frozen food in Europe, with a large variety of high quality products to choose from. The consumption of fresh fruit and vegetables is declining, as consumers prefer the convenience of ready-made meals. This has taken place as a result of shifting demographic patterns, including an increase in the number of smaller households, and the continual trend of women going back to the workforce. *Euromonitor* forecasts that the increasing demand for convenience in food preparation will continue to boost sales of frozen food products. (Brand Strategy, 1997)

There are approximately 860 registered organic producers in the UK with an estimated 50 000 hectares (less than 0.2% of UK agricultural land area) under organic production. This small-scale production has meant that approximately 70% of the United Kingdom's supply of organic produce has been imported, mostly from European countries. This imported percentage is made up of 30% organic vegetable produce, and 40% dairy produce and red meats (Bishop, 1998) The most popular organic products sold in the United Kingdom are fruit and vegetables (65%), cereals (15%), meat (11%), and dairy products (8%).

2.1.1.2 Reduced Chemical Production

Many British farmers are aware of the need for responding to market forces, rather than simply continuing to produce more food. With consumers keen to purchase value for money, safe and environmentally friendly products, modern farming practices requires the reduction of chemical inputs without sacrificing supply and quality. It is therefore the consensus across Europe, among researchers,

government, manufacturers, environmentalists and farmers, that integrated crop management (ICM) is now the way to move forward. This trend is responsible for the establishment of the European Initiative for Integrated Farming (EIF), an alliance of non-governmental organisations in France (FARRE), Germany (FIP), Luxembourg (FILL), Spain (Asociacion Agrofuturo), Sweden (Odling I Balans), Italy (L'Agricoltura Che Vogliamo) and UK (LEAF - Linking Environment and Farming). According to LEAF, ICM is "a whole-farm policy aiming to provide the basis for efficient and profitable production that is economically viable and environmentally responsible". In the United Kingdom, the ICM message is being communicated to both farmers and consumers through the activities of LEAF demonstration farms.

There are currently around 1600 farmers participating in ICM programs in the UK, and around 10000 across the whole of Europe, a number that is constantly increasing.

2.2 FROZEN VEGETABLE MARKET

In 1996, there were 613 000 tonnes of frozen vegetables sold in the United Kingdom, a market worth approximately A$4084 million. In this same year, the per capita consumption of frozen vegetables was 10.9 kg, with a per capita expenditure of approximately A$30 (Pallister, 1997). Table 1 shows the retail sales value (£) of the UK Frozen Vegetable market (excluding chips), from 1992 to 1996.

Table 1: Retail Sales Value of the UK Frozen Vegetable Market, 1991–1996

Year	Retail Sales Value (million £)
1992	443
1993	451
1994	456
1995	466
1996	490

Source: Key Notes Report, 1997

In terms of per capita consumption of frozen foods, Great Britain is the leading country throughout Europe, (in fact, the United Kingdom's per capita consumption of frozen food products is twice as high as any other European country). In 1996, the largest selling frozen food sector was frozen peas, with a value of £151 million. "Frozen peas and other green vegetables are the most popular frozen food purchases, with household penetration around 87.1%." (Key Notes Report, 1997)

2.3 VOLUMES

There is minimal domestic organic production of fruit and vegetables with imports generally accounting for approximately 70% of organic produce sold.

Actual import figures for frozen organic produce are not available, as frozen organic vegetables do not have a specific code. Therefore, imports of frozen organic vegetables are included in general frozen vegetable import figures. UK imports of frozen vegetables from 1995 to 1998 can be seen in Table 2.

Table 2: UK Imports of Frozen Vegetables

Year	Quantity (metric tonnes)	Value ($US '000)
1995	146 793	119 723
1996	124 364	121 124
1997	146 066	120 893
1998	182 297	159 662

Source: FAOSTAT Database Results, 1999

2.4 SUPPLIERS

More than half of the locally produced organic food is sourced from two major distributors: *Organic Farm Foods* (28%), and *Organic Farmers and Growers Limited* (35%). There have been significant increases across the UK in area planted to organic vegetable production, with more progressive growers working towards large-scale production of a wide range of organic vegetables. Cabbage, cauliflower and broccoli account for around 40% of area devoted to organic production. Table 3 lists the United Kingdom's estimated tonnage of UK produced organic vegetables, traded within the 97–99 period.

Table 3: UK Production of Organic Vegetables (tonnes)

COMMODITY	1997–98	1998–99
BEETROOT	500	550
CABBAGE	6,000	6,000
CAULIFLOWER	90,000	90,000
LEEKS	400	400
PARSNIPS	600	650
SALADS	1,000	1,000

(Source: Soil Association, 1998)

The two major international suppliers of organic vegetables to the UK in order of volumes supplied are the United States and New Zealand. Other suppliers of organic foods include Denmark, Austria, Finland, Spain, South Africa, Argentina and Australia.

In 1999, Australia exported just A$13 500 worth of frozen vegetables, of which $11 524 was supplied from Queensland. Frozen vegetable exports to the UK from Australia, for the period 1995–1999 ranged from just 650kgs in 1995 to 16500kgs in 1997. (refer Figure 1).

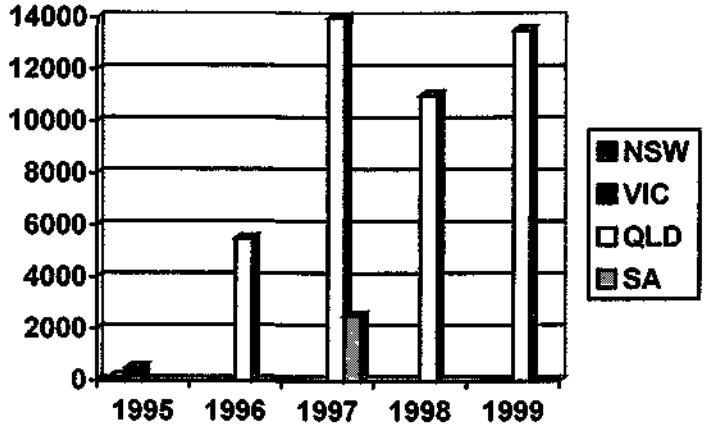


Figure 1 Australian Frozen Vegetable Exports to the UK (by State) 1995–1999 (KGS)

Source: Government Statisticians Office

2.5 RETAIL

Supermarkets visited in the UK included Waitrose, Sainsbury's and Tesco supermarkets. The major multiple 'chain' supermarkets dominate the grocery market, accounting for 75% of all retail grocery sales in the UK. Sainsbury's and Tesco, the two leaders, together control over one third of the grocery market. The top four (including Waitrose and Marks and Spencer) accounts for approximately 60% of the market. The remaining 25% of organic retail sales take place through independent supermarkets (20%), and health food stores (5%).

2.5.1 Organic

2.5.1.1 Sales Volumes

Tesco supermarkets received A$73 million in organic sales in 1997 and A$114 million in 1998 (of which 1–2% was frozen/processed vegetables and 40% was fresh fruit and vegetables). Sales in 1999 are predicted to increase to up to A$250 million. Organic foods are the fastest growing sector of Tesco's business and anticipated turnover of organic foods is A$350 million within 12 months, representing a growth of 100% in one year.

Tesco supermarkets believe there are two significant market segments for frozen organic vegetables:
- shoppers requiring products which will make meals easier and more convenient;
- shoppers seeking prepared pre-cooked meals.

Sainsbury's sales of organic food in 1998 reached A$4.8 million per week, or approximately A$250 million for the year. Discussions with produce buyers revealed that they are expecting sales to increase rapidly, with consumer interest in organics reaching an all time high, and up to 40% of shoppers now claiming to buy organic produce.

Waitrose supermarkets have experienced a growth of 77% in organic vegetable sales over the last 12 months. Organic vegetables currently represent around 10% of their total sales, however they are expected to reach 15%.

2.5.1.2 Product

Sainsbury's and Tesco offer a full range of organic fruit and vegetables, which account for 60% of all organic fruit and vegetable sales. Waitrose lines include fresh cuts and pre-packaged organic salads.

Sainsbury's Supermarket (UK) Fresh Organic Display

Tesco supermarkets are moving towards mirroring business units with category teams, for example a category team for organics would consist of :

- Salads and Vegetable Category Manager
- Fruit Category Manager
- Meat Category Manager
- Poultry Category Manager
- Dairy Manager

Waitrose are also heading in the same direction and are currently appointing an Organic Foods Category Manager. New suppliers would then approach the Category Manager with new products which would then be assessed for their suitability, volume and price. Waitrose also operate under a preferred supplier program.

The organic frozen vegetable market is underdeveloped with a limited range available for purchase. Frozen organic vegetables available in-store included frozen organic sweet corn, peas, cauliflower and oven chips. Frozen organic vegetables and vegetable mixes therefore, which can match the range available in conventional produce are in high demand. Other products sought by supermarkets include pre-packaged legume products, ready products or meals, special order service products such as catering slim prepared meals and products that add value and provide significant benefits to customers.

Although there is a general demand for most frozen products in the United Kingdom, pre-prepared vegetable mixes are predicted to experience high growth. Consumers in the United Kingdom are shifting towards those products that are value-added.

Tesco Supermarket (UK) Frozen Organic Range

The United Kingdom is a well-developed frozen food market with many products forming an important part of consumers' diets. New product development entices the consumer to diversify into more premium products e.g. frozen sliced mixed peppers. New products tend to be variations on a theme, rather than a radical new concept. Birds Eye Wall's have recently launched a new range of frozen ready meals – *Make A Meal.*

Tesco Supermarket (UK) Frozen Ready Meals

2.5.1.3 Price

Price premiums are generally 20%–40% higher than conventional products, however premiums up to 200%–300% have been paid for products in extremely short supply. Premiums tend to decrease over time as volumes and supply improves. In addition to this, higher prices can also reflect additional costs of production incurred by producers.

Table 4: Retail Prices for Frozen Organic Vegetables

Sainsbury's Product	Price $	Tesco's Product	Price $
Nutana Sweet Corn (500g)	3.2	Sweet Corn 454g (1 pound)	2.4
Nutana Beans (500g)	3.2	Cauliflower 454g (1 pound)	2.4
Nutana Peas (500g)	3.2	Peas 454g (1 pound)	2.4
Four Seasons Organic Chips (907g)	3.2	Oven Chips 907g (2 pounds)	3.2

2.5.1.4 Promotion

Supermarkets in the UK each have their own organic section, usually positioned at the entrance of the store. These sections are clearly promoted as organic with information available on the meaning of 'organic', promotional displays and a wide range of products available.

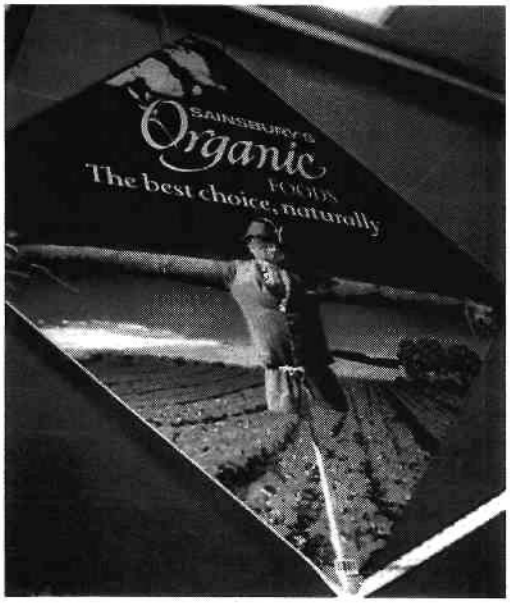
Sainsbury's, refer to the concept as their 'store-within-a-store scheme', a designated area called *The Organic Shop* containing over 500 organic lines. According to Sainsbury's, consumers want to be able to find organic food quickly and easily distinguish it from conventional products.

Organic foods are currently sold under multiple brands however all three major supermarkets (Sainsbury's, Tesco and Waitrose) have developed their own organic brand, coordinated through the UK organic certifying organisation, the *Soil Association*. All supermarkets recognise an IFOAM (International Federation of Organic Agricultural Movements) accredited brand.

Waitrose supermarkets support regional promotional programs. Florida's State Department of Agriculture coordinated a promotional campaign in Waitrose stores with their own organic producers. It was suggested that similar campaigns could be developed for entry of Australian organics into Waitrose stores.

Tesco supermarkets promote organic product on the following basis:

- product provides value for money
- generic marketing along product lines
- product taste and flavour
- product in-store tastings
- maintaining product value
- no discount promotion



No price reductions are offered on organic produce by Tesco supermarkets. Instead, promotions such as "buy one get one free" are effective in lifting sales (e.g. the volume increases from 10% to 170%–300% and settles at 150% after the promotion). Tesco believe that it is better to attract market share through 50% free deals rather than customers expecting cheaper prices.

Other promotional activities undertaken include the operation of a Tesco Club Card System, a Tesco web page and a Tesco Consumer Information Centre. All promotion focuses on securing customer loyalty.

Sainsbury's supermarkets have a standard advertising program called "Scare-Crow" which represents an organic, traditional and old-fashioned production system.

2.5.1.5 Packaging

Frozen vegetables are usually repackaged by the importer or manufacturer and then distributed to the chain stores.

Tesco Supermarket (UK) Fresh pre-packaged produce

All fresh organic produce is pre-packaged so that the produce is easily identifiable to checkout operators.

Frozen organic vegetables are purchased in either a 454g (1 pound) or 907g (2 pounds) pack. Packaging displays the Soil Association Organic Standard Logo on the front of the bag and includes production notes on the back of the bag, providing information on the producer cooperative and their organic certification.

2.5.1.6 Supplier Requirements

Suppliers of organic food to major supermarkets such as Tesco, Sainsbury's and Waitrose must be registered with the Soil Association, the largest organic certifying association in the UK.

All major supermarkets in the UK prohibit the sale of genetically modified products in their stores and have developed quality assurance programs accordingly to prevent genetically modified food entering their food supply or retailing system.

Tesco supermarkets seek suppliers to develop their own product specifications specific to their own products. They also see the manufacturer as technically mature and corporately responsible for their product specifications, food safety and innovation. They operate a HACCP (Hazard Analysis Critical Control Point) audit program and believe they have developed a quality assurance program more stringent than ISO9002.

Sainsbury's have developed an SOS (Sainsbury's Organic Suppliers) club, which consists of 18 core preferred organic food suppliers. Category Managers develop market programs through members of the SOS club. Sainsbury's operate within ISO9002 quality standards in conjunction with individual product specifications.

Waitrose have shelf-life testing programs in place for all products. All products require a Waitrose Accreditation before final approval and are directed towards an approved supplier channel. They operate a non-inspection supply system, which relies on suppliers taking full responsibility for both food safety and quality assurance. A HACCP audit program is also implemented on approved suppliers. Waitrose do not inspect products entering its distribution system.

Waitrose require a 3-4 month lead-in period for new products and products should be presented in portion controlled packaging, which is suitable for customer purchasing needs. A taste panel is a popular way to gauge customer suitability to new products.

2.5.2 Reduced Chemical Residue Demand

In 1991, the NFU-Retailer partnership was formed consisting of the National Farmers Union (representing farmers and growers), processors and major retailers such as Sainsbury's, Tesco, Waitrose, Marks and Spencer and ASDA stores. In October 1997, the Assured Produce Scheme (APS) was launched by the partnership, which independently verifies grower compliance with ICM protocols. There are a number of other organisations in the UK involved in ICM including Less Intensive Farming and the Environment (LIFE), Integrated Farming Systems (LINK-IFS), Focus on Farming Practice (FOFP), Farming and Wildlife Advisory Group (FWAG), Targeted Inputs for a Better Rural Environment (TIBRE), Rhone Poulenc's Management Study (RPMS) and Linking Environment and Farming (LEAF).

The partnership was formed when it became clear to the NFU and retailers in the UK that action needed to be taken to address consumers' concerns regarding food safety and environmental impacts from food production. ICM production techniques result in crop production that is both economically and environmentally sustainable.

According to Sainsbury's supermarkets, all crops within the UK used for packed frozen vegetables have ICM protocols . The majority of frozen vegetable suppliers have already joined the scheme, including Birds Eye Wall's, who are now actively promoting the use of ICM techniques. Birds Eye Wall's is one of a large number of well-known companies who promote integrated farm management and environmentally responsible agriculture. Other major companies include Heinz, McCains, J.S. Frozen Foods Limited, Weetabix and Tendafrost.

By the year 2001, it is expected that all fresh and frozen produce suppliers will have joined the scheme and had their production verified. Slower progress has been made with international suppliers of frozen produce due to limited influence in those countries, particularly where only small proportions are purchased. Sainsbury's have however, begun to work in partnership with other European Retailers. In 1997 the Euro-Retailer Produce Working Group (EUREP) was established to work towards Europe-wide minimum production standards and develop common guidelines for ICM. (see Appendix E).

Tesco Supermarket (UK) Frozen Reduced Chemical Residue Product

Waitrose however, did state that they find low chemical vegetables difficult to market, as it is difficult to deliver a coherent message and explain to consumers what 'low chemical' actually means. The NFU-Retailer partnership members realise that ICM is not an easy concept to sell, but intend to address this issue through illustrating the improvements on such issues as pesticide residues in food and the environment and confirming the importance of assurance schemes to consumers.

2.6 DISTRIBUTION

Generally, the channel for organic vegetables is from produce companies to the Organic Marketing Company (or other distributors), to supermarkets. The Organic Marketing Company prior to distribution to supermarkets undertakes pre-packaging of produce. Contact is also encouraged between producers and retailers.

Specific information relating to margins at each stage of the supply chain was not available however, the general margins received are as follows:

C&F (UK) **25%** (of Retail Price) → Wholesale/Retail **75%** (of Retail Price)

Margins depend on product value; lower value crops have lesser returns to the grower. Processing and handling costs are fixed.

2.7 TARIFFS

The European Union has an integrated tariff, known as taric, which contains various rules applying to specific products being imported into the customs territory of the EU. The EU is in the process of developing horizontal directives that would establish standards applicable to all food products. So far directives have been adopted on pre-packaged and deep-frozen food, labelling, substances in contact with food, lot marking, dietetic foods, and contaminants. (Agri-Food Trade Services, 1996) The United Kingdom, along with all the other countries in the European Union has an import tariff of 15.6 % on all frozen vegetables. This is a uniform tariff applicable to HS 0710 '*vegetables (uncooked or cooked by steaming or boiling in water), frozen*'. (APEC Tariff Database, 1998) VAT applies to both locally produced and imported products, at an equal rate.

2.8 IMPORT REQUIREMENTS

Specific import licenses are required for each consignment on a range of products. Certain plants, and plant products may also require phytosanitary certificates.

2.9 AUSTRALIA'S REPUTATION AS A SUPPLIER

Both importers and supermarkets recognise Australia's seasonal supply advantages and the high standard of the organic certifying organisations. Australia was also seen as an attractive source of product due to its "clean" environment.

3.0 UK GOVERNMENT SCHEMES TO PROMOTE ORGANIC PRODUCTION

The British Government recognises that consumers should be able to buy organic food with confidence, and prefer that consumers buy British produce so that environmental benefits of the organic system are enjoyed in the UK.

Interviews with MAFF indicated the Government's objective to expand organic farming as part of its 'agri-environment' program. The program's intention is to safeguard and enhance the natural environment and organic farming is therefore recognised as one of the options available to secure environmental benefits and a 'greener' EC Common Agricultural Policy.

There are four main elements to MAFF's organic farming policy:

i. administrative and statutory support for organic standards, including funding for the United Kingdom Register of Organic Food Standard (UKROFS)
ii. the Organic Aid Scheme
iii. the Organic Conversion Information Service
iv. a research and development program

(i) UKROFS

UKROFS was established in 1987 and has produced a set of national standards for organic farming and established an independent certification and inspection scheme for organic producers. It is the designated legal authority in the UK to enforce the EC Regulation 2092/91.

(ii) The Organic Aid Scheme

The Organic Aid Scheme, jointly funded by the Ministry and European Community, was established in 1994 to offer direct financial support to farmers converting to organic production. Payments under this scheme are in addition to other subsidy payments received and are paid on an area basis. Participants must register for conversion with an organic sector body or with UKROFS and provide a conversion

plan. Participants must maintain the organic status of their unit while receiving support through the scheme.

(iii) The Organic Conversion Information Service

Launched in 1996, this service provides free technical and other advice to farmers considering conversion to organic production. It therefore assists in overcoming the major barriers to more widespread conversion to organic production, those being lack of knowledge and uncertainty. The service consists of an *Organic Helpline* providing advice and free advisory visits relating to organic production and marketing.

(iv) Research and Development

MAFF's budget for organic farming research and development was increased to around £1.5 million in 1998–99. A wide range of topics is covered in the research program including in-depth studies on the maintenance or organic systems. There are currently four projects exploring the agronomic and economic consequences for different types of farm enterprises: upland sheep and beef; stockless arable; milk; and field vegetables.

According to MAFF's booklet titled *Organic Farming*, additional projects research issues in three broad areas:

i. the control of weeds, pests and diseases
ii. to identify best practice for the use of inputs and on other agronomic questions. Examples of such projects include the development of organic modular transplants; optimising nitrogen from cover crops; and assessing crop varieties for organic performance.
iii. environmental issues – where work is proceeding on nitrate leaching from organic rotations and the modelling of earthworm communities.

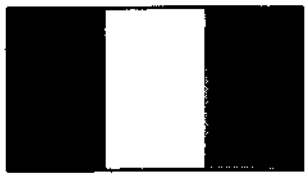
3.1 ADDITIONAL SCHEMES TO SUPPORT CONVERSION TO ORGANIC PRODUCTION

Triodos Bank

Triodos Bank is an independent bank that lends only to projects and enterprises which create value of an environmental or social nature. Financing organic food and farming is central to the business of Triodos Bank. They are committed to organic methods and all farmers and growers who are loan customers with the Bank must have either organic status, or be in the process of conversion to organic status. Their involvement with the organic sector includes the active promotion of organic food and farming, and financial support to the Soil Association's 11th National Conference, and Organic Farm Management Handbook.

Working in partnership with the Soil Association, the Triodos Bank offers an Organic Saver Account. This service in turn provides the Bank with the funds necessary to lend to organic food and farming projects. In 1998 the bank offered new customers who opened an Organic Saver Account (with £3500 or more) a year's free subscription to the Soil Association, or for existing members, a donation of £18 made to the Soil Association.

3.2 France



Interviewed:
Naturalia (Specialist Natural Food Retailer)
Bonneterre (Manufacturer and distributor of processed food products)
Qualite France (Organic Certifying Body)
Bio-Coop (Retail chain network developed by the French Organic Growers Retail Cooperative)
Ministry of Agriculture, Republic of France

3.2.1 OVERVIEW

One of the four western European trillion-dollar economies, France has a population of approximately 58.6 million, and a GDP per capita of US$20 900. (World Factbook, 1997)

3.2.1.1 Organic

The study found that the organic market in France is still small at around $A100 million per annum, however growing at a rate of 15% per year, representing a small but rapidly growing niche market. According to the United States Department of Agriculture, future market growth is expected to be 20% per annum.

In recent years, there has been an increase in the food safety concerns of many French consumers, due to occurrences such as the BSE crisis, nitrates in water, pesticide residues, high dioxin levels and genetically modified foods. French consumers are also concerned about the healthiness of their food. Research indicates there are two types of organic food consumers in France: first, those who will purchase only organic products, and do so on a regular basis (6% of all consumers), and second, those who will buy organic foods occasionally, but this behaviour is dependent on the availability of products (23% of consumers). The majority of organic food consumers in France are in the middle to upper income brackets, and are usually married with children.

According to Naturalia, consumers can be classified into three market segments:
1. Traditional organic consumers purchasing products on memory of taste or health;
2. Young mothers – new segment purchasing product in consideration of the benefits gained from organic food;
3. Modern – young adults responding to media reports, food scares, taste, appearance, and responding to product performance on health issues.

Bio-Coop on the other hand, classify their consumers in two market segments:
1. Older traditional shoppers seeking to purchase food on their traditional memory of how products should be produced;
2. The new modern shopper in the 16–30 year age bracket, having a more flexible purchasing pattern.

During the last two years, the number of French organic producers increased 60%, from 3900 to 6200, and the total cultivated area increased from 140,000 to 220,000 hectares. According to the Ministry of Agriculture and Fisheries (MAFF), a five-year plan was initiated in 1997, designed for the years 1998–2002. It is anticipated that this plan will stimulate the French organic sector and the objectives include:

- Increasing cultivated area from 140,000 hectares to 1 million hectares, and the number of farmers using organic production methods from 6200 to 25,000 by the year 2005.
- Increasing consumption of organic foods as a percent of the total consumed from the present 1% level to 3–5%.

- Increasing farm subsidies to encourage the transition to organics by four-fold from US$2.6 million to US$10.4 million per year, starting in 1998. The EU will contribute another US$5.2 million to restructure organic food distribution channels.
- Increasing organic research and training in agricultural schools, and create an office to monitor the progress of the action plan.

A FF60 million program supports this plan with priorities on cereals, fruit and vegetables. Additional money is also being used to develop organic systems research and training/extension programs for growers. The organic sector currently represents only one percent of total French production. According to MAFF, the French government seeks to have 10% of French agriculture converted to organic production by the year 2000, and one million hectares of French farmlands under organic production by 2005. As a result of this action plan, sales of organic products in France are forecast to reach FF15 billion by 2003 (A$3.75 billion).

The French population is undergoing a number of changes including, growing older, more women entering the workforce and the rising number of single households. These demographic changes continue to strengthen the demand for pre-prepared meals, single and double portion packs, frozen or microwavable meals. The frozen food sector therefore, is also expected to continue to grow. Increasing demand for convenience in food preparation will continue to boost sales of frozen food products. The market is predicted to increase by 29.6% in volume and 24% in real value, an indication of the creeping commoditisation brought about by a significant own-label presence within the frozen food market.

3.2.1.2 Reduced Chemical Production

France is a member of the European Initiative for Integrated Farming (EIF). (See Section 2.2.2)

3.3 FROZEN VEGETABLE MARKET

The study found the frozen vegetable product sector (including potato products such as french fries) to be the largest sector of the French frozen foods market.

In a survey conducted by TNO Nutrition, and Food Research Institute aimed at identifying barriers and triggers to vegetable consumption for various European countries, there were several factors that affect the frozen vegetables purchasing decision of French consumers. Approximately 55% of respondents questioned claimed that they would purchase more frozen vegetables, if they had more room in their freezers. A total of 30% desire a wider choice of products in order to increase their spending frequency (Unilever, 1996).

A variety of frozen organic vegetables are already sold by a Belgian company to French restaurants and was recently presented at the 1998 International Food Show, SIAL, for supermarket buyers.

3.4 VOLUMES

Actual import figures for frozen organic produce are not available as frozen organic vegetables do not have a specific code. However, according to the Ministry of Agriculture, frozen imports have increased by over twenty times during the last four years, with successful penetration of large agribusiness groups and retail chains.

French imports of frozen vegetables for the years 1995 to 1998 are presented in Table 5.

Table 5: France's Frozen Vegetable Imports

Year	Quantity (metric tonnes)	Value (US$'000)
1995	217234	209660
1996	231871	215650
1997	247903	199725
1998	271623	216314

Source: FAOSTAT Results Database, 1999.

As of September 1998, total French imports of organic foods amounted to 11,500 tonnes and are expected to continue growing strongly in the future.

3.5 SUPPLIERS

The two major international suppliers of frozen vegetables to France in order of volumes are the United States and New Zealand. In 1999, Australia exported just A$574 (30 kilograms) worth of frozen vegetables to France (supplied from Victoria, Australia). (Government Statisticians Office, 2000)

In 1997, French consumption of organic food products increased 20% and imports more than doubled.

Naturalia stated that they source 75% of organic product from French suppliers/wholesalers. There are four major wholesalers in France who maintains all contact with organic producers.

Frozen vegetables are a new market for Bonneterre (France's largest organic food supplier), who currently have sufficient supply for the French market. Bio-Coop also source all organic produce from their own cooperative growers.

3.6 RETAIL

Organic food products in France are distributed through four different retail segments: health food stores (which represent 39% of total organic food sales); supermarkets (27.5%); open air markets/direct sales (23.5%); and the 160 'Bio-Coop' organic cooperatives (10%).

Naturalia (Specialist Natural Food Retailer) France

The supermarket chains account for almost half of organic food sales. The remaining half is split among health food stores, direct sales and open-air organic food markets.

Interviews with major retailers in France communicated a significant impediment in their ability to service the organic foods market principally due to the lack of regular and reliable volumes required in large retailing. Naturalia (a specialist retailer in France) believe that while this situation exists small specialist retailers will be able to compete with large retailers, however as supply increases and consistent volumes are available, smaller retailers will lose this competitive advantage in being able operate on smaller volumes, unless they can differentiate their products or services.

Bonneterre believes that the market will develop further, however, the future of the market lies in negotiation with mainstream food retailers to create organic areas within their stores. Bonneterre supplies 1700 retail stores throughout Europe and have grown a 1700 item product range, covering fresh fruit and vegetables, through frozen vegetables, to home meal replacement type products.

Bonneterre – France's largest organic food supplier

3.6.1 Organic

3.6.1.1 Sales Volumes

In 1998, sales of organic food products in France were estimated at FF4 billion (A$1 billion).

At present, 500 of Bonneterre's customer/retailers are selling frozen organic vegetables. Sales average $100,000 million French francs per annum. Cold shelf space, undeveloped product range and poor availability are the major restricting factors to increasing sales.

Mr Emmanual De La Baume (President of Naturalia, and formerly Australasian Manager for Danone Dairy Foods) said organic food sales in France are believed to be between 0.3% and 0.6% of total food consumption.

3.6.1.2 Product

The study found the demand emphasis to be on fresh organic produce, however there is definite market potential for processed and new-to-market products, as well as healthy, easy to prepare foods which minimise time spent in the kitchen.

Supermarket (France) Frozen Organic Ready Meals Segment

Frozen organic vegetables entered the French market in early 1999. Naturalia were pleasantly surprised at the level of consumer acceptance of frozen product, as there is a strong attitude towards fresh food consumption. This acceptance indicates that mainstream consumers seek a full range of organic produced foods. Frozen organic vegetables therefore have great potential. Naturalia currently source frozen carrots (for further processing into carrot juice), and frozen potatoes for distribution to retail outlets.

Bio-Coop have an ethical focus towards encouraging organic food production and consumption, and source organic products whenever possible. Bio-Coop currently offer a full range of fresh organic product, with two new frozen vegetable lines (potato chips and green beans) to be trialed shortly. They believe there is also an opportunity for fruit juices (with the main supplier currently Spain), sweet corn, bottled fruits and fruit syrup. Sliced dried mangoes currently sell very well.

Fresh food sales account for 50% of Bonneterre's business, supplied by 400 fresh fruit and vegetable suppliers internationally. The following organic fruit and vegetables were identified as opportunities:

Table 6: Product Opportunities in France

Product	Comment
Apples/Pears	gap in supply from May to July
Apricots	at the end of the year
Dried Apricots	good supply from Turkey but would be interested in new varieties
Avocadoes	would place an order now!
Dried fruits	product with potential however not interested in dried mango
Frozen fruits	good potential
Yoghurt fruits	
Kiwifruit	
Lychees	
Mangoes	could be interesting
Onions and Carrots	would be of interest, but at what cost?
Tomatoes	in December

James Serive (Bonneterre's Director) stated that demand is at its lowest during the July-August period as it is holiday time and families tend to go away from eating regular foods.

The ready meals segment experienced significant growth of around 70% between 1993 and 1997. Recent innovations such as resealable packaging and value-added products such as prepared stir-fry, (les poeles), have further stimulated demand.

Supermarket (France) Frozen Organic Ready Meals Segment

One of the leading French organic producers, *Prince de Bretagne* has recently expanded its product range of traditional vegetables, cultivated according to precise specifications. "A new range of seven mini vegetables have been added to the selection including carrots, leeks, turnips, artichokes and beetroots as well as classic, green and Romanesco cauliflowers". (Sanders, 1999)

3.6.1.3 Price

Price premiums are generally 20%–30% higher than conventional products, however certain products receive consistently higher premiums. Premiums depend on product availability (ie. the shorter the supply the higher the premium). Higher prices also reflect additional costs of production incurred by producers. Prices can also be distorted as a result of the costs associated with handling small quantities.

According to James Serive (Bonneterre), consumer surveys indicate that more than 50% of France's population would purchase organic foods with product price not being an initial purchasing consideration.

3.6.1.4 Promotion

The French government undertakes promotion of the benefits of organic production and consumption. The promotion is aimed at increasing the credibility of organic products in the eyes of the consumer. Media reporting on food scare occurrences in conventional products is also conducted as a means of promoting organic benefits. Naturalia also actively promote the organic label and its credibility.

The AB label is also promoted well at trade fairs such as the Anuga Food Conference held in Europe annually. This label (which mean Agriculture Biologique) represents certified organic produce (at least 95% organic), and is implemented by the Ministry of Agriculture in each accredited European country. The AB label cannot be used on imported products however and allocation of the label is monitored and controlled by regulatory authorities in each member state.

Bonneterre use a number of strategies to promote their label such as creating market 'universes' or areas in retail stores, ensuring that all of their communication is at the point of sale. They also employ

a press attache who helps to secure good press coverage. Bonneterre don't normally use producers to promote product however will occasionally discuss the producer when promoting a seasonal product.

3.6.1.5 Packaging and Labelling

A good system of identifying organic product is necessary. In France the **AB** label is well recognised as the French Department of Agriculture sponsors it. A strong, well recognised branding system should also be built into Australia's entry into the French market. Labelling should have clear consumer credibility supported by stringent, tough accreditation criteria.

'Agriculture Biologique' label to certify organic products in France

3.6.1.6 Supplier Requirements

It is a requirement across the European Union that organic products contain no genetically modified ingredients.

Products should have certification standards consistent with AB certification systems. French certification standards incorporate ISO quality systems. Within France, 5% of certified organic producers are randomly sampled every year. All certified organic farms are audited on a yearly basis, with farms in conversion audited twice each year.

3.6.2 Reduced Chemical Residue Demand

Information relating to demand for low chemical residue products was not available.

3.7 IMPORTING AND DISTRIBUTION PROCESS

France has one of the most highly developed distribution systems for agricultural and food products in the world. From the farmer, to the processor, to the retailer, to the consumer, there is an extensive network of transportation and distribution channels that ensures the timely receival of good quality products. (Agri-Food Trade Service, 1996)

Generally, the channel for organic vegetables is from grower/importer to wholesaler to manufacturer to supermarkets. It would appear that wholesalers control distribution of organic products. However, by the year 2000, supermarket distribution of organic foods is expected to double to approximately 50%. Direct supply to consumers is through farm shops, deliveries and organic markets.

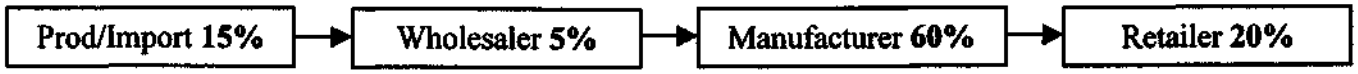
Retail food outlets in France include hard-discounters, hypermarkets, supermarkets, city-centre stores and department stores. Hypermarkets and supermarkets are the retail outlets that most French consumers purchase their frozen foods from, due to their wider range of products, and lower prices.

France has approximately 27,000 wholesalers of food and agricultural products. This industry is continually diversifying with individual firms adding new services to their basic wholesale activities. Services such as deliveries to restaurants and other food-service outlets, and distributing new-to-market produce are being offered to smaller-scale food retailers and processors.

Rungis, the world's largest wholesale market (carrying a full range of food products and services) is approximately 20 years old, and located 13 miles south of Paris. There are 758 wholesalers, 540 producer/sellers and 470 services companies, which include importers, buying agents and distributors. Every year, approximately 2.2 million tonnes of food and agricultural products are distributed through this market. Bonneterre are based at the Rungis market and supply nationally from this location.

3.8 SUPPLY CHAIN

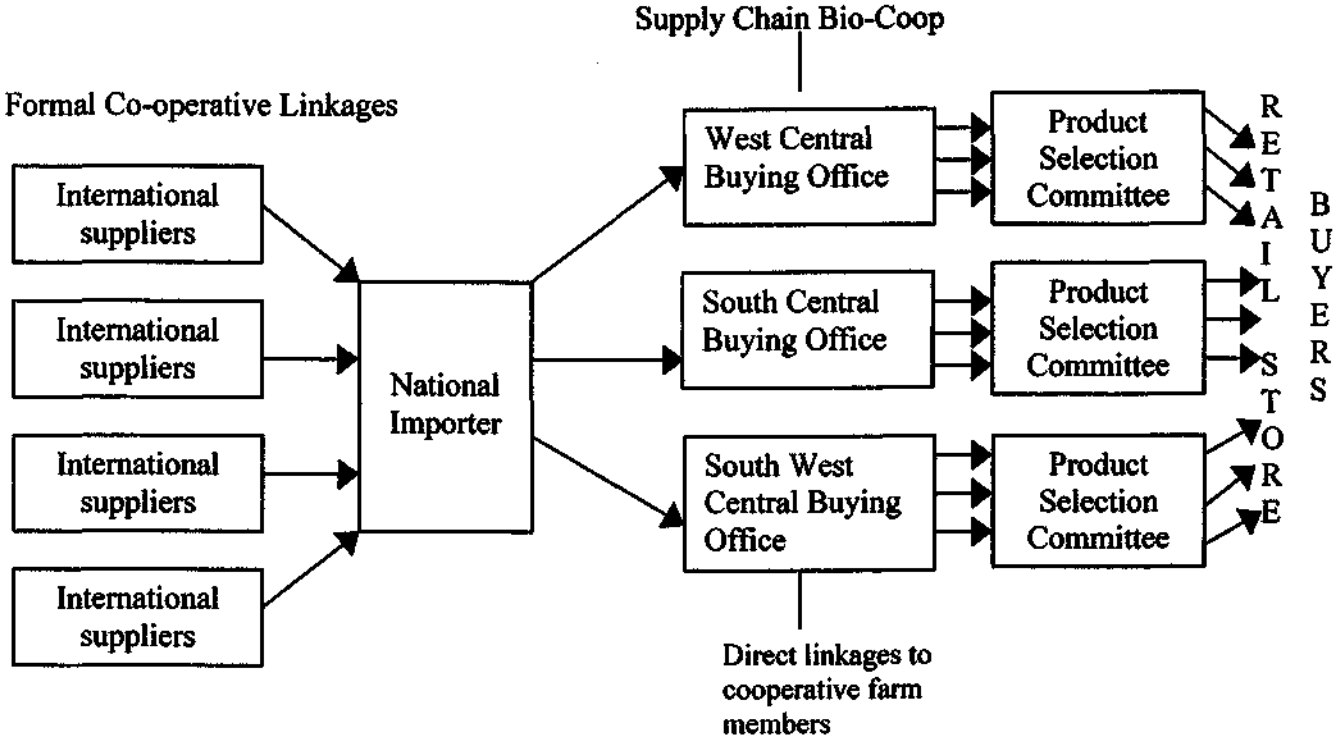
Margins at each stage of the supply chain are as follows:



Margins depend on product value, lower value crops have lesser returns to the grower. Processing and handling costs are fixed.

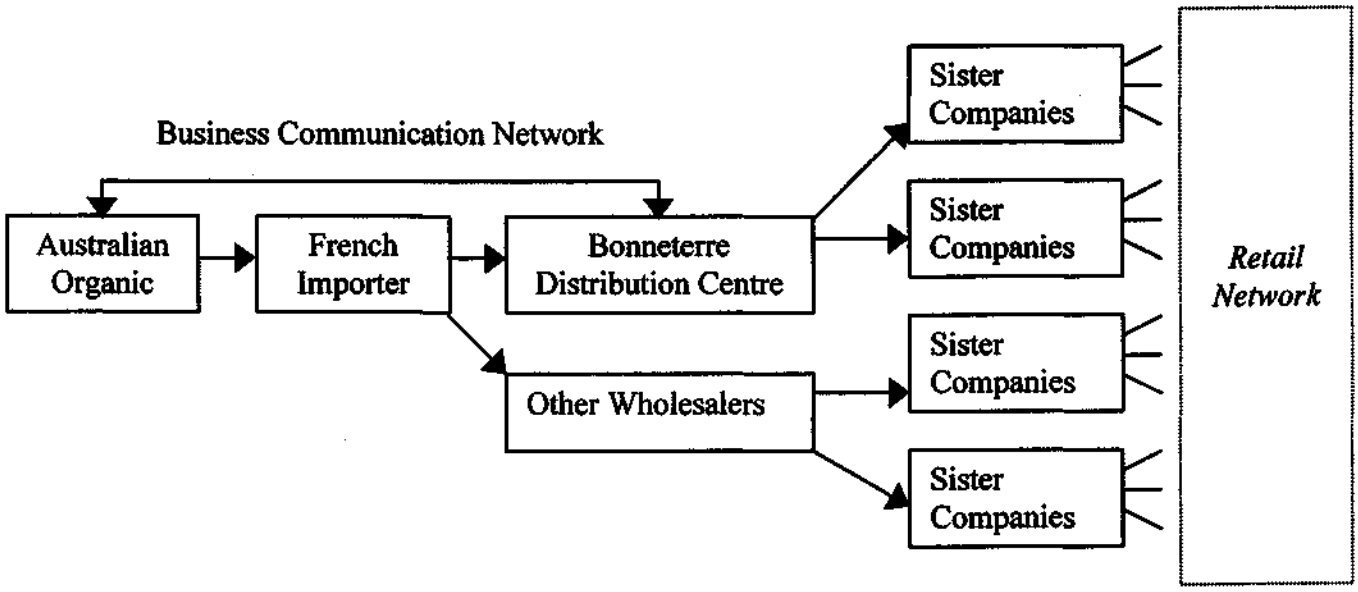
Bio-Coop's process for sourcing supply begins when retail store buyers make recommendations to their relevant Product Selection Committee. The Selection Committee then accesses the recommendation and instructs the Central Buying Office to source supply. The Central Buying Office seeks either domestic or international purchases subject to product specification.

Bio-Coop Supply Chain System



Bonneterre's distribution centre consists of 4000 m² storage and 10000 m² of cold storage. The company has a fleet of 80 trucks to distribute product to four sister distribution companies throughout France.

Bonneterre's Supply Chain System



3.9 TARIFFS

Tariffs applied to organic frozen vegetables are the same as for the UK. (see Section 2.2.2)

4.0 IMPORT REQUIREMENTS

The majority of items being imported into France may enter free from restriction. There is detailed legislation set out for all food products, included that described under the "Public Health Requirements". Special regulations exist for foods imported in retail packages, frozen foods, food additives and food colours. Food labels, panels and instruction leaflets must be written in the French language. It is also required by the French Ministry of Agriculture, that an exact analysis of the composition of all food substances is submitted. There are specific regulations governing the use of colouring and preservative materials in foodstuffs, and the use of cyclamates in food is prohibited.

Any shipments of plants and plant products must be accompanied by a health certificate that has been issued by the approved authority in the country of origin. Such an authority in Australia are the Australian Quarantine Inspection Service, Commonwealth Department of Primary Industries and Energy, or the State Department of Agriculture. The French Department of Agriculture must also grant approval for most plants and shrubs. (Austrade, 1999)

In accordance with Article 11 of EEC 2092/91, all organic food products must be imported from countries that administer legislation equivalent to the rules established within the EU. Australia is currently on this list, along with Switzerland, Hungary, Israel and Argentina. (USDA, 1996)

4.1 AUSTRALIA'S REPUTATION AS A SUPPLIER

Australia and Canada are seen as having distinct global strengths and credibility for production and growth into organic food and export. Both countries possess:

- a clean environment;
- a responsible government approach to maintaining environmentally sustainable development;
- large land mass suitable for various food production systems;
- well developed production systems and technical expertise in producing food efficiently;
- international recognition and credibility as a food producer.

Bio-Coop currently has insufficient supply of organic produce and regard Australia as a potential producer from which to source product. Both Bonneterre and Naturalia also viewed Australia as a sound source of organic produce.

4.2 Germany

[redacted]

Interviewed:
Annette Horn, Austrade Frankfurt
Demeter (Organic and Bio-dynamic Farming Co-operative)
Naturelistik (Retail Chain Stores)

4.2.1 OVERVIEW

Germany has been described as the largest market in Western Europe, and currently has a population of about 82 million people. The strength of the German economy and the relative affluence of its population make it an attractive market for organic food and beverage exporters from many countries. This market attractiveness, can be attributed to factors such as:

- Germany is one of the biggest food importers in the world, (total annual imports valuing US$40 billion)
- The average income and expenditure of the German consumer are among the highest in the world
- Germany is currently the largest market for organic products in Europe, (annual sales are estimated at between US$1.5 to US$1.8 billion)
- The market for organic products in Germany is growing at a steady rate, and is forecasted to continue.

4.2.1.1 Organic

Organics represent A$1.56 billion of Germany's market and 0.8% of total farming land, qualifying it as a valuable industry. Recently, German consumers have not only been demanding that a wider variety of wholesome and environmentally friendly products be made available, but they are also becoming increasingly interested in the methods of production, processing, and packaging used to bring the product to the market. This means that from the beginning of the production process to the marketplace, consumers expect all parties concerned to follow environmentally safe procedures.

Typical German consumers are becoming increasingly convenience orientated due to influences such as the restricted time for meal preparation and an increase in product quality and innovation. Interviews with Demeter found that especially in the case of single households, the increasing trend is to buy frozen products because of their added convenience.

In 1997, *Euromonitor* discovered the following characteristics of the German organic consumers:

- Slightly higher levels of support for organic produce are to be found in East Germany, with 70% of adults in favour and only 7% against;
- Strength of feeling is highest amongst women with 69%, as opposed to 58% of men;
- People in their twenties and thirties tend to have the highest levels of interest, underlining the fact that the move towards organically grown food is relatively new;
- Income plays a minor role, with people in both low and high income brackets just as likely to support organic produce.

(*Euromonitor*, 1997)

An increasing number of specialist retail stores and health food supermarkets are appearing in this country which feature a wide range of organic food. Trends such as this demonstrate the growth in consumer demand for organic food. Although the German organic market is the largest in Europe, there are still major segments for which product is not available. Approximately 20% of German organic products are imported.

Demeter believes that the major force driving growth in this area is consumers wanting to eat healthy and safe foods. This trend emerged in 1998 and market growth is now approximately 100%, and can at times escalate to 1000%. Demeter, established in 1971 is the oldest organic/biodynamic farmer group in the world, and also the oldest and largest frozen organic distributor in Germany.

4.2.1.2 Reduced Chemical Production

Germany is a member of the European Initiative for Integrated Farming (EIF). (See UK Section 2.2.2)

4.3 FROZEN VEGETABLE MARKET

Research indicates that the majority of frozen foods sold in Germany are frozen vegetables and ready-made meals. The frozen ready-made meals segment experienced the strongest growth in 1997 with an increase in volume of 8.9%. However, *Euromonitor* 1997, has estimated that overall, the frozen vegetables sector will continue to dominate the market, experiencing growth of 9.5% by the year 2002. Many German manufacturers of ready-made meals use large amounts of frozen products, due to their extended product life.

Germany is the third largest market for frozen food in Europe, with consumption of 1.65 million tonnes annually. Per capita expenditure on frozen foods in 1996 was US$57.43. Reasons for this are similar to other countries discussed, that is convenience, increased storage life, and less time spent on meal preparation. Vegetables occupy approximately 25% of the market for frozen food in this country.

As can be seen in Table 7, there was a steady increase in the volume of frozen vegetables sold in the German retail market, from 1994 to 1997.

Table 7: Retail Market for Frozen Vegetables – Germany (1994-1997)

Year	Vegetables ('000 tonnes)
1994	210
1995	215
1996	225
1997	235

Source: Online Data Services/ Deutsche Tiefkuhlinstitut, 1998.

4.4 VOLUMES

Germany is currently one of the world's leading food importers, with an estimated $US40 billion worth of total annual imports. Germany imports the majority (approx 60%) of their frozen vegetable requirements. Actual import figures for frozen organic vegetables are not available, as this product does not have a specific code. Imports of frozen organic vegetables are included in general frozen vegetable imports. As can be seen in Table 8, between 1995 and 1998, the imports of frozen vegetables into Germany increased by approximately two thousand metric tonnes over the five-year period.

Table 8: German Frozen Vegetable Imports

Year	Quantity (metric tonnes)	Value (US$'000)
1995	309783	325659
1996	357749	356815
1997	364202	318427
1998	379668	322061

Source: FAOSTAT Database Results, 1999.

Interviews with Demeter revealed that demand in the German organic market is not meeting supply. Due to it being a relatively small market, it is very reactive to outside influences. This cooperative said that 300 to 500 tonnes of oversupplied product would crash the market.

4.5 SUPPLIERS

The majority of the organic vegetables imported by Germany are from other countries within the European Union due to proximity and availability. Frozen vegetables however are mainly imported from the United States and New Zealand. There are no recorded Australian exports of frozen vegetables to Germany.

Interviews with Naturelistik revealed that the main suppliers of frozen vegetables (and Germany's only two suppliers) are Demeter and Naturland. Demeter claim that they have the largest range of frozen organic produce available in Germany. This company import organic products from a variety of countries including Austria, Belgium, Holland and Spain. This organisation looks to suppliers in Germany first, and then to the neighbouring countries for product.

4.6 RETAIL

4.6.1 Organic

Approximately 2500 stores offer organic produce in Germany, with a huge A$1.56 billion market turnover. (Qld. Government Office – Europe, 1999) A number of German retailers, including Rewe, Metro, and Tengelmann, have begun marketing their own lines of organic food. The Rewe Group with its Fuellhorn brand of organic products, is Germany's market leader in organic foods. A meeting was conducted with Naturelistik, a recently established supermarket chain with a number of specialist organic stores. This company began to offer organic produce because of consumer interest, however their range is still very small. Recently opened in Germany is also the largest 'organic' shopping centre in Europe, Rommelmuehle.

German organic retail outlet

4.6.1.1 Sales Volumes

In 1997, more than one-third of the volume sales of frozen food took place in hypermarkets and supermarkets. However, there has been a high growth period experienced by the German discounters because there is a wider range of private label, lower-priced products.

4.6.1.2 Product

A wide range of organic products such as consumer-ready products and food ingredients are believed to hold good potential in Germany's organic food market, particularly organic convenience and snack foods. However, the frozen organic vegetable market in Germany is quite underdeveloped. Products that are most popular include peas, cauliflower, beans, celery, spinach, carrots, and sweet corn.

Supermarket (Germany) Demeter Frozen Organic Mixed Vegetables

Demeter's frozen organic product range is the largest in Germany and now includes fried potatoes, carrots, peas, cauliflower, corn, spinach, soup vegetables and garden peas. There are specific frozen product gaps that Demeter has including corn, herbs, broccoli, berries and a variety of fruit. This cooperative would prefer to distribute a product that is not currently sold in Germany, and develop Demeter certified deep-frozen products.

4.6.1.3 Price

Organic products in Germany are typically priced about 30% higher than conventional food products. However, as suppliers and therefore availability have increased in recent years, margins have begun to narrow.

Frau Kohl and Herr Bruegesch from Demeter claim that the price for organic produce can differ from conventional by increases of between 20% and 100%. This is because the organic crop is a lot smaller than conventional and price increases due to the smaller sized quantities being handled. Price premiums generally represent the added cost of production incurred by producers. When the quantity of organic produce increases, the price of this produce is expected to decrease. The price of organic produce also differs depending on where it is produced. For example the cost is higher when produced in Germany due to increased production costs.

Table 9: Prices of Demeter's Frozen Organic Vegetable Products

Product	Price (DM)	Price (AUD)
Cauliflower (450gm)	3.99	3.43
Summer Vegetable mix (450gm)	3.29	2.83
Spinach (450gm)	2.99	2.57

(Conversion rate as at 18 October, 1999)

4.6.1.4 Promotion

When promoting fresh organic food, German retailers often use the farmers who produce the products to differentiate it to the end-consumer. A popular strategy is to include on the display, a picture of the grower and his produce, with information about the farm size, location and product range (see below).

Demeter believes that it is good business to use the growers in the promotion of goods. However it is preferred to use this type of promotion when prices are stable and the market is a decisive factor. This will determine how well a brand can be promoted. Other methods used to promote Demeter's organic products include advertisements in special health food magazines and placards in the stores.

BIO is a commonly used prefix across the EU which guarantees certified organic produce. This is simply a recognisable label for the consumer and does not represent an organisation. This label is used on many of the frozen vegetable products sold in Germany. The AB (Agriculture Biologique) label is also used on many organic products. This label represents certified organic produce (at least 95% organic), and is implemented by the Ministry of Agriculture in each accredited European country. The AB label cannot be used on imported products however and allocation of the label is monitored and controlled by regulatory authorities in each member state.

4.6.1.5 Packaging

Unlike the United Kingdom, most fresh organic products are not pre-packaged but provided in bulk for the consumer to choose specific quantities. Frozen products are generally imported and then repackaged by the importer or manufacturer. Naturelistik send their products to Holland and Denmark where they are packaged and frozen ready for distribution.

Frozen organic vegetables manufactured by Nutana, (an organic frozen vegetable processor) are being packaged in plastic bags that appear to be made of brown paper. This is in order to give the product an environmentally friendly appearance. The bag sizes seen were of between 450 to 500 grams in weight, and have various information on the reverse of the package including cooking instructions, serving suggestions, use by date, manufacturers address and nutritional information.

Supermarket (Germany) Nutana Frozen Organic Broccoli

4.6.1.6 Supplier Requirements

There are various requirements that organisations have in place for their produce suppliers. These can include quality specifications or methods of production. Demeter conducts their own importing, working with their network of 130-150 farmers for specific product sourcing. In order to supply to this company, farmers have to be certified by Demeter. This cooperative's brand is only permitted for use where the product originates from a certified producer.

An increasing number of supermarkets throughout Europe are banning GMO products from their shelves, because of consumer backlash. Farmers must guarantee that their produce has not been genetically modified. Such controversy is increasing demand for certified organic products, as they are guaranteed GMO free.

4.7 DISTRIBUTION

From the interviews that were conducted in Germany, the margins at different stages of the supply chain are as follows:

Generally the distribution channels for frozen vegetables is from importer to central purchasing organisation, to wholesaler, to retailer. The German retail trade sector is made up of a large number of complex groups, each with their own structure, purchasing, and distribution system. Wholesalers such as Lekkerland and Suergo also supply the smaller convenience stores with food and beverages. Germany's home delivery market is also quite popular, even though it is more expensive.

For a foreign supplier, direct sales to the central purchasing organisations of food retailers would be the most appropriate distribution method. Central buyers are generally flooded with offers from competing suppliers because of their wide range of distribution. It is also quite uncommon for purchasing organisations to work with new suppliers, unless there are particular advantages offered in relation to quality, price, or financial support. Produce imports are generally handled on consignment basis.

According to the Agri-Food Trade Service (1996), "the import and distribution of food and beverage products, primarily from countries outside the EU, are handled by specialised importers in Germany. German retail organisations rarely import directly from countries outside the EU, except for items that they purchase in large quantities, often through brokers. Importers normally distribute nation-wide, either through their own sales force or through a network of independent sales agents."

Naturelistik have a central supply area in Kiel that distribute to all their stores and make the buying decisions. There are however a relatively small number of distributors for specific frozen organic products, due to the small size of the sector. In general, it is the frozen food companies who perform this task. However cooperatives such as Demeter, one of Germany's leading suppliers commenced distribution of frozen organic vegetables to their stores in 1994. Demeter also distribute to a number of sectors including raw products for baby foods, jams to the processing industry, grain to bakeries, milk, deep frozen goods to supermarkets and stores, and Demeter products to wholesale stores all over Europe.

4.8 TARIFFS

Tariffs applied to organic frozen vegetables are the same as for the UK. (See section 2.8)

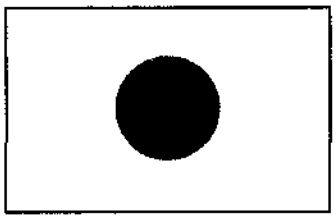
4.9 IMPORT REQUIREMENTS

In accordance with Article 11 of EEC 2092/91, all organic food products must be imported from countries that administer legislation equivalent to the rules established within the EU. According to the United States Department of Agriculture, Australian legislation is currently equivalent. There are certain items that require specific import licenses including a wide range of agricultural products, and some foodstuffs. The European Community's Common Agricultural Policy has established certain levies that are commonly applied to imports of agricultural products.

5.0 AUSTRALIA'S REPUTATION AS A SUPPLIER

Australia is perceived as a good supplier of quality clean, green produce. Demeter sees Australia as an appropriate supplier to fill their product gaps. This Co-operative is also seeking to establish relationships with Australia's certifying bodies in the future.

5.1 Japan



Interviewed:
Jusco Co. Ltd. Supermarket
Mammy Mart Corporation (Food Service Restaurant Chain)
Ministry of Agriculture, Forestry and Fisheries
MOS Food Services Inc. (Food Service)
Nichimoto Trading Co. Ltd. (Manufacturer of processed food products)
Nichirei Corporation (Manufacturer/distributor of processed food products)

5.1.1 OVERVIEW

Japan is the second largest economy in the world, with a population nearing 126 million and a GDP of approximately US$4.2 trillion in 1997. The average annual income per capita in Japan is JPY4.81 million (A$52,800).

5.1.1.1 Organic

With total sales expected to reach US$30-40 billion within the next ten years, the Japanese market for organic products is forecast to become the largest per capita consumer worldwide. Organic farming is an important production method that will shape the future direction of Japanese agriculture. (Yomiuri Shimbun, 1998) MAFF are expected to implement an organic production standard in 2000. After the enforcement of this standard takes place, it is predicted that the Japanese organic market will experience further growth.

Important changes to the Japanese food industry have taken place in recent years with an increasing number of consumers placing high priorities on health, safety and value for money. Concerns relating to food safety are increasing, particularly among consumers living within large cities who are becoming more aware of pollution problems and the use of post harvest chemicals. genetically modified organisms are also attributing to the increased concerns of consumers in regard to food safety and content.

There is a wide recognition among Japanese consumers for organic products. A survey conducted on Japanese housewives in 1995 by MAFF found more than 60% purchased organic vegetables due to the health and safety aspects of the product and because they 'taste good'. The survey recorded that of the 60% who purchase organic vegetables:

- 36.4% purchase occasionally
- 21.6% purchase once or twice a week
- 5.8% purchase three or four times a week
- 2.1% purchase almost every day

The single biggest concern of consumers in Japan today is food safety. Consumers are also showing a greater interest in frozen, certified organic vegetables from foreign countries due to diversified eating patterns which include foreign vegetables not grown in Japan and a general demand for chemical free vegetables.

The real size of the Japanese market for organic products is not known as the term 'organic' is very loosely defined. Domestic organic production was estimated to be 1% of total vegetable production in 1995, or 150,000 – 200,000 tonnes per year. MAFF conducted a survey in 1991, which showed high growth in the number of people converting to organic farming. The market for organically grown vegetables has been growing at a steady rate of 20 – 30% per annum since the mid 1980's.

Organically grown vegetables are attracting the attention of consumers and the food industry alike. They can be purchased through specialty supermarkets dedicated exclusively to organic farm products, special sales corners in major supermarkets and department stores, as well as food service chains that are adding organically grown vegetables to their offerings.

As in the EU, there is consumer resistance to Genetically Modified foods. This is why many Japanese food companies are increasingly restricting GMO's from their product range.

5.1.1.2 Reduced Chemical Production

In 1989, it was found that although Japan represents only 0.3% of the world's cultivated area, this country uses 12% of the world's agricultural chemicals. This study also reported that the rate of use of agricultural chemicals in Japan was six times that of Europe and seven times that of the United States of America. (Matsushima, 1989) This is because the average Japanese farmer is mainly concerned with convenience in his farming operation. That is, a higher input of chemicals means less work required on-farm.

The demand for low chemical produce in Japan is therefore increasing as retailers, food service and manufacturers begin to develop this market niche. Jusco currently stocks a full range of low chemical produce, and has developed their own reduced chemical label. Some food organisations however are still quite uncertain as to whether or not there is a segment in the market for low chemical produce. This is because it is perceived to be difficult for consumers to identify the difference between conventional, low chemical and organic products.

It is extremely difficult for Japanese producers to convert to organic agriculture because of the high levels of chemical use. This is why low-chemical agriculture is considered to be a viable opportunity for many farmers. Many of these groups and individuals are taking advantage of the low-chemical market niche by reducing their chemical inputs. It is extremely likely that the Japanese, creating an ideal market opportunity for Australia will develop a reduced chemical standard.

5.2 FROZEN VEGETABLE MARKET

Japan's frozen vegetable market continues to rapidly increase, a trend which is driven by the following factors; convenience, ease of use, quality, and increased demand for industry-use (manufacturers, food service, etc.)

There has been a gradual increase in the sales volume of frozen vegetables in Japan. Nichirei Corporation attributes this to two influences:

- Increasing home use
- Food service consumption has reduced because of cost (Japanese are very price conscious)

Although household consumption of frozen vegetables continues to grow (see Table 10), industry use accounts for around 70% with household use accounting for the remaining 30%.

Table 10: Japan's Frozen Food Sales (1992 – 1997)

	1992	1993	1994	1995	1996	1997
Volume ('000 tonnes)						
Prepared foods	183.5	225.7	264.1	290.5	310.8	323.2
Fried foods	81.6	80.3	79.1	78.0	77.2	76.4
Fruit and vegetables	**71.2**	**75.5**	**79.2**	**83.2**	**86.5**	**89.1**
Fish and shellfish	11.3	11.5	11.7	11.9	12.1	12.3
Confectionary	4.7	4.9	5.2	5.4	5.6	5.8
Meat and poultry	4.1	3.7	3.5	3.3	3.1	3.0
TOTAL	356.5	401.6	442.8	472.3	495.3	509.8
% change		+12.7	+10.3	+6.7	+4.9	+2.9
Value (JPY billion constant 1992 prices)	300.3	335.0	362.5	381.1	394.3	399.6
% change		+11.6	+8.2	+5.1	+3.5	+1.3

Source: *Euromonitor*, 1997.

5.3 VOLUMES

Imports of frozen vegetables over the period 1995 - 1998 rose sharply in response to increased domestic demand and sluggish domestic production (refer Figure 2). Actual import figures for frozen organic produce are not available, as frozen organic vegetables do not have a specific code. Therefore, imports of frozen organic vegetables are included in general frozen vegetable imports.

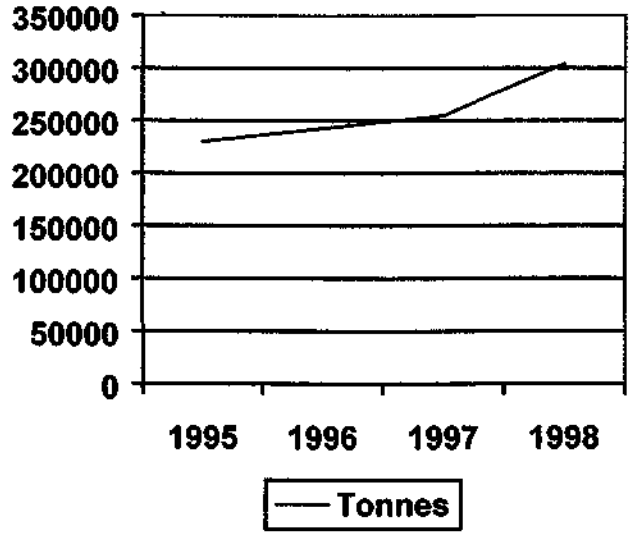


Figure 2: Japan's Frozen Vegetable Imports (tonnes)

Source: FAOSTAT, 1999

5.4 SUPPLIERS

The Japanese organic food industry began as a grassroots movement, with small, local organisations of consumers contracting directly with farmers to produce organic products. While this early direct distribution system is still very active today, organic distribution has gradually spread out into other forms of retail and has increasingly become part of the mainstream produce market.

Japan relies heavily on imports for frozen vegetables with over 80% of frozen vegetables consumed being imported. The USA and China dominate frozen vegetable imports with approximately 39% of the market belonging to the USA, and China supplying 34% of the market. Chinese exports have surged over the last few years with much of China's market gain occurring at the expense of Taiwan. China supplies good quality products that are also very cheap. Other suppliers include New Zealand, Canada, Thailand and Mexico.

Organically grown produce from the US is well regarded with Nichirei Corporation purchasing organic mixed vegetables and other products from farms on the West Coast. This company also imports 80% of their mixed green vegetables and fried potato from the USA. California is the origin of Nichirei Corporation's broccoli, cauliflower, carrot and potato. Sweet corn, green peas and mixed vegetables are imported from New Zealand.

The United States, particularly Idaho and Canada are suppliers of organic potatoes to MOS Food Services. MOS stated that they use this source because their product is full of taste and adheres to neat size specifications.

The USA is also the origin of Mammy Mart's and Skylark food service's organic produce imports. Jusco, a leading Japanese retail chain, source organic product from the *Field Fresh Company* in New Zealand, China and the USA.

Stability of supply continues to be a concern, with imports of organic pumpkins and vegetables increasing by large chain stores and consumer cooperatives. But what is most significant about the Japanese market is the consumer interest in the source of supply. Japan's consumer cooperatives, with a collective membership of 20.6 million, are among the largest distributors of organic agricultural products in Japan. Many co-op members like to know the source of their food and some even visit the farms where the food is produced.

In 1999, Australia exported approximately A$923,000 (493,000 kilograms) worth of frozen vegetables to Japan, with Queensland accounting for 94% of this supply. NSW (2%) and Victoria (4%) supplied the remaining 6%. (Government Statisticians Office, 2000)

5.5 IMPORTERS/ FOOD MANUFACTURERS

5.5.1 Sales Volumes

Nichirei Corporation's total organic vegetable imports are expected to increase by 50,000 tonnes a year, in order to capture premiums of 30–60%. This company's sales for 1999 are forecast to be approximately A$330 million. This is a 30–40% increase from the 1997/1998 period sales, mainly due to the introduction of new product ranges. Nichirei believe that organic vegetables currently account for 6–7% of their total vegetable sales. The new products released by Nichirei are contributing significantly to sales growth, as consumers respond to increased product variety. These new products are launched over an introductory period, with a special discount.

Nichirei Corporation claim to hold a 70% share in the Japanese frozen organic vegetable market. They have also estimated continued growth in the Japanese market for frozen organic vegetables until the year 2005, with organic occupying 10–15% of the vegetable market each year.

5.5.2 Product

In response to growing consumer interest, Japan's major food manufacturers are developing frozen organically grown vegetable products. Nichirei Corporation has developed four products specifically for household consumption: green peas, mixed vegetables, corn and potatoes. Currently, 6–7% of

Nichirei Corporation's sales consists of organic products. Frozen organic broccoli accounts for 10% of Nichirei Corporation's market turnover, and their corn, broccoli and mixed vegetable packs are the most popular. Food processors are also releasing products containing frozen organically grown vegetables, such as croquettes and curry sauces.

Processors have been increasingly using organics in an effort to increase the value of their products. This is because frozen vegetables receive low prices generally, but organic food commands a higher per unit price than conventional. An example of this is the largest discount retailer in Japan, Daiei Inc., which harvests, processes, wraps and imports frozen organic potatoes from the USA, selling the final product at a much lower price than domestic organic brands.

5.5.3 Price

Nichirei Corporation believe that when price premiums stabilise to between 10% and 20%, then the market for organically positioned vegetable products will grow more rapidly. Organic products sold in the home use segment by Nichirei Corporation receive premiums of 30–60%. Nichimoto set prices at only 30–40% above the conventional price otherwise their products meet with consumer resistance.

5.5.4 Promotion

An increasing trend in Japan's food market is to display the country of origin on the products packaging. This is used as a differentiation tool as it provides the consumer with information including the product, such as attributes of the source. This promotional method has been described as giving the product an identity or a face.

Interviews with Nichirei Corporation revealed that they find it difficult to use farmers to promote their organic products because of their large supplier base. They believe it is important to add value by going directly to the end user in order to differentiate the product. This type of research is then used as the basis for promotional campaigns.

5.5.5 Packaging

In general, it depends on the importer or the end market whether or not produce is packaged in country of origin or when it arrives in Japan. Approximately 70% of the imported frozen product have been packaged in the country of origin. However the remaining 30% is supplied in bulk and packaged when it arrives in Japan.

Nichirei Corporation uses 200-300 gram bags for the retail market, which is a smaller size bag than the conventional product. Organic frozen vegetables are commonly packaged in smaller bag sizes and priced higher than the conventional product. This is because consumers often overlook the smaller bag size and therefore the price difference isn't as noticeable.

5.5.6 Supplier Requirements

Supplier requirements for organic products are the same as for conventional in Japan. Nichirei Corporation also demands stability in supply for their manufactured products in order to maintain presence on retail shelves. It is mandatory that the organic products are certified by an accredited body and have been produced under pertinent quality assurance systems. Nichirei Corporation is seeking to use fully accredited organic goods in their manufactured products. They also plan on introducing one to two new product lines each year, and will require minimum volumes of 100 metric tonnes per year depending on the target market.

5.6 RETAIL MARKET

5.6.1 Organic

Japanese retailers are stocking greater quantities of organic food products on their shelves every month. Mr. Fujii, (manager of Jusco's fresh produce department) said that Jusco would prefer to market only organic frozen vegetables as they are currently priced 20–30% higher than conventionally produced vegetables. "If manufacturers could supply products only 10–20% higher, we would be prepared to market frozen organic products exclusively, and discontinue conventional frozen vegetables from their product range." (Fujii, 1999)

Frozen organic vegetables have become a very important part of the frozen vegetables market. A report on Japanese consumer co-ops recently published by QDPI has shown that these outlets are a large potential market, especially for producers of organic and low-chemical produce. (Ada R. and Kawasaki H. 1997)

5.6.1.1 Sales Volumes

According to Mammy Mart stores, sales of organic vegetables are increasing slightly at 3% per year, while conventional frozen vegetable sales are 6–7% higher than last year. Organic food sales currently account for 10–15% of Jusco food sales. In 1998 their total fresh vegetable sales were A$65-70 million. Of this total 10% were organic vegetables, a value of approximately A$7 billion.

5.6.1.2 Product

The Japanese consumer continues to demand a greater variety of organic products. Research shows that there are over 300 organic products, including fresh organic fruit and vegetables, which are available in the marketplace. Market signals indicate that a much larger range of organic products is demanded, similar to the variety of conventional goods available.

Market growth within the Japanese frozen vegetable sector is a result of the on-going development of new kinds of products. Innovations such as the "hot salad mix" consisting of vegetables including cauliflower, broccoli and carrots, is one product responding to the increasing demand for highly diversified and value added products. Product categories where demand is expected to increase include potatoes, spinach, taro (satoimo), broccoli and mixed vegetables. The most popular frozen vegetables in Japan are edamame soybeans and other beans, corn, potatoes, pumpkin and spinach.

Jusco currently offer 50 fresh organic products under their own and believes there is huge potential for a wider range of fresh organic products, particularly lettuce, celery, cucumbers, cabbage, tomatoes and leafy vegetables. There is also increasing demand for Asian vegetables such as horenso (spinach), komatsuna (lotus root), and shiso (garnish).

Mammy Mart Corporation currently sell three items of frozen organic vegetables: frozen potato, mixed vegetables and corn. They are planning on increasing their range, and could handle up to 17 items of frozen organic vegetables.

5.6.1.3 Price

Price and quality are the major variables in the Japanese purchasing decision between fresh and frozen vegetables. Organic vegetables are generally more expensive than standard vegetables, with prices around 20 – 50% higher. This is due to higher turnover of product, greater costs and more problems associated with the distribution of organic vegetables, which are sold in smaller amounts.

Jusco supermarkets believe that it is realistic to have premiums ranging from 10–30%. Any higher than this will meet customer resistance as the Japanese consumers are very price sensitive. Mammy Mart only sells organic product at 20% premiums over conventional product price.

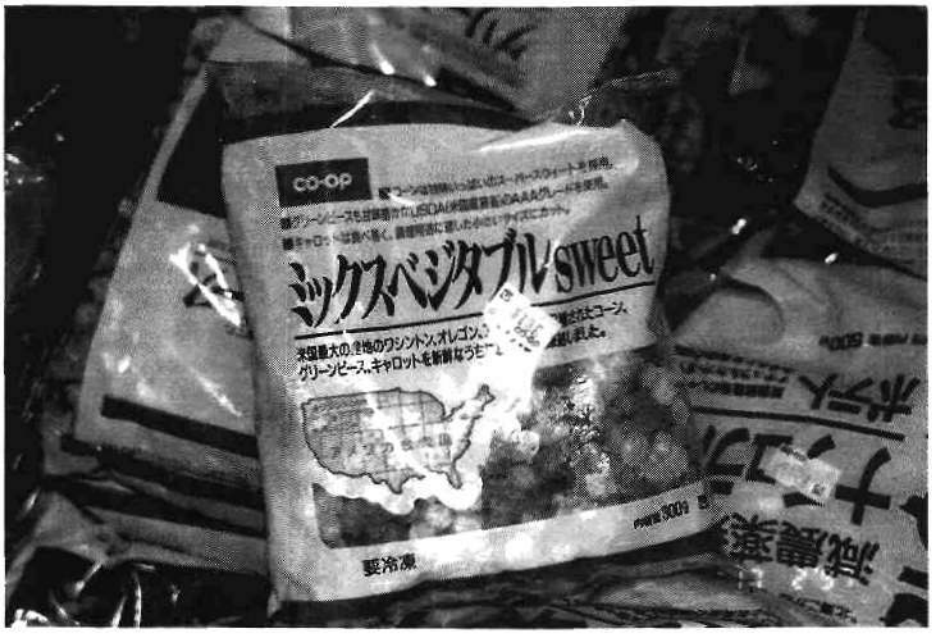
5.6.1.4 Promotion

Retailers throughout Japan are widely promoting their organic product range as the trend for safer food continues. Jusco have developed their own branding system for their conventional, low chemical and organic fresh produce. These are the red-eye, orange-eye and green-eye brands. Jusco launched their Green Eye brand (for organic produce) in February 1993 and has spent $9 million dollars on promoting and educating consumers on the product benefits.

Mr. Fujii from Jusco stated that his company stocks organic products because they believe that it is a matter of national and cultural importance that society have access to this type of food. Jusco interview 500 customers each year in order to understand consumer perceptions. From these interviews it is apparent that customers do recognise the benefits and are prepared to pay up to 30% more for Green Eye branded products. Other promotional methods used include videos, pamphlets, the Internet, in-store tastings (when product is in season), and point of purchase information (on the producer and methods of production). The majority of in-store, domestic fruit and vegetable displays include information on the producer and his family and farm. Retailers believe that by providing this information, a link is developed between producers and consumers, which boosts sales.

5.6.1.5 Packaging

The following photograph emphasises the attempt to create a link from the producer to the consumer with the production area shown in red on the map of the United States.



A large number of variations exist in the labelling of organic products, in an attempt to capture a share of the organic or low chemical food market. However, after the implementation of MAFF's organic production standards in 2000, organic labelling requirements will be much more stringent. The labelling requirements of Jusco are that the country of origin and certifying body's brand must be shown.

In Japan, it is preferred to use heavy-duty packaging for frozen products in order to protect product quality, and improve appearance. Jusco believe that the inclusion of recyclable packaging would be seen as an additional product benefit for organics.

5.6.1.6 Supplier Requirements

There are a number of requirements which suppliers need to satisfy before they can supply to a retailer. Product specifications, quality and certification are just a few pre-requisites that suppliers may be asked to meet. Jusco are quite flexible in their range of product and quality specifications as they are considerate of the difficulties faced by farmers (practicality and efficiency) in producing large volumes of organic products. This is why they developed the three-specification system: Red Eye, Orange Eye, and Green Eye.

Jusco welcomes direct links with their product suppliers. Communication is conducted electronically between category managers and manufacturers. This is in order to create closer working relationships and to decrease misunderstanding. The company believes that direct weekly/monthly communication via the Internet enables problem solving, clarifies thinking on new products, saves on costs and encourages each party to share risk involved. Specifically, growers e-mail Jusco photos of the product at each stage of the production process. In return Jusco e-mail growers quality specifications for produce and market conditions.

MAFF have in place a number of standards and regulations that organic suppliers must meet before importation can occur. This government organisation will certify international certification organisations so that their organic products can be imported into and sold in Japan. All imported products are required to carry the Japanese Ag Standard (JAS) brand, as well as having the country of origin clearly shown on the packaging. These rules apply to all products, whether they be processed, frozen or organic vegetables.

5.6.2 Reduced Chemical Residue Demand

There are an increasing number of Japanese companies positioning low chemical residue products in their stores. However a number of retailers are still concerned that it is difficult for consumers too identify with low chemical vegetables as there is no certification system. This creates suspicion amongst the consumers and retailers when interpreting differences between conventional, low chemical and organic products.

The low chemical product range available in Japan is extremely limited. Mammy Mart believe that there is no particular market advantage for imported frozen low chemical products as the most popular products are those produced fresh and locally. They are still suspicious of the definitions for low chemical and organic produce, however believe that sales will increase if consumers understand the system by next year.

Jusco, on the other hand, believe there is definite market potential for certified products produced under a reduced chemical system and has the largest product variety, consisting of pre-packaged vegetables. These products can be recognised by the Orange Eye brand, used by Jusco to differentiate their low chemical product.
There is a wide variance in the prices charged for low chemical produce throughout Japan. Nichirei Corporation for example, receive the same price for both conventional and low chemical produce. Jusco however charge a 10% premium for their reduced chemical food products.

5.7 FOOD SERVICE SECTOR

Restaurants that serve organics are rapidly increasing in numbers. Growing consumer interest in foods which are healthy, safe and environmentally friendly has driven an increasing number of major family restaurants, bistros and coffee shops to add organic vegetables to their menus.

5.7.1 Sales Volumes

MOS source five fruit and vegetable lines for their burger chain operations. The products and their sales volumes can be seen below in Table 11.

Table 11: MOS Food Service's Produce and Volumes

Product	Volume (tonnes)
Potatoes	11,500
Lemons	10
Lettuce	4,600
Tomatoes	3,400
Onions	890
Cabbage	830

Source: MOS Food Service, 1999

This table consists of the organic and low-chemical produce that MOS use. This company uses no conventional products.

5.7.2 Product

Daisho, a bistro chain operator (with approximately 500 outlets) now offer twelve kinds of organic vegetables including onions, radishes, cabbages and tomatoes in various salad dishes. *Watami Food Service* use organic radishes and cabbages to make pickles, while *Kirin Act* (Kirin Brewery Co., and operator of the Giraffe restaurant chain) now use fresh organic vegetables for hot dogs and other dishes sold on the lunchtime menu. (Japan International Agricultural Council, 1997)

Manufacturers of prepared foods (such as individual dishes and prepared lunches) are expected to continue increasing their use of frozen vegetables rather than fresh, in order to streamline product preparation and stabilise supply. (JETRO, 1997) The food service industry prefers frozen produce for storage life (up to one year), reliability of supply and price.

MOS currently use organic beef patties on their burgers and would therefore be interested to obtain large supplies of thick textured sweet onions. They are also using frozen organic potatoes for their fried potato chips. There are opportunities to supply this organisation with both fresh and frozen imported vegetables, however, import duties on processed products will require a reduction.

5.7.3 Price

Price premiums for organic produce in the foodservice sector are similar to that for processing and retail sectors. Approximately 60% of MOS Food Service's products are supplied at a fixed price. They also pay 15% price premiums to suppliers of domestic organic produce. Any higher premiums than this meet with resistance from MOS's customers.

5.7.4 Promotion

MOS have in place their own promotional campaign that involves point of sale information with the product. On the tray mats consumers use while eating in MOS stores they advertise the attributes of their food such as the origin and production methods used.

5.7.5 Packaging

Due to the large, bulk quantities of product used by the foodservice sector, packaging size is generally bigger than for the retail market. Nichirei Corporation use one-kilogram plastic bags for the food service sector.

5.7.6 Supplier Requirements

Each foodservice operator will have varying requirements in place for their suppliers, but generally there are basic product quality specifications existing.

Vegetables sourced by MOS Food Services must be high in flavour and meet specific size requirements. Quality standards must also be met and supply is sourced through a trading company. MOS stated that they are looking for suppliers of all their major vegetable lines on a counter seasonal basis to their own domestic supply.

5.8 IMPORTING AND DISTRIBUTION PROCESS

Distribution in Japan for organic produce takes place through the following primary channels. Supermarkets and department stores dominate the distribution of frozen foods in Japan, with 81% of volume sales. Apart from these retail groups, it is Japan's consumer co-ops that are the largest distributors of organic agricultural products in Japan.

"The most common distribution method is for a trading company to provide the frozen vegetables to a Japanese frozen food maker, which repackages the vegetables and sells them through wholesalers to retailers or commercial users along with Japanese-made frozen vegetables, other frozen vegetables and other frozen food products." (Austrade, 1998)

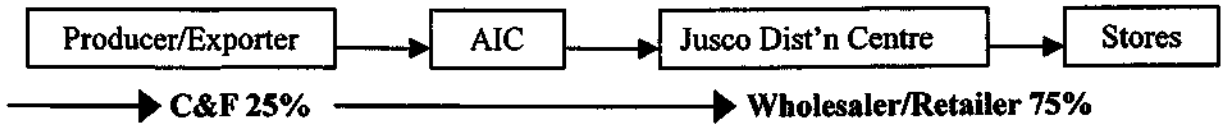
5.9 SUPPLY CHAIN

There are various distribution systems used by retailers, manufacturers and wholesalers in Japan's organic food industry. Some supermarkets are also improving retail competitiveness by reducing steps in the supply chain. For example, Jusco have their own distribution centre.

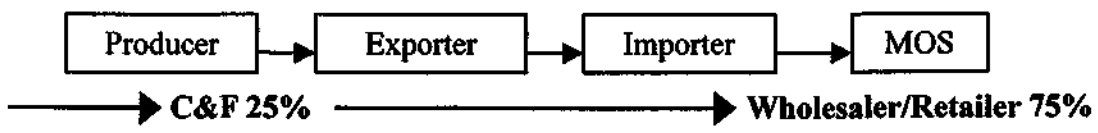
In order to supply to Jusco, new suppliers must contact the Category Manager. Physical supply is carried out in a formal manner through a trading company. Jusco have a 30% ownership in the trading company (AIC) that they utilise. Imported products are then delivered to Jusco distribution centres for delivery to their stores.

Margins depend on product value, lower value crops have lesser returns to the grower. Processing and handling costs are fixed.

Jusco Co. Ltd. Supply Chain System



MOS Food Services Supply Chain System



6.0 TARIFFS

Tariffs imposed on frozen vegetables are assessed depending on product category. The rates of duty applicable to imports of frozen vegetables to Japan are outlined in Appendix C.

Mr. Saito from MOS Food Service stated that he believes there is a reduction required in import duties for Australia to compete in the Japanese market.

6.1 IMPORT REQUIREMENTS

All food imported into Japan must satisfy the requirements of the Food Sanitation Law, and must be accompanied by an import application. The Food Sanitation Law contains standards for ingredients, preservation methods, containers and residual pesticides. Other regulations include the Plant Quarantine Law, however few imports of frozen vegetables should be affected by this law, as the majority of imports are heat-treated.

6.2 AUSTRALIA'S REPUTATION AS A SUPPLIER

In general, Japanese consumers prefer domestic produce over that which is imported into Japan. However in the eyes of most Japanese, Australia produces quality, high yield produce under clean environmental conditions. The Japanese believe that Australia has seasonal advantages and we have a good image as a clean, green producer.

Mammy Mart Corporation perceive this country as an excellent producer of vegetables, especially carrots and onions. Jusco see Australia as having major potential to supply both fresh and processed vegetable products.

7.0 ECONOMIC ANALYSES

A review of available information on the economics of production, processing and marketing was undertaken to establish the potential viability of a frozen organic and/or low chemical vegetable industry. This revealed that there is a lack of definitive information on the economics of organic/low chemical production, and that the information is often inconsistent. To establish the potential viability of the industry, a simple gross-margins analysis was compiled for one of the target crops (organic frozen broccoli) in the Japanese market. This study showed that the potential returns were attractive, given current price premiums. However, the study did not take into account the costs of conversion to organic production, or the impact on revenue of rotation crops in the whole farm situation. To clearly establish the viability of this industry, further detailed whole-farm studies across a range of environments are required.

Literature Review

A comprehensive literature review was conducted for this project sourcing secondary information from various industry organisations and Government. This review revealed that there is scant information available on the economics of organic production. Further, the information that is available is not consistent in its results, suggesting that organics may or may not be more profitable than conventional farming. Information on the economics of organic production came from countries including the United States, United Kingdom, Australia and New Zealand. Major studies conducted on this topic have been done by the Australian Rural Industries Research and Development Corporation, and Lincoln University (NZ) but these related mainly to broadacre cropping or the dairy industry. (e.g. Wynen 1997, Hassall & Associates 1996). Conclusions from these data are therefore difficult to relate to organic horticultural production.

A study by Cacek and Langner (1986) reviewed the economics of organic production showing that most studies concentrated on three key areas:

1. direct comparisons of economic returns between organic and conventional farms;
2. analysis of economic returns based on research plot yield data;
3. modelling comparisons of organic and conventional farms.

In addition they noted that 'Further research is needed on the economics of organic farming with horticultural crops and in other geographic regions. Particular attention should be given to optimum approaches for conversion to organic farming. Information needs of organic farmers should be surveyed and information delivery systems should be tailored to meet those needs". They concluded that there are a number of benefits from organic farming, however further research and interaction with policy makers is required in order to develop the industry further.

The Texas A&M University (1990) published 'A Guide to Marketing Organic Produce' to assist the organic industry in the USA. This study compares the risk of conventional and organic operations. "In some situations organic farmers may be less vulnerable to natural and economic risks than conventional farmers since their systems are usually more diversified. Some claim that the widespread adoption of organic farming methods could result in rural revitalisation, regional self-sufficiency in food production and changes in the existing 'capital intensive structure of agriculture'.

In a separate investigation Dabbert and Madden (1986) reached the following conclusions: "Prior research has shown that an established organic farm can be as profitable as a conventional farm under certain circumstances. However, organic farming systems often require a transition period before they are fully established after a changeover from conventional farming. Yields may

decrease and recover only slowly during this transition period and less profitable crop rotations may be required to establish an organic system".

A more recent study funded by RIRDC and conducted by Hassall and Associates (1996) contains information on input costs, labour costs and yields, as well as a whole farm analysis. Major findings from this study are:

- When comparing organic and conventional input costs, organic systems costs are generally 60% less than conventional, depending upon the industry.
- Labour is often the highest cost of organic production, but this also depends on industry and production cycle.
- It is generally assumed that organic has lower yields than conventional production, however a number of studies quoted by RIRDC show similar or increased yields by organic farmers. This will again depend on production type and rotations used.

A study by MAFF and Lincoln University in New Zealand (1997) analysed the potential for production of frozen organic sweet corn for Watties Frozen Food. This study showed that income from organic sweet corn was nearly double that of conventional, and income from transitional (in-conversion) sweet corn was 75% higher than that for conventional. However, the total direct costs per hectare for organic production was 50% higher than for conventional.

This study further noted that 'the information on the economic structure of organic farming is very limited and must be seen as important impediment for those who may wish to convert. Care should be taken when interpreting economic data since previous management practices are not known and thus may not reflect long term trends.'

Some of the major issues in the production of organic products have been emphasised in recent reports by the Food and Agriculture Organisation (FAO) 1999. The report noted that 'Organic agriculture requires greater labour input than conventional farms, but because of the diversification of crops on organic farms eg different planting and harvesting schedules may distribute labour demand more evenly which could help stabilise employment.'

In addition the study by Texas A & M University (1990) established that many people ask why organic produce is more expensive than conventional produce. There are several reasons for higher organic prices including:

- Yields of organic crops may be lower due to increased cosmetic damage and greater losses to insects, fungi and bacteria. Thus, costs of production must be spread over fewer units.
- Many organic crops require higher labour costs for more intensive fertilisation and weed, insect and disease control programs.
- Wider plant spacings used in organic production allow air and sunlight to reduce disease, but also reduce total plants and yields per acre.
- Low supply and increasing demand allow growers to ask and receive higher prices for their organic crops.

It is clear from the literature review that the economics must be assessed on a case by case basis and that no broad conclusions can be drawn from data currently available.
However, without an industry currently in place, it is difficult to obtain sound data on the costs of production and processing of organic frozen vegetables. There is also a need for further analysis of costs incurred throughout the organic supply chain. Detailed research is required to obtain the necessary data on issues such as conversion, reduced yields, alternative input costs and additional costs of production due to rotational cropping. Costs and returns will also vary according to production region.

An Example Assessment – Organic Frozen Broccoli into Japan

To assess the likely potential, an analysis of the estimated costs and returns for organic frozen broccoli has been prepared, and is compared with the returns from fresh organic and conventional frozen broccoli. Broccoli was the crop selected as it is already being produced in the Lockyer Valley, and it has significant market potential in Japan.

The estimates are based on production costs in the Lockyer Valley in Queensland. Price data was collected from local growers and the Brisbane fruit and vegetable wholesale market. In the case of the organic broccoli, an estimated on-farm price was calculated from the supermarket price of organic frozen vegetables in Tokyo and estimates of market margins provided by wholesalers and retailers in Japan. (See Figure 2.)

The breakdown of organic and conventional input expenses on a per hectare basis is shown in Table 12. The gross margin values are also shown. Detailed gross margins for each production method are included as Appendices F.

Table 12: Estimated Broccoli Gross Margins

Enterprise unit : 1 hectare Broccoli

Inputs	Frozen Organic ($/ha)	Frozen Conventional ($/ha)	Fresh Conventional ($/ha)
REVENUE	8657[1]	6376[1]	8000[1]
VARIABLE EXPENSES			
Land Preparation	600	112.2	112.2
Planting	1350	1662.4	1662.4
Fertiliser	400[2]	339.03	339.03
Weed Control	267.5[3]	170.13	170.13
Insect Control	152.5[4]	252.7	252.7
Disease Control	-	37.2	37.2
Irrigation	128.92	128.92	128.92
Labour Cost	325	-	-
Crop Monitoring	82.5	-	-
HARVEST/PACKING COSTS	**0**	**0**	**4600[5]**
TOTAL VARIABLE EXPENSES	**$3,306**	**$2,703**	**$7,303**
GROSS MARGIN	**$5,351**	**$3,673**	**$697**

DPI Farm Financial Counselling Service

NOTES:

[1] On-farm prices ($/carton) were based on estimates received through industry sources. The following on-farm prices were used:

Organic (processed):	$13.00 /ctn
Conventional (processed):	$ 8.00 /ctn
Conventional (fresh):	$12.00 /ctn

[2] Fertiliser expense based on 1 application of cow manure (20,000 kgs @ $0.02 /kg).
[3] Weed control expenses include inter-row cultivation (@ $7.50 /ha) and chipping labour (20 hrs @ $13.00 /hr)
[4] Insect control expenses for organic broccoli production based on 5 applications of Delfin (0.5 kg @ $61.00 /ha)
[5] Harvesting and packaging expenses based on harvesting and packaging expenses for fresh, conventional broccoli.

From this gross margin it can be shown that organic broccoli production (for processing) is viable under these conditions with a gross margin of $5,351, and total pre-harvest costs of $3,306. (It is important to note that these costs and gross margins are not applicable to other geographic areas, or to other horticultural crops.)

Conclusions

The gross margins suggest that returns from organic broccoli exceed conventional broccoli, however this analysis does not include the costs of rotations and as noted by Lampkin and Measures (1999), "it is therefore often inappropriate to consider the economics of a single enterprise, such as organic wheat, outside the context of the whole farm system." Thus a more detailed farm level analysis is required to establish the viability of organic frozen vegetables. This analysis also focuses only on one crop. Analyses are required for individual crops.

Based on the comparative returns, organic frozen broccoli is likely to be a secondary market to organic fresh broccoli until supply levels increase and there is an oversupply situation in the fresh market or strong contract pricing for supply.

However there are clear advantages in producing a processed product for the export market including savings in freight, longer shelf life, convenience, use of damaged or blemished product and avoidance of loss of organic status due to chemical treatment in the importing country.

It is clear that further detailed investigation of returns is necessary to establish the economics of organic and low chemical production for processing.

Figure 3 is the value chain for frozen organic broccoli to Japan. As depicted in the diagram, the on-farm price is $1.10/kg (not including harvesting costs). Harvesting, processing and freight & handling represent approximately 25% of the built-up retail price. The wholesale and retail margins occupy an estimated 75% of the final retail price of $16.25 per kilogram.

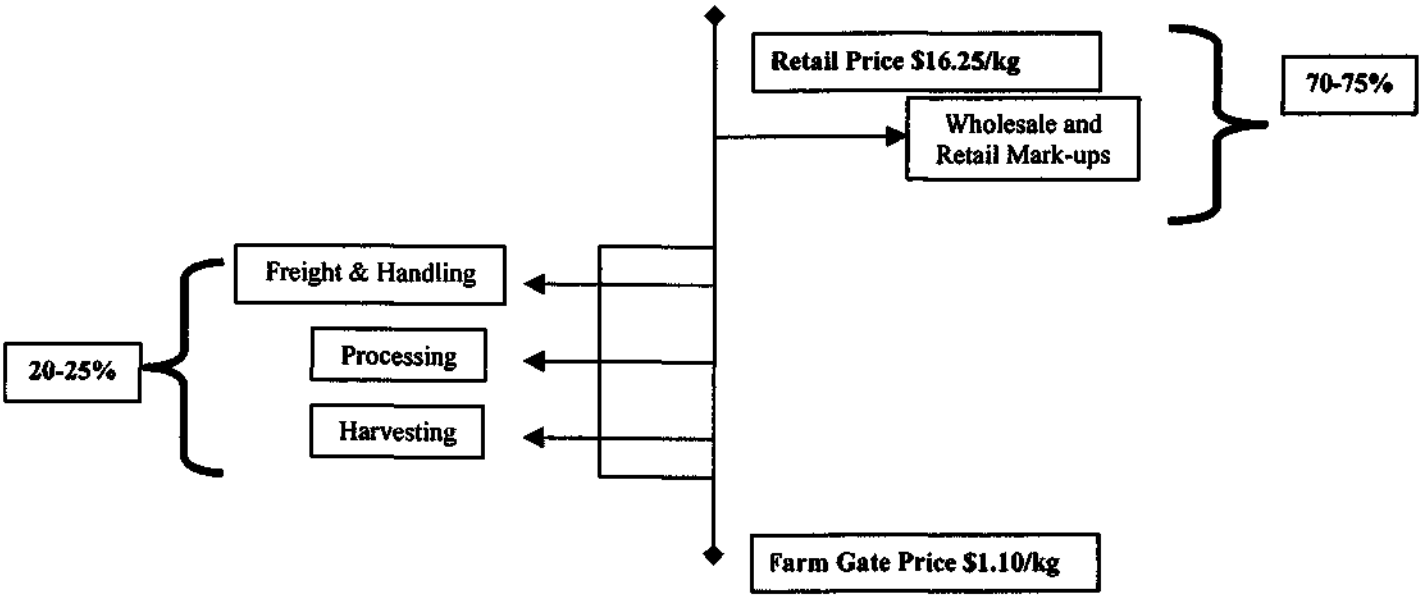


Figure 3: Value Chain to Japan

8.0 REFERENCES

1. Cacek T. & Langner L. (1986), *'The Economic Implications of Organic Farming'*, American Journal of Alternative Agriculture, Ecological Agriculture Projects, McGill University (McDonald Campus). http://www.eap.mcgill.ca/MagRack/AJAA/AJAA_2.htm

2. Dabbert S. & Madden P. (1986), *'The Transition to Organic Agriculture: A Multi-year Simulation Model of a Pennsylvania Farm'*, American Journal of Alternative Agriculture, Ecological Agriculture Projects, McGill University (McDonald Campus). http://eap.mcgill.ca/MagRack/AJAA/AJAA_3.htm

3. Wynen E. (1989), *'An Economic Comparison of Sustainable and Conventional Farms in South-eastern Australia'*, Australian Journal of Soil and Water Conservation, Vol. 2, No. 2.

4. National Academy of Sciences (1989), *'Alternative Agriculture'* Washington, DC: National Academy of Sciences.

5. Texas A & M University (1991), *'A Guide to Marketing Organic Produce'*, http://sustainable.tamu.edu/publications/organicproduce/intro.html.

6. Madge D.G. (1995), *'Organic Agriculture, Getting Started'*, Agriculture Victoria, Agmedia.

7. Hudson R. (1996), *'The Domestic Market for Australian Organic Produce, An Update'*, A Report for RIRDC, RIRDC Research Paper No. 96/1, Hassall & Associates Pty. Ltd.

8. Dumaresq D. (1997), *'Organic Agriculture in Australia'*, Proceedings of the National Symposium on Organic Agriculture: Research and Development, 30 June – 3 July, 1996, edited for the Rural Industries Research and Development Corporation, RIRDC Research Paper No. 97/14.

9. Ministry of Agriculture and Forestry (1997), *'Case Study: Organic Sweetcorn Production'*, Wellington, New Zealand. http://www.maf.govt.nz/MAFnet/publications/org1/org40002.htm

10. Mareeba Regional Development Organisation (1998), *'Horticultural Processing Plant, Feasibility Study, Consolidated Report to June 1998'.*

11. FAO (1999), *'Agriculture 21: Organic Farming Spotlight'*, Food and Agriculture Organisation of the United Nations.

12. Qld. Government Office – Europe (1999), *'Organic Food in Europe'*, Peter McDonald, November.

13. Campbell H. & Fairweather J.R. Lincoln University, Agribusiness and Economics Research Unit, PO Box 84, Canterbury New Zealand. http://www.lincoln.ac.nz/comm/research/aeru/

The United Kingdom

1. Agri-Food Trade Service (1996), *European Union Agri-Food Export Market Assessment Report – December 1996,* Agriculture and Agri-Food Canada, Market and Industry Services Branch, December.

2. USDA (1996), *The UK Organic Foods Market,* United States Department of Agriculture, AGR No. UK6138, London.

3. Brand Strategy (1997), *South European Countries are Adopting CE Anglo-Saxon' Tastes,* Profound – WorldSearch, February 21st.

4. *Euromonitor* (1997), *Market Briefing - UK Frozen Foods Market,* Profound.

5. Key Notes Report (1997), *Frozen Foods,* The United Kingdom.

6. Promar International (1997), *Organic Foods – Market Size and Structure.*

7. Ramesh S. Arunachalam (1997), *EU Imports Projected to Rise,* Business Line, Profound – WorldSearch Results, October 8th.

8. USDA (1997), *UK Organic Food Market Set to Grow,* United States Department of Agriculture, AGR No. UK7075, London.

9. USDA (1997), *UK – Organic Food Trade*, United States Department of Agriculture, AGR No. UK7062, London.

10. Agri-Food (1998), *TRENDS – Food in the United Kingdom, December 1998,* Agriculture and Agri-Food Canada, Market and Industry Services Branch, Canadian High Commission, Commercial Economic Division.

11. Doolan R. and Twyford-Jones P. (1998), *'The International Market for Organic Food'*, Market Research Series, Rural Industry Business Services, The State of Queensland, Department of Primary Industries, 1998.

12. *Euromonitor* (1998), *The World Market for Frozen Foods – Market Overview and Sector Trends,* Profound, 14th January.

13. McCoy, S. and Parlevliet, G. (1998), *The Export Market Potential for Clean and Organic Agricultural Products, Interim Report, Stage One of a Project on 'Clean and Organic Agriculture'*, for Agriculture Western Australia and Rural Industries Research and Development Corporation, Agriculture Western Australia, Perth, Western Australia, October.

14. Bishop, K. (1998), *Organic Food is Big Business in the UK*, Australian Farm Journal, August 1998.

15. Sainsbury's supermarket advertisement (1999), healthy living magazine, Sainsbury's.

16. Organic Produce Co-operative, pers comm, 1999.

17. Organic Marketing Coy, pers comm, 1999.

18. Waitrose Supermarkets, pers comm, 1999.

19. Tesco Supermarkets, pers comm, 1999.

France

1. Agri Service International (1995), *Processed Vegetables: French Study Sums Up State of Play in European Industry,* Profound – WorldSearch Results, September 1st.

2. Eurofruit (1995), *The UK Evaluates Export Potential,* Article Archive, Fruitnet, November.

3. Federation Nationale d'Agriculture Biologique des Regions de Francais (1995), *Total Organic Vegetables Market: Sales Distribution (France), 1995,* Profound, WorldSearch, (FNAB).

4. QDPI (1995), *'Agribusiness 2000; Horticulture; Trade and Investment; A Marketing Perspective, Opportunities for Queensland Agribusiness',* Queensland Department of Primary Industries, Agribusiness, S.R.M. Reid, S.J. Pullar, A.D. Rutherford, Agribusiness Marketing Services.

5. Agri-Food Trade Service (1996), *European Union Agri-Food Export Market Assessment Report – December 1996,* Agriculture and Agri-Food Canada, Market and Industry Services Branch, December.

6. USDA (1996), *France - Organic Food Market Potential and Regulations,* United States Department of Agriculture, AGR No. FR6007, Paris.

7. USDA (1996), *France – Organic Foods in France Update,* United States Department of Agriculture, AGR No. FR6094, Paris.

8. Brand Strategy (1997), *South European Countries are Adopting CE Anglo-Saxon' Tastes,* Profound – WorldSearch, February 21st.

9. *Euromonitor* (1997), *Market Briefing – France Frozen Food Market,* Profound, WorldSearch.

10. *Euromonitor* (1997), *Frozen Food in Europe, Market Forecasts,* Profound, WorldSearch.

11. Ramesh S. Arunachalam (1997), *EU Imports Projected to Rise,* Business Line, Profound – WorldSearch Results, October 8th.

12. USDA (1997), *French Demand for Organic Food is Skyrocketing,* United States Department of Agriculture, AGR No. FR7060, Paris.

13. FAS Online (1998), *Organic Perspective's – Update on France's 5-Year Organic Plan,* United States Department of Agriculture.

14. McCoy, S. and Parlevliet, G. (1998), *The Export Market Potential for Clean and Organic Agricultural Products, Interim Report, Stage One of a Project on 'Clean and Organic Agriculture',* for Agriculture Western Australia and Rural Industries Research and Development Corporation, Agriculture Western Australia, Perth, Western Australia, October.

15. Sanders (1999), *Prince de Bretagne concentrates on boosting organic production,* Eurofruit Magazine, December 1998/January 1999.

16. USDA (1999), *France: Organic Food Report, 1999,* United States Department of Agriculture, Foreign Agricultural Service, GAIN Report #FR9070, Piason, FJ. U.S. Embassy, 18 October, 1999.

Germany

1. Agri Service International (1995), *Processed Vegetables: French Study Sums Up State of Play in European Industry,* Profound – WorldSearch Results, September 1st.

2. QDPI (1995), *'Agribusiness 2000; Horticulture; Trade and Investment; A Marketing Perspective, Opportunities for Queensland Agribusiness',* Queensland Department of Primary Industries, Agribusiness, S.R.M. Reid, S.J. Pullar, A.D. Rutherford, Agribusiness Marketing Services.

3. USDA (1995), *Germany – Organic Food,* United States Department of Agriculture, Agricultural Trade Office, AGR No. GM5027, Bonn.

4. Agri-Food Trade Service (1996), *European Union Agri-Food Export Market Assessment Report – December 1996,* Agriculture and Agri-Food Canada, Market and Industry Services Branch, December.

5. USDA (1996), *A Guide to Exporting Food and Beverage Products to Germany,* United States Department of Agriculture, Agricultural Trade Office, AGR No. GM6046, Bonn.

6. Brand Strategy (1997), *South European Countries are Adopting CE Anglo-Saxon' Tastes,* Profound – WorldSearch, February 21st.

7. *Euromonitor* (1997), *Germany Fresh Fruit and Vegetables, Consumer Profile – Attitudes to Organic Food,* Market Briefing, Profound.

8. *Euromonitor* (1997), *Frozen Food in Europe,* Profound, WorldSearch, August.

9. Frost and Sullivan (1997), *European Organic Vegetables Market – Germany, France and Netherlands,* Profound, WorldSearch, February.

10. Ramesh S. Arunachalam (1997), *EU Imports Projected to Rise,* Business Line, Profound – WorldSearch Results, October 8th.

11. USDA (1997), *1998 Market Information Report – Germany,* United States Department of Agriculture, Agricultural Trade Office, AGR No. GM7311, Hamburg.

12. USDA (1997), *German Food and Agricultural Imports Down in 1997,* United States Department of Agriculture, Agricultural Trade Office, AGR No. GM8309, Bonn.

13. DFAIT (1998), *Germany – Processed Food Products,* Sectoral Study, Department of Foreign Affairs and International Trade.

14. Doolan R. and Twyford-Jones P. (1998), *'The International Market for Organic Food',* Market Research Series, Rural Industry Business Services, The State of Queensland, Department of Primary Industries, 1998.

15. *Euromonitor* (1998), *Market Briefing – Germany Frozen Food Market,* Profound.

16. German Deep-Freeze Institute (1998), *Growth Market Frozen Food – Frozen freshness on course for success at Anuga,* Anuga 1999, Cologne, Face to Face with the World of Food.

17. McCoy, S. and Parlevliet, G. (1998), *The Export Market Potential for Clean and Organic Agricultural Products, Interim Report, Stage One of a Project on 'Clean and Organic Agriculture',* for Agriculture Western Australia and Rural Industries Research and Development Corporation, Agriculture Western Australia, Perth, Western Australia, October.

18. Online Data Services (1998), *Frozen and Canned Vegetables in Germany,* Profound, WorldSearch, November.

19. USDA (1998), *A Guide to Exporting Food and Beverage Products to Germany,* United States Department of Agriculture, Agricultural Trade Office, AGR No. GM8020, Bonn.

20. USDA (1998), *Agricultural Export Opportunities Report, October,* United States Department of Agriculture, Germany, GAIN Report #GM8322.

21. U.S. Food and Drug Administration (1998), *Organic News Page,* Centre for Food Safety and Applied Nutrition.

22. U.S. Department of Agriculture Reports (1998), *Update on French Organic Consumers and Market,* Profound – WorldSearch, June 15th.

Japan

1. Johnstone, B. (1987), *'Catalyst for Change – Multinational chemical firm seeks foothold in Japan',* Far Eastern Economic Review, Tokyo, 17 December.

2. McErlich A.F. (1994), *'The Development of Market Opportunities for Organic Frozen Vegetables to Japan',* Wattie Frozen Foods Ltd., Hornby, Christchurch, Proceedings of the Nutrition Society of New Zealand, Vol. 19.

3. QDPI (1995), *'Agribusiness 2000; Horticulture; Trade and Investment; A Marketing Perspective, Opportunities for Queensland Agribusiness',* Queensland Department of Primary Industries, Agribusiness, S.R.M. Reid, S.J. Pullar, A.D. Rutherford, Agribusiness Marketing Services.

4. Japanese Frozen Food Association from Customs Statistics MOF (1995), *'Japan frozen vegetable imports by country and region (tonnes and JPY million).*

5. USDA (1995), *'Frozen Foods Create Opportunities for Imports',* United States Department of Agriculture, American Embassy, Tokyo, AGR No. JA5028.

6. *Euromonitor* (1996), *'Japan Frozen Foods',* Profound Business Intelligence Online.

7. Asia Pulse (1997), *'Japan's Frozen Food Output Grows in '96',* Profound, 08th May.

8. Austrade (1997), *'Vegetables (Frozen) – Japan',* September 1997, Industry Overview.

9. Barrager D. (1997), *'Organic Moves Up As a New Market is Born',* The Journal, September.

10. DFAT (1997), Department of Foreign Affairs and Trade.

11. *Euromonitor* (1997), *Frozen Food Sales 1992-1997.*

12. Japan International Agricultural Council (1997).

13. Jetro (1997), Japanese Frozen Vegetable Report, Japanese External Trade Organisation.

14. USDA (1997), *'Australian Organics Gain Food Service Distribution',* United States Department of Agriculture, Agricultural Trade Office, Osaka, Japan, AGR No. JA7718.

15. APEC Tariff Database (1998), Japanese Tariff Rates, Australia Pacific Economic Corporation.

16. Brisbane Port Authority Handbook (1998).

17. Doolan R. and Twyford-Jones P. (1998), *'The International Market for Organic Food',* Market Research Series, Rural Industry Business Services, The State of Queensland, Department of Primary Industries, 1998.

18. JETRO Report 1998: http://www.jetro.go.jp/JETROINFO/FOCUSJAPAN/98_01_2.html

19. Sloan (1998), *'Organics: Grown by the Book'*, Consumer Tends, News and Analysis, Food Technology, Elizabeth Sloan, Contributing Editor.

20. Yomiuri Shimbun (1998), Editorial, November 29.

21. USDA (1998), *'Overview of the Japanese Market for Consumer-Ready Agricultural Products, 1998'*, US Embassy, United States Department of Agriculture, Foreign Agricultural Service, Global Agricultural Information Network, GAIN Report #JA8516.

22. USDA (1998), *'A Look at Japan's Retail Food Sector: 1997'*, United States Department of Agriculture, Agricultural Trade Office, Tokyo, Japan, AGR No. JA8505.

23. Deamer, C. (1999), *'Japan Assesses Dioxin Levels'*, Asiafruit Magazine, May/June.

24. USDA (1999), *'Japan Agricultural Situation, Organics Update, 1999'*, United States Department of Agriculture, Foreign Agricultural Service, GAIN Report #JA9123, Woolsey M. U.S. Embassy, 5 October 1999.

Appendix A

DEFINITIONS

Throughout the following report a number of terms relating to biological/natural production systems are used. These terms are defined by AQIS in their *National Standards for Organic and Biodynamic Produce* as:

approved certifying organisation is an organisation which has been approved by the Australian Quarantine and Inspection Service (AQIS).

bio-dynamic means agricultural practices based principally on the work of Rudolf Steiner and subsequent developments derived from practical application, experience and research.

certification means the procedures by which an approved certifying organisation provides written assurance that an operator has been determined to conform with this standard. Certification is based on the inspection of practices used, sampling of product and verification of records maintained by the operator.

conventional farming refers to the methods used by mainstream contemporary farmers and processors to produce their products from alternative agricultural systems. Conventional methods range from high input to low input of agricultural fertiliser, chemicals and other substances.

food safety refers to the assurance that food is safe to eat and free from a microbiological and contaminant perspective.

genetically modified organisms include all materials produced through the modern methods of biotechnology; specifically gene technology 'recombinant DNA (rDNA)' and all other techniques using molecular and/or cell-biology for altering the genetic make-up of living organisms in ways or with results which do not occur in nature or through traditional breeding.

HACCP (Hazard Analysis and Critical Control Points System) – a method to identify, evaluate and control specified hazards.

labelling means any words, particulars, trademarks, brand names, names of certifying organisations, pictorial matter or symbols appearing on any packaging, document, notice, label, board or collar accompanying or referring to a product.

integrated crop management (ICM) is a comprehensive system of modern farming husbandry balancing economic production with environmental responsibility.

marketing means holding or displaying for sale, offering for sale, selling, delivery or placing on the market in any other form.

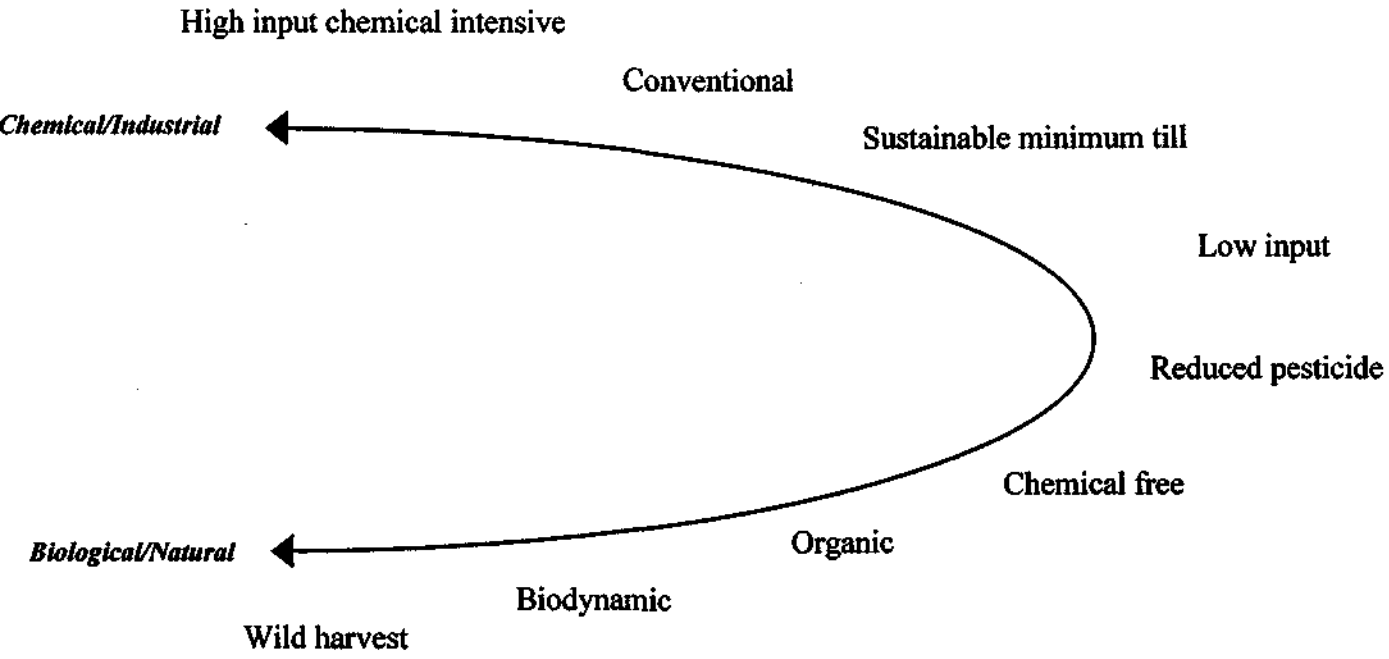
organic means produced by specific management practices which take of the environment and soil. Synthetic chemicals (including pesticides and fertilisers) are not permitted other than those listed in Annex 1 of the standard.

organic in conversion means a production system which has adhered to national standard for at least one year, and has been certified as such but which does not qualify as fully organic for reasons such as:

- the conversion system has not been operated within the requirements for the specified period (usually three years); or
- the farm does not meet the quality standards, ie soil structure considered appropriate and necessary for organic farms; or
- the overall organic management system is not sufficiently developed.

production means the operations involved in producing agricultural products in the state in which they are normally produced on the farm.

Production methods vary greatly from high inputs of synthetic agricultural fertilisers, chemicals and other substances, to inputs of only 'naturally occurring' substances. The range of production systems is illustrated below.



Appendix B

STANDARDS AND REGULATIONS

Organic and Bio-dynamic Certification

Australian organic production standards are renowned worldwide to incorporate strict standards, inspection procedures and verification systems to satisfy consumer concerns relating to safety, health and the environment.

According to the Australian "National Standards for Organic and Bio-dynamic Produce" 1998, organic farming is defined as follows:

> *Organic farming systems include those which are referred to as 'bio-dynamic', 'biological', or 'ecological'. Irrespective of which term is used, the basic principles remain the same; namely the production without the use of synthetic fertilisers or chemicals which aims to achieve optimum quantities of produce and food of high nutritional quality. Organic farming aims to nurture and maintain the land for future generations. Emphasis is placed on the use of renewable resources, the need for conservation of energy, soil and water resources and the maintenance of environmental quality. The production cycle is as closed as possible, with some use of external inputs permitted. These systems strive to be sustainable.*

Organic standards are classified as international, national and local.

International

The following accreditation bodies set global standards and provide accreditation to national or local organisations:

1. IFOAM (International Federation of Organic Agricultural Movements)
   - assesses organic standards, inspection procedures and audit trails used by certification organisations, promoting uniformity of standards world-wide.

2. EU (European Council Regulation (EEC) No 2092/91)
   - came into force on July 22nd 1991 and details the criteria for producing, certifying and labelling organic food and agricultural products. Australia is one of five countries who has been 'EU approved' to export organic food and agricultural products into the EU. All organic food imports must be accompanied by a certificate of inspection which guarantees that the production and processing methods used comply with the EU regulations.

3. Codex Alimentarius (United Nations Food Standards – World Trade Organisation)
   - established by the United Nation's Food and Agriculture Organisation (FAO) and World Health Organisation (WHO) and provide guidelines for the production, processing, labelling and marketing of organically produced foods. Acceptance of these guidelines may provide a framework for countries to establish internationally acceptable organic standards and regulatory systems.

National

National standards exist in a number of countries, providing accreditation to local organisations.
Australia – Organic Produce Advisory Committee (OPAC)
UK - United Kingdom Register of Organic Food Standards Board (UKROFS)
Japan – MAFF (Ministry of Agriculture, Forestry and Fishery) to be released in 2000.

Australia

On a national level, OPAC was established under the auspices of AQIS in 1992, to encourage a national approach to the development of Australian organic produce. National standards and certification procedures were developed for organic produce for the domestic and international markets. Products that bear AQIS certification can be exported with an organic label. Products can not be exported as 'organic' if they are produced under a certification system which does not have AQIS accreditation.

The United Kingdom

According to the UK Register of Organic Food Standards, the EC Regulation applies to "unprocessed agricultural crop products, to products intended for human consumption composed essentially of one or more ingredients of plant origin and it introduced specific rules for the production, inspection and labelling of such products. At this stage the Regulation does not cover animal production, unprocessed animal products and products intended for human consumption composed essentially of ingredients of animal origin. EC Proposals for these are currently under consideration."

For the purpose of administering the European Council Regulation (EEC) No 2092/91 in the United Kingdom, UKROFS is an entirely independent body established in 1987 at the request of the Minister of Agriculture and has been assigned as:

(a) The Authority responsible for the reception of notification of organic activity and for making available to interested parties an updated list containing the names and addresses of operators subjected to the inspection systems;
(b) The Inspection Authority responsible for the operation of the inspection systems defined in the Regulation (EEC) No 2092/91;
(c) The Authority responsible for the approval and supervision of private inspection bodies in accordance with the relevant provisions defined in the Regulation.

The Regulation requires that "operators who produce, prepare or import from a third country products specified by the Regulation for the purpose of marketing them must notify the activity to the competent authority of the Member State in which the activity is carried out and they must submit their activities to a specified inspection system." To fulfil this requirement, most operators are registered with one of the Organic Sector Bodies which UKROFS has approved for operation in the UK. All approved Organic Sector Bodies operate in accordance with UKROFS Standards and therefore conform to the EC Regulation rules for organic production and processing. The Soil Association is one of the seven approved Sector Bodies, registered as UK5.

The Soil Association Organic Mark is the registered trademark of the largest and respected organic certification system in the United Kingdom available to producers, retailers and processors of organic goods. It is the preferred choice of the supermarkets and is found on more than 70% of all registered organic products. According to the Standards for Organic Food and Farming, the Soil Association exists to 'research, develop and promote sustainable relationships between the soil, plants, animals, people and the biosphere, in order to produce healthy food and other products while protecting and enhancing the environment'.

Japan

Japanese guidelines for organic production are not compulsory and labelling of organic produce therefore remains confusing to consumers. Guidelines for the *Labelling of Organic Farm Products and Specially Grown Farm Products* were established several years ago in an attempt to label organic farm products properly. The Codex Committee on Food Labelling met and discussed labelling standards for organic foods, however both producers and consumers have strongly requested that inspection and certification of organic foods be conducted by a third party organisation. In July 1997 the Committee on the Inspection and Certification System for Organic Foods was formed, which discusses inspection and certification systems for organic foods. The committee has met several times to review discussions held by the Codex Committee, discuss the framework of the inspection and certification system for organic foods, and to review approaches taken by the United States and the European Union. A report has been developed on the outcomes of these meetings titled *Introduction of the Inspection and Certification System for Organic Foods.* The Ministry of Agriculture, Forestry and Fisheries (MAFF) will now attempt to implement appropriate organic labelling through inspection and certification by third party organisations, in line with recommendations from this report, including amending the *Law Concerning Standardisation and Proper Labelling of Agricultural and Forestry Products.*

Local

The role of local certifying organisations includes the setting of standards, conducting inspections and independent certification. Australia has seven AQIS accredited organic and biodynamic certification organisations:

1. NASAA (The National Association for Sustainable Agriculture Australia)
2. Demeter BDRI (Biodynamic Research Institute)
3. BFA (Biological Farmers of Australia)
4. OHGA (Organic Herb Growers of Australia Inc.)
5. OVAA (Organic Vignerons Association Australia Inc.)
6. OFC (Organic Food Chain)
7. Eco-Organics of Australia

ORGAA (Organic Retailers and Growers Association Australia) is not AQIS accredited, however it does offer an organic advisory service and voluntary retail certification.

Local certification organisations employ their own set of written standards and inspection systems and conduct inspections throughout all links in the supply chain including farms, storage facilities, transport, processors, manufacturers and input suppliers.

There is no national standard for labelling of domestic produce. This is currently being reviewed.

Appendix C

Rates of Duty Applicable to Imports of Frozen Vegetables to Japan

Tariff Heading	Description	General	WTO 1
0710	Vegetables (uncooked or cooked by steaming or boiling in water), frozen:		
071010	Potatoes	10%	9%
071021	Leguminous vegetables, shelled or unshelled:		
	Peas (Pisum sativum)	10%	9%
071022	Beans (Vigna spp., Phaseolus spp.)	10%	9%
071029	Other	10%	
071029	Green soya beans		7.3%
071029	Other		9%
071030	Spinach, New Zealand spinach and orache spinach (garden spinach)	10%	7.3%
071040	Sweet corn	12.5%	11.2%
071080	Other vegetables:		
071080	1. Burdock	20%	14.7%
071080	2. Other	10%	7.3%
071080	Broccoli		
071080	Other		
071090	Mixtures of vegetables:		
071090	1. Chiefly consisting of sweet corn	12.5%	11.2%
071090	2. Other	10%	7.3%
2004	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, frozen, other than products of heading No. 20.06		
200410	Potatoes:		
200410	1. Cooked, not otherwise prepared	10%	9%
200410	2. Other	9.6%	(11%)
200490	Other vegetables and mixtures of vegetables:		
200490	1. Containing added sugar		
200490	(1) Sweet corn	17.5%	12.8%
200490	(2) Other	28%	25.2%
200490	2. Other		
200490	(1) Asparagus and leguminous vegetables	20%	18%
200490	(2) Bamboo shoots	16%	14.4%
200490	(3) Sweet corn	12.5%	9.2%
200490	(4) Young corncobs	25%	18.3%
200490	In airtight containers		
200490	Other		
200490	(5) Other	9.6%	(11%)

Source: APEC Tariff Database, 1998

Appendix D

Contacts/Company Profiles

Company Name	Contact	Company Information
United Kingdom		
Organic Marketing Company	Peter Segger	Established in 1984. Imports approximately 70–80% of fresh produce. 4 packing facilities in England and prepacks for approximately 80% of fresh organic sales in th UK.
Organic Produce Co-operative	Geoff Mutton / Paul Burgess	Established in 1992 from two grower co-operatives. Supply major supermarkets with produce, of which 60% is locally grown and the remaining 40% imported.
Waitrose Supermarkets	Quentin Clark	Major retail chain. Currently organic vegetable accounts for 10% of their vegetable sales and is approaching 15% of sales rapidly.
Tesco Supermarkets	Andrew Sellic	Major retail chain. Currently market a full range of organic vegetables, sourced globally from the EU, Spain, South Africa, Argentina and Australia. Dutch and Danish organic systems appears to be supplying the majority of Tesco's frozen organic products.
Sainsbury's Supermarkets	Robert Ducsbury	Major retail chain. Market 60 organic fruit and vegetable lines in each store. Organic supplies are proving difficult. Prepared to establish trading linkages between UK Category Managers and Australian suppliers.
Soil Association Certification Ltd	David Crucefix	First and largest certification organisation, established 1973. Its role is to define, set and implement standards for organic food and fibre farming in order to protect organic food consumers and genuine producers. Certifies over 80% of the organically produced foods in the UK market.
France		
Ministry of Agriculture, Republic of France	Marain Monod / Nicole Chassang	Encouraging the rapid development of organic agriculture. A conversion program supported by subsidies aims to increase the yearly conversion of farms to organic systems from currently 600 per year to 2000 farms per year. A 60 FF million program supports this program with priorities on cereals, fruit and vegetables. Additional money is being used to develop organic systems research and training/extension programs for French farmers. Control AB label.
Qualite France	Sophie Grivet	Provide quality accreditation labelling standards - does not specialise in organics

		alone. Responsible for 33% of all organic accreditations in France.
Naturalia	Emmanuel De La Baume	Specialist natural food retailer. Began selling frozen vegetables (carrots and potatoes) in May 1999. 75% of products supplied by French suppliers/wholesalers.
Bio-Coop		Retail chain network developed by French Organic Growers Retail Cooperative. Commenced operations in 1993 by a group of French farmers acting in a voluntary capacity committed to organic production methods. A capital injection of 3 million Francs was used to initiate the cooperative. The chain now operates over 200 retail outlets throughout France, offering over 5000 organic food products and 450 people shopping in each store weekly.
Bonneterre	James Serive	Established 40 years ago. Largest organic food supplier in France, supplying 1700 retail stores throughout Europe. Has a fleet of 80 trucks to distribute product to four (4) sister distribution companies throughout France. Consists of a 1700 item product range. Presently 500 of Bonneterre customer/retailers are selling frozen organic vegetables.
Germany		
Demeter	Frau Kohl	Biodynamic and Organic Farming Co-operative, consisting of growers from Germany and Holland. Started selling frozen organic in 1993. Supply only small health stores in Germany (approximately 2000 stores). Demeter supply: - the processing industry with raw products for baby food, jams products; - bakeries with milk and grain; - supermarkets/stores with deep frozen goods; - wholesale stores all over Europe with Demeter products.
Naturelistik	Herr Martin Gaesller	Small specialist retailer of organic foods (6 stores). Frozen organic product is imported, packaged in Holland Denmark and supplied by Demeter or Naturland.
Japan		
Nichimoto Trading Co. Ltd	Mr Sakamoto	Japanese import company. Believes organic products will **not** sell well in the future.

Nichirei Corporation	Sakae Kawasumi	Manufacturer and distributor of processing food products. Began to develop frozen organic product range in 1993. Claim to hold 70% market share of Japan's frozen organic vegetable market. Sweet corn, broccoli and mixed vegetable packs are currently popular. Source product from the USA, New Zealand, Europe and China.
MOS Food Services Inc.	Masumi Saito / Harutsugu Kuryu	Hamburger chain – currently sourcing tomato, lettuce, sunny lettuce, onion, Capsicum and cabbage from 300 areas within Japan. Imports only frozen potatoes. Require out of season, fresh supply for all vegetables. Processing may be satisfactory for broccoli and asparagus, but not leafy vegetables.
Japanese Ministry for Agriculture, Fishing and Forestry (MAFF)	Akira Namiki	Commercial certifier for individual farm/processor certification. New MAFF organic standards formally legislated and implemented in early 2000 (based on CODEX standard).
Jusco Co. Ltd.	Shigeo Fujii, Chiyuki Uehara, Kiyoshi Nobusawa	Major retail chain. Import product from New Zealand, China and the USA. Would prefer to offer only frozen organic products and drop conventional from product rang if manufacturers could supply in the 10–20% higher price range. The following nine vegetables are believed to have potential as frozen organic: corn, carrots, peas, cut spinach, broccoli, cauliflower, immature green peas, green asparagus, potatoes ⇨ french-fries.
Mammy Mart Corporation	Hirofumi Iwasaki	Retailer. Currently sell 4 items of frozen organic potato – 2 cuts (US), mixed vegetables (US), corn (US). Handle up to 17 items of frozen organic vegetables. Frozen vegetables are increasing in popularity – will increase with either organic or conventional, depending on market demand. This group sells no low chemical product (frozen).