



University of New England

**Graduate School of Agricultural and Resource Economics
&
School of Economics**

**Issues and Research Needs of the Australian Organic Food
Products Market**

by

Hui-Shung Chang, Garry Griffith and Lydia Zepeda

No. 2004-9 – August 2004

Working Paper Series in

Agricultural and Resource Economics

ISSN 1442 1909

<http://www.une.edu.au/febl/EconStud/wps.htm>

Copyright © 2004 by University of New England. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided this copyright notice appears on all such copies. ISBN 1 86389 896 4

Issues and Research Needs of the Australian Organic Food Products Market

Hui-Shung Chang, Garry Griffith and Lydia Zepeda**

Abstract

Worldwide, the demand for organic food products has expanded rapidly in the past decade, stimulated by consumer perceptions that organic products are safer, cleaner and more ethical than conventional products. The demand for organic products is estimated to be growing at a rate of 15-20 per cent per annum, with sales reaching \$US23 billion in 2002. The biggest growth in consumption has occurred in developed countries such as the United States and Europe, which are major importers of organic foods. Australia, as a major exporter of agricultural products, stands to benefit from this expansion in demand. However, little is known about the organic industry by other agribusinesses and little research on organics has been conducted in Australia, especially compared to the United States and Europe. The objective of this paper is to provide a contemporary overview of the Australian organic food products industry, including production, marketing and certification of organic foods. Major supply issues such as the small production base and the low rate of conversion to organic farming and major demand issues such as availability, prices and product integrity are discussed. Areas identified for further research include data collection and reporting of production, consumption and trade of organic products, consumer and producer attitudes towards, and expectations of, organic farming, product integrity and labelling regulation, competition from other sustainable farming systems, and future industry structure of the organic sector. Outputs from the research will provide market information to the organic industry that helps identify marketing opportunities and develop strategies for meeting market requirements and sustaining industry growth.

** Hui-Shung (Christie) Chang is a Senior Lecturer in the School of Economics at the University of New England, Armidale. Garry Griffith is a Principal Research Scientist with NSW Department of Primary Industries, Armidale and an Adjunct Professor in the School of Economics at the University of New England. Lydia Zepeda is a Professor in the Department of Consumer Science at the University of Wisconsin-Madison.

Contact information: School of Economics, University of New England, Armidale, NSW 2351, Australia. Email: hchang@pobox.une.edu.au

Introduction

Organic agriculture has received increasing attention from both government and industry. On the production front, it may offer some solutions to the environmental problems associated with conventional farming practices in the industrialised countries (Lampkin 1990). It may also be potentially beneficial to developing countries by offering export opportunities (de Haen 1999). The demand for organic products worldwide has expanded rapidly, boosted by the heightened awareness of the link between health and diet, the recent series of highly publicized food scares, the debate over genetically modified (GM) foods, and the perceived environmental benefits. Promotion by mainstream retailers and major food manufacturers has also been a driver, as they move into organic product lines (Willer and Yussefi 2002).

According to the SOEL Survey in February 2004, more than 24 million hectares are managed organically worldwide and organic sales were estimated to be worth US\$23 billion in 2002 with North America and Europe being the main markets (Willer and Yussefi 2004). Market shares of organic foods in these countries are between one and two per cent of total food sales (FAO 2001). While Europe appears to be the fastest growing market for organic products, producers in the United States and New Zealand have been the quickest to respond to the growing demand in the world market. Australia, as a major exporter of agricultural products and the country with the largest area of organic production, stands to benefit from this expansion in the demand for organic products.

However, despite the overall positive outlook, there are potential threats that may hinder the future growth of the organic sector. They include increased competition from other forms of environmentally friendly and sustainable agriculture, fraud or negative publicity associated with organic produce and a slow down in the demand for some organic products as the market matures (Willer and Yussefi 2002).

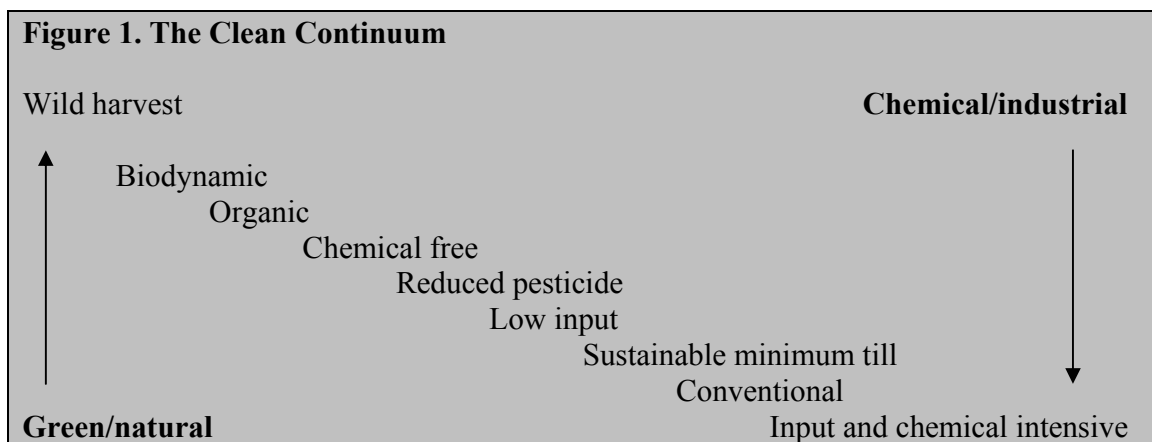
While there exists a growing literature on the economics of the organic food products industries in Europe (see for example de Haen 1999, Lampkin 1994) and in North America (see for example Klonsky and Tourte 1998, Krissoff 1998, Lohr 1998, Thompson 1998), the discussion in Australia has been limited (see for example, Wynen 1990, 2002 and 2003, Hassall and Associates 1990 and 1995, McCoy and Parlevliet 2000, RIRDC 1997 and 2001, Neeson and Pearson 1998, Pearson 2001, and Lyons et al. 2000 and 2002, Lockie et al. 2001 and 2002). Moreover, little is known about the organic industry by the general public and participants in other industries. To enable the Australian organic industry to take advantage of growing consumer demand both in Australia and overseas, more and better information is needed through research to help identify marketing opportunities and develop strategies. The objectives of this paper therefore are (1) to provide an overview of the Australian organic sector, including certification, production and marketing of organic foods, (2) to identify issues and opportunities facing the Australian organic sector, and (3) to suggest areas for further research for the Australian organic sector. By providing this overview and identifying the issues, it is hoped that some researchers will take up the challenge and generate new

information that will allow the organic producers and associated agribusiness suppliers to take advantage of the opportunities that are arriving in both the domestic and export markets.

Organic standards and certification

Organic production is generally understood by Australian consumers to mean farming practices that do without the application of artificial fertilizers and chemicals and have a high degree of environmental awareness (Pearson 2001, Lyons et al. 2000, Chang et al. 2004). In Australia, organic agriculture is specifically defined in the Australian National Standard for Organic and Biodynamic Produce (OPEC 2002) and among its specifications is the following: “Organic farming systems rely to the maximum extent feasible upon crop rotations, crop residues, animal manures, legumes, green manures, mechanical cultivation, approved mineral-bearing rocks and aspects of biological pest management to maintain soil productivity and tilth, to supply plant nutrients and to control diseases, insects, weeds and other pests”.

Organic agriculture fits in well with the various terms used to describe sustainable agriculture. Although it is not the only option, what distinguishes organic agriculture from other forms of sustainable agriculture is the existence of production standards and certification procedures and hence a distinctive marketing edge over other approaches (FAO 2001). McCoy and Parlevliet (2000) have related the continuum of production systems to the notion of “clean quality” implied by them (see Figure 1).



Source: adapted from McCoy and Parlevliet (2000).

Australia has an organic certification system that is well recognised in the world market (McCoy 2002). May and Monk (2001) compared the Australian Standard with other standards from the United States, the European Union, and Codex Alimentarius and found that the Australian Standard was comparable in all major aspects. Australia is one of the few non-EU countries to gain the third country status on the Article 11 list (FAO 2001). The Australian Standard is continually being reviewed against legislations, standards and organic practices both within Australia and overseas to keep it up to date with global trends in organic production and consumer demand (Lyll 2001). The first

version of the Australian Standard was released in 1992 and revised in 1998 (the second version) and in 2002 (the third version). Harmonization of organic standards within Australia and on a global scale will facilitate the marketing of organic products. Currently, Australia has seven AQIS-accredited organic or biodynamic certification organizations (OFA 2002, NASAA 2003), They include:

- Bio-Dynamic Research Institute (BDRI) with the Demeter label
- National Association for Sustainable Agriculture Australia (NASAA), accredited by IFOAM and USDA
- Australian Certified Organic Pty Ltd (ACO)/ Biological Farmers of Australia (BFA), accredited by IFOAM and USDA
- Tasmanian Organic Producers (TOP)
- Organic Food Chain of Australia
- Organic Growers of Australia (OGA)
- Safe Food Queensland (SFQ).

Organic production in Australia

Organic agriculture in Australia has been expanding since the mid 1980s. Certified organic area has increased from 150,000 hectares in 1990 to 335,000 hectares in 1995 (Hassall & Associates 1996), 7.6 million hectares in 2000 (Courtney 2003) and an estimated 10 million hectares in 2004 (Willer and Yussefi 2004). According to Willer and Yussefi (2004), Australia has the largest organic area in the world (accounting for about 40 per cent of total world organic area), most of which is dedicated to extensive beef enterprises. After Australia, Argentina (2.96 million hectares), Italy (1.17 million hectares), the United States (950,000 hectares) and Brazil (841,769 hectares) had the largest areas of organic production. As a percentage of total agricultural land in Australia, organic production is only 2.2 per cent (compared with Liechtenstein of 26.40 per cent (the highest in the world) and 0.22 per cent in the United States). Despite the fact that Australia has the world's largest organic area, the number of organic farmers and the volume of organic outputs in Australia are quite low, compared to conventional production. The number of certified organic farmers nationally was estimated to be 1,429 in 1995 (Hassall & Associates 1996), while in 2002, it was estimated to be around 2000-2200 (BFA 2003). Organic farmers make up about one per cent of the total number of farmers in Australia. For a more detailed description of the current status of the Australian organic sector, see Monk (2003).

In Australia, organic agriculture covers most commodity production systems. The main types of production are livestock for meat and dairy products; dryland and irrigated cereals, mainly wheat and oats; fruits of most varieties including exotic and tropical species; and vegetables of all sorts. There are also small quantities produced of cotton, oil seeds, grain legumes, nuts, herbs, condiments, sugar and tea (Hassall & Associates 1996). Hassall & Associates (1996) found that in 1995, 75 per cent of organic farmers surveyed were horticulturalists, 12 per cent were broadacre producers, and 10 per cent were engaged in livestock production (Table 1). Wynen (2003) found that in 2000-2001, meat production (beef, sheep and other livestock) accounted for 38 per cent of the total farm

value of organic production in Australia, followed by grains (26 per cent) and horticulture (25 per cent). Dairy, wool and all others made up the remaining 11 per cent.

Table 1. Survey results of the Australian organic industry in 1995

Farm type	Number of organic farmers	Total farm area in hectares	Total organic area in hectares
Broadacre	52 (12)*	128,049 (75)	59,764 (69)
Horticulture	313 (75)	17,824 (10)	6,948 (8)
Livestock	43 (10)	20,223 (12)	14,675 (17)
Other	12 (3)	4,969 (3)	4,914 (6)
Total	420	171,065	86,301

* Figures in parentheses are percentages.

Source: Hassall & Associates (1996, p. 9).

Hassall and Associates (1996) also found that the scale of operation varied from very small backyard vegetable and egg producers through to corporate broadacre farms operating tens of thousands of hectares. Also, farm areas under organic production varied considerably by region. Moreover, there appeared to be some concentration of organic farms with similar production in some regions. For example, beef production is concentrated in Queensland; wheat is concentrated in western Victoria, northern NSW, central Queensland and southern Western Australia; rice in the Murray and Murrumbidgee Irrigation Areas; milk in Central Victoria; and a range of horticultural operations around major urban centres and along the Murray River (Dumaresq and Greene 1997). This pattern is similar to the distribution of non-organic farming in Australia, which may imply that organic production has come mainly from the conversion of conventional farms in the same area.

The total retail value of organic food production was estimated to have increased from A\$28 million in 1990 (Hassall & Associates 1990) to A\$80.5 million in 1995 (Hassall & Associates 1996). Putting these figures together, the growth of sales of organic products in Australia was estimated to be approximately 25 per cent per annum. Based on this estimate, the Australian organic retail market was valued at A\$250 million in 2002 (DPI 2002, RIRDC 2002a, Courtney 2003, Monk 2003).¹

Based on the buoyancy in the demand for organic products in recent years, particularly in Europe and the United States, future growth in Australia at much higher rates, ranging from 30 to 50 per cent, have also been mentioned (eg RIRDC 2002b, Grothers 2000). The

¹ The problem with arriving at estimates based on historical, and sparse, data is that the market situation may have changed considerably, rendering the estimates inaccurate over time. This is particularly true when the growth rate was calculated from a small base where the rate is unlikely to continue as the market develops further. Therefore, caution should be exercised in interpreting such estimates.

Chairman of the Organic Federation of Australia was quoted in saying that “Australia is expected to follow Europe, where the prediction is that in 15 years’ time 30 per cent of all food sold will be organic” Grothers (2000). However, most recent studies by Kortbech-Oleson (2003) and Wynen (2003) have produced sales figures and growth rates that are much smaller than previous estimates. Wynen (2003) re-estimated the value of organic production in 2000/01 based on certification data, rather than an assumed 25 per cent average growth rate, and found the farm value to be around A\$89 million which translates into a retail value of around A\$165 million (without accounting for imports and exports). Moreover, since only 64 per cent of total organic production was actually sold as organic, the retail value should have been around A\$105 million. Not all produce from certified organic farms is sold as “organic” because farmers cannot find a market for it (Wynen 2003). On the other hand, other studies have suggested that as high as 75 per cent of the total organic sales are not ‘certified organic’ (Macarthur Agribusiness & Quarantine and Inspection Resources Pty. Ltd. 1999). The lack of reliable and published data on organics has made it difficult to assess the validity of such claims. One of the challenges for the organic sector, both for Australia and other countries, is the collection of data that are needed for assessing changing market situations and developing plans and strategies (Wynen 2003, Kortbech-Oleson 2003).

Regardless of whether or not the future looks as bright as what has been suggested, the organic market worldwide is still a relatively small niche market. The current share of organic sales in Australia is about 1 per cent (compared with about 3 per cent in the United States) (Grothers 2000, Barstow 2003). The domestic market is relatively small because Australian consumers tend to believe they are already getting clean, green food perhaps because governments and companies have been promoting such an image for decades. Growth in the industry has been driven primarily by strong export demand and higher price premiums overseas. Further, the Australian government has been more actively involved in promoting exports. The export focus is apparent from the fact that Australia’s National Standard for Organic and Biodynamic Produce, developed in 1992, was designed for export purposes (Lovisol 1997a,b).

The export trade in 2000 was estimated to be in the order of A\$30-50 million² and accounted for about 40 per cent of total organic sales (DPI 2002). The main organic exports from Australia are noodles and bread making wheat and flour, oats, barley, pulses, oilseeds, rice, soybeans, wine, beef, oranges, apples, fruit juice and a range of processed products (McCoy 2002). In 2001, the most important export markets for Australian organic products, in volume terms, were the United Kingdom (28 per cent), Italy (18.1 per cent), Japan (12.8 per cent), Switzerland (12.6 per cent), France (6.7 per cent), Singapore (5.8 per cent), the United States (5.5 per cent), the Netherlands (4.7 per cent), Germany (2.5 per cent), and New Zealand (2.2 per cent) (Kennedy 2002). In addition, Canada, France and the United States were identified as the fastest growing markets for Australian organic exports. Australia is seen to have an advantage in these

² Although an organic export certificate has to be issued for every organic product exported, the data have only been collected by AQIS since September 1999. Moreover, only export volume is documented. As such, the value of exports can only be estimated (Kennedy 2002).

markets because fresh fruit and vegetables can be supplied during the off-season into these northern hemisphere markets (McCoy and Parlevliet 2000).

Despite being a net exporter of organic food products in some categories, Australia also imports organic products, such as coffee, pasta sauces, fruit juices, polenta, olive oil, baby food, etc from the United States and the United Kingdom, in the order of A\$5 million annually (McCoy and Parlevliet 2000, McCoy 2002). Other commodities, such as kiwi fruit and fresh produce from New Zealand, are imported to fill temporary shortfalls in domestic production (Grothers 2003)

Organic marketing in Australia

Two major studies on the organic market in Australia have been conducted by Hassall and Associates (1990 and 1996), commissioned by Rural Industries Research and Development Corporation (RIRDC). A national survey has been funded in 2003 by the Federal Government to provide updated information and was to take place in May and June 2004 (Troeth 2003). However, the results are not expected to become available any time soon. As such, the review here is based primarily on the results from the 1995 survey conducted by Hassall and Associates (1996).

Organic food in Australia is available from a variety of outlets (Table 2). However, the bulk of organic food is sold through specialty shops (Hassall & Associates 1996, Kinnear 2002). Although there are a number of farmers' markets, home deliveries and community gardens operating around the country (Barber 2002), direct marketing plays only a subordinated role to the wholesale distribution system because of the lengthy transportation distances between the country and the consuming public. However, there is evidence that farmers markets are experiencing growth in Australia, similar to the United States and other parts of the world (Friends of the Earth Brisbane 2002).

Table 2. Main marketing channels for organic farmers by state (%), 1995

	NSW	QLD	VIC	WA	SA	Tasmania	Average
Sell to processors/ Wholesalers	52	57	54	54	58	64	57
Sell through co-ops or organic organizations	10	19	1	4	2	0	6
Sell directly to retailers	19	7	21	27	18	13	18
Sell directly to consumers	9	4	10	4	10	3	7
Process or value-add on-farm	4	4	1	0	2	0	2
Other	6	9	13	11	10	20	12

Source: adapted from Hassall & Associates (1996).

Domestically-produced organic produce made up about 95 per cent of total organic food marketed in Australia. Variations in the source of supply across states can be seen in Table 3. Note that NSW had a much higher degree of dependence on interstate and overseas suppliers while Western Australian and South Australia relied more heavily on local supplies. Interstate trade of organic produce in Australia is affected by distance to market as well as variations in interstate quarantine and phytosanitary control measures (Hassall & Associates 1996, p. 73). For example, South Australia prohibits unsprayed ripe fruits from fruit fly infested areas while Western Australia prohibits fumigated grains.

Table 3. Sources of supply of organic produce (%), 1995

	NSW	QLD	VIC	WA	SA	Tasmania	Average
Immediate local suppliers	33	52	48	67	61	23	47
Within state but not local	16	18	34	15	18	16	20
Interstate suppliers	38	18	17	17	20	61	29
Overseas suppliers	13	12	1	1	1	0	5

Source: adapted from Hassall & Associates (1996).

The two largest food supermarkets in Australia, Woolworths and Coles, with a combined market share of over 50 per cent, have recently been trialing organic subsections of their fresh fruit and vegetables departments in targeted stores, primarily in capital cities. However, in country towns, fresh organic produce is hard to find and when available it usually has been trucked across the country and handled by several marketing intermediaries. Unlike in Europe, the trialing of organic foods in the supermarkets has generally been a passive response to consumer demands, rather than proactively leading on organic marketing, and the initial result has been disappointing. Difficulty in obtaining a consistent supply at the national level has been a serious constraint to promoting organic products in mainstream supermarkets (Grothers 2000).

Key issues and associated research needs

The increasing demand for organic products in Australia appears to be stimulated by consumer perceptions that organic products are safe and socially responsible, as elsewhere in the world (Lyons et al. 2000, Lockie et al. 2002). However, there are recognized problems of quality assurance, product recognition, consumer confusion over logos, certification and trademarks, and uncertainty of supply, quality and price (Alenson 1997, Dumaresq and Greene 1997, Neeson and Pearson 1998, RIRDC 1997 and 2001). The limited product range, high price premiums, and lack of availability of organic foods in conventional supermarkets are also thought to be important factors limiting demand (McCoy 2002). To understand the market for organic products and to be able to develop business and marketing strategies to take advantage of opportunities as they arise, these issues have to be investigated further.

Consumer motivation. A key research question is whether the demand for organic foods will continue to grow and if so by how much? Will it remain a niche market or will it become mainstream? Demand has grown significantly, but total sales represent a very small proportion of the total food sales (currently about 1 per cent). Related to understanding the eventual size of the demand for organic food products is identifying who are the organic shoppers? Research has shown conflicting results with respect to demographic factors, such as income and education. For example, Goldman and Clancy (1991) did not find that household income was correlated significantly with organic purchases, while other researchers found it did play a role in consumers' willingness to pay for organic foods (Misra et al. 1991, Govindasamy and Italia 1999, Wang and Sun 2003). Byrne et al. (1991) and Thompson and Kidwell (1998) found education to be inversely related to organic purchases, while Swanson and Lewis (1993) found the opposite and Wilkins and Hillers (1994) found no significant relationship between education and organic purchases among members of a food cooperative. These differences in findings could be due to differences in sampling methods, changes in attitudes or behavior over time, where and when the studies took place, or how questions were asked, but they do point to the need for further investigation. In addition, the expanding variety and availability of organic products, as well as changes in organic regulations and labeling, support continued exploration into consumer demand for organic food. Hence, researchers are looking at other ways to characterise organic shoppers, eg attitudes and motivations (eg Lyons et al. 2000, Lockie et al. 2002, Zepeda et al. in press). Are organic consumers representative shoppers, a fringe niche or a passing fad? What types of organic foods will experience the greatest growth? And how much will consumers be willing to pay for organic foods?

Availability. Although organic foods that are available in Australia include a wide range of products, from fresh fruit and vegetables to grains, meats and dairy products (McCoy and Parlevliet 2000), consumers and retail outlets find the lack of consistent supply of organic produce to be a major constraint to increasing consumption. In most cases, this is a result of a small production base in most food categories, compounded by seasonality in supply. In the case of non-organic produce that is available in the supermarkets, not only is choice abundant, but supply is usually year-round because of the global sourcing networks employed by the supermarket chains. Given limited supply, organic consumers either have to be content with whatever is available or shop around in order to get what they need. Compared with the one-stop shopping offered by supermarkets, the search cost can be prohibitively high for most consumers.

Unfortunately, the problem of limited supply is likely to remain for the immediate future because of the small production base. The organic industry may well be trapped in its own smallness (Dumaresq and Greene 1997). On the one hand, the marketing sector (processing, wholesaling and retailing) will not support organic production without assured supply. On the other hand, without the guarantee of market outlets for their outputs, farmers will be reluctant to expand organic production. Unless this paradox can be resolved, limited and inconsistent supply will remain a major barrier to further development of organic markets in Australia. A key research question would seem to be

how to accommodate the risks inherent in the current marketing chain for organic food products so as to increase supply and market access?

Price premiums. High retail price is another reason that discourages greater demand for organic products. Based on a consumer survey conducted in Armidale, NSW, Pearson (2001) reported that while organic buyers consider organics as being more healthy and higher quality, conventional buyers consider organics as being inconvenient and more expensive. He also found that a 20 per cent premium over the conventional counterpart may be the maximum for the majority of buyers to be enticed into purchasing organic foods on a regular basis. FAO (2001) also indicated that a price premium of around 20 per cent was acceptable to most consumers. However, the premium for organic products in Australia on average was found to be 20-40 per cent while some premiums may reach 100-200 per cent (DPI 2002). Given the limited supply issue mentioned above, price premiums are likely to remain high until supply catches up with demand. While high price premiums may encourage conversion to, and expansion of, organic production in the longer term, they are likely to attract cheaper imports from overseas in the short to medium term. Competition from imports is something the fledging organic industry needs to be quite concerned about. Another research issue is to what extent the FAO evidence of a 20 per cent price premium threshold might be generalisable across products and markets?

Consumer confusion. The way that organic farming is defined and certified has been a source of confusion for consumers. This is because organic products are distinguished from conventional products and other green and clean products by the way in which the product is produced rather than the physical attributes of the product itself. In Australia, there is a strong distinction between organic and biodynamic. Although some consumers may be interested in ecologically sustainable production systems, demand for, and competitiveness of, organic foods in mainstream retailing inevitably would depend on what the product itself can offer relative to competing products (Krissoff 1998). This means that while producers may take pride in employing a particular set of techniques and philosophies, they may mean very little to most consumers who care primarily about product attributes. Certification and labelling of organic products are designed to help consumer confidence. However, the use of a wide range of different terms and certification labels in Australia does little to simplify the choice process for the consumer. Therefore, a key research question is whether consumers are receiving the environmental and food safety attributes that they want from organic foods? The expansion in the demand for organic products since the 1990s may suggest that many consumers believe that they are. However, this group of consumers may not be representative of the consuming public and the organic market may therefore remain a niche market.

Labelling of organic products. Under the Australian Standard and the Export Control (Organic Certification) Orders of 1997, it is illegal for an Australian marketer to export a product as organic without being certified by an AQIS-accredited certifying organization. However, the word “organic” is not yet defined or legally protected on the domestic market. This means that no restriction is placed on the use of the word ‘organic’ and some products can be sold as organic without being certified. This includes products that

do not comply fully with organic standards. Therefore, the only guarantee consumers have is to buy products that bear the label or logo of a certifying organization. Currently, there are seven such certifying organizations in Australia, and each carries its own label or certification mark. Many industry analysts believe that credible certification and consistent labelling of organic products is the key to consumer confidence and demand growth and a unified national approach to organic product labelling is a necessary step towards avoiding consumer confusion and building consumer confidence.

In 1993, the then Australia New Zealand Food Authority (ANZFA) was called upon to consider domestic regulation on organically grown foods (Hall 1997). In particular, it was to consider the inclusion in the Food Standards Code of a requirement that all food labelled as “organic” or similar was to be certified by AQIS-accredited certifying organizations. ANZFA’s initial response was that it did not have the authority to do this. Moreover, it was concerned about the legality of making a third party certification a precondition for selling food as “organic”. ANZFA also indicated that it could not consider any organic labelling provisions without a clear and agreed definition for organic although the organic industry has argued that it has been defined in the National Standard for export markets. After years of negotiations, the application for domestic regulation was rejected by the Australian government in 2002.

The government’s position on the labelling issues was that it would regulate only where it is necessary to protect public health and safety or where there is clear market failure and then, only when the broader community is affected (Troeth 2001). In addition, it was argued that government regulations impose unnecessary costs on business and can create a restrictive, inflexible, and less competitive business environment. The government's advice to the industry was to establish a voluntary, industry-driven, self-regulatory framework for the operation of the organic standards in the domestic market, by, for example, the development of a Code of Practice. The industry was also advised to increase its efforts to address problems of consumer deception and retail fraud by educating consumers about organic foods, rather than seeking regulatory or enforcement-based solutions to those concerns.

However, other countries either have or are developing controls on the use of the word organic. For example, the European Union has had strict government-controlled labelling regulations since 1992. The United States Department of Agriculture (USDA) has put in place a new regulation effective in October 2002 that sets national standards for foods marketed as organic and makes certification to these standards mandatory, except for the smallest producers (with annual organic sales under US\$5,000). Producers that are certified by USDA-accredited certifying organisations are allowed to use the national organic logo “USDA Organic” (Greene and Kremen 2003). Japan also has similar rules and a common national logo for organic foods. The reluctance of the Australian government to get involved in domestic regulation may reflect the lack of political clout of a very small industry facing with a small domestic market, as well as the traditional policy focus on export markets. By comparison, Japan, the European Union and the United States are the major organic markets in the world, together contributing more than 95 per cent of total global organic sales (Organicsupersite 2003). Domestic regulations

existing in these countries may simply reflect the size of the market and the need to control imports.

Some of the research issues arising from this discussion include an assessment of the relative merits of regulation and voluntary standards in this industry, and an analysis of the lack of a formal labelling and certification process on market demand and access to export markets, as argued in the submissions.

Market structure. While the eventual size of the organic food products market is under question, significant growth in this market is not necessarily welcomed by all participants. Some producers are concerned about the pressure from competition and the possible impact on the integrity of the product (organic standards and certification) and organic principles (profits versus environmental sustainability). On the one hand, growth in organic sales might well be dependent on the ability of the industry to reach a critical mass that would allow a consistent supply of a wide range of standardised food products at affordable prices to the majority of consumers. This is more achievable through large-scale farming and more sophisticated distribution networks, similar to what has been required of conventional products. With large-scale operations, price premiums can decline as economies of scale are attained in production, marketing and distribution. Small players, however, would need to specialise in providing a unique product or service to their target markets, as happened in the non-organic sector (Krissoff 1998, Lohr 1998).

Some of the research questions that arise here include: What is the potential impact of industry growth on organic standards and the certification process? How will growth affect producers' motivations for organic production (environmental versus economic concerns)? Will expanded processing, packaging and value-adding intensify the energy consumption associated with organic food production, so negating some of the environmental benefits? How would consumers react to an industrialised organic sector? What is the impact of industry growth on traditional small players? What is the extent of economies of scale in organic farming? Does it exist across the board?

Adoption of organic farming practices. Marshall (1993) outlined several important factors that were likely to impact on adoption of organic farming, including the financial competitiveness of organic farming, the management skills of organic farmers, agro-climatic conditions and social considerations.

The extent to which organic farming is financially competitive with other farming approaches remains a major factor influencing its adoption. A number of studies have compared the financial performance of organic farms with conventional farms (eg Wynen 2002, Lampkin 1994, Wynen and Edwards 1990). While some studies found that the profitability of organic farming was comparable with that from conventional farming, others concluded that alternative agriculture was less profitable. Such debate is likely to continue due to the complexity of comparing two very different systems. Firstly, it is difficult to isolate the effects of the farming system per se from effects of localised factors (eg climate, soil type, management skills, sources of organic inputs, etc) which

are not determined by the choice of farming system (Lampkin 1990). Secondly, the environmental benefits of organic agriculture should also be included in the evaluation. Nevertheless, it is expected that organic agricultural production can become more competitive as the industry grows and the costs of major inputs and services decline due to economies of scale. However, increases in the size of the industry can also affect the price premiums received by organic farmers.

Another factor that can impact on the adoption of organic agriculture is the level of management skills required to operate an often highly diversified farm. Crosson and Ostrov (1990) claim that organic agriculture entails more demanding management than other approaches to farming because managers need to have substantial knowledge of complex ecological relationships and farming experience to be able to maintain crop and livestock productivity without relying on synthetic fertilisers and pesticides. If this is indeed the case, it is likely that it will be one of the constraints limiting the adoption of organic farming practices. However, Lockeretz (1989) argued that expansion of organic farming would be associated with an acceleration of knowledge accumulation among organic farmers as well as an increase in the technical support available from governments and farm advisors.

Agro-climatic conditions are another area that deserves close investigation in determining the extent to which organic agriculture can be developed further in Australia without prohibitively high cost. Australia is a dry and old continent with soils that are notoriously low in organic matter, often 1 per cent or less. Thus, with few exceptions, organic farming is likely to be limited to areas with relatively good soils and amiable climatic conditions. In addition, most organic farmers would prefer to be far away from their conventional counterparts to limit possible contamination of soils and water, as well as to be close to other organic farmers for technical support and marketing purposes. Sites that are suitable in all aspects may be either difficult or costly to come by, limiting the possibility for expansion. The fact that organic farming tends to concentrate in traditional non-organic farming regions means that increased organic production is likely to come from conversion rather than new production units. This also means that organic and non-organic farming is likely to be operated side by side, potential conflicts between the two sectors are likely, due for example to issues of chemical drift and GM contamination. Such potential conflicts need to be avoided.

Given that financial incentives are important in encouraging conversion to organic farming and that profitability of organic farming is likely to depend on a range of factors, more research is needed to determine the critical success factors for profitable organic operations across region, commodity and farm size. In addition, many of the issues raised by Marshall (1993) over a decade ago warrant new research input.

Government support. While European and United States governments have provided subsidies and/or other technical and regulatory assistance to organic farmers, government support in Australia has been limited to facilitating organic production and trade through the development of national organic standards and providing matching funds for research and development. Encouragement of adoption of organic production by government

subsidies is unlikely to happen in Australia in the current deregulation climate. Government intervention is seen to be costly and unlikely to produce desired results in the long term. Moreover, international competitiveness, based on private initiatives rather than subsidies, is believed to be the key to survival and success for a small exporting country such as Australia in the global market.

One argument for government support of the organic sector is that organic production is good for the environment and good for the people and therefore should be promoted and supported by government. However, there appears to be little documented empirical evidence to support the asserted superiority of organic farming in Australia or the United States (Marshall 1991, Crosson and Ostrov 1990). Empirical evidence of the environmental and health advantages of organic agriculture is required before policy makers could rule it out or promote it as an alternative approach to mainstream agriculture. Even so, support in Australia would likely to be in the form of research and extension, rather than through taxes, subsidies or government regulation.

Further, if organic agriculture is truly beneficial to individual health and the environment and such benefits are recognised and appreciated by consumers, the market for organic foods will be such that consumers will be willing to pay for the extra benefits received and producers will be rewarded with price premiums encouraging more organic production. Although government subsidies in the European Union are a key element for the expansion of organic farming, price premiums associated with organic products throughout the world do appear to be encouraging growth in organic production in Australia and developing countries. This points to focusing the role of government on regulation (such as development of organic national standards and labelling regulations) and technical assistance (such as provision of funding for research and extension). Most organic research conducted so far in Australia is either on-farm by farmers or funded by the Rural Industries Research and Development Corporation and various state departments. However, there appears to be a need for a greater degree of networking and coordination among these agencies (Dumaresq and Greene 1997).

Conclusion

Worldwide, the demand for organic products appears to have expanded quickly in the past decade, stimulated by consumer perceptions that organic products are safe and ethical. The demand for organic products worldwide is currently estimated to grow at a rate of 15-20 per cent per annum with sales reaching \$US23 billion in 2002 and growth occurring primarily in major importing countries such as the United States and Europe. It is clear that Australia, as a major exporter of agricultural products, stands to benefit from the expansion of demand for organic products. What is not clear, however, is how accurate these estimates are and whether domestic demand will grow in a similar way. Consumer confusion over logos, certification and trademarks, and uncertainty about the availability, quality and price of organic food products, are well recognised in Australia.

Because reliable statistics are either unavailable or incomplete, most research on demand for, and supply of, organic products are based on limited observations in rather localized

areas. As such, care must be exercised when interpreting and generalising research results generated from such data. Nevertheless, existing studies have shown that consumers purchase organic products for a variety of reasons and there are significant differences in consumers' perceptions and attitudes towards organic products across socio-demographic groups, across regions and across countries. Furthermore, consumer perceptions and attitudes towards organic foods appeared to have changed over time as more information and more products have become available. For example, income and price were found to be important factors in determining demand for organic products a few years back but are significantly less important now. Therefore, collection of data and research on consumer demand and adoption of organic farming, especially on a regional scale, must be supported on a continuing basis. Such data are vital to future planning and development of the organic industry.

This paper has attempted to present a range of issues relating to the Australian organic food product industry that merit investigation. Along with data and demand issues, changes in market structure, adoption of organic practices, technical production issues and analysis of government policy regarding the organic industry present vital opportunities for investigation. For the Australian organic food products industry to grow and mature, supply chain issues and consistency in standards appear to be key issues that need to be resolved. It is only after these issues are resolved that agribusiness suppliers and users of organic food products will be in a position to capitalise on opportunities presented by the market in the future.

References

Alenson, C. 1997, (no title), in Dumaresq, D., Greene, R. and van Kerkhoff, L. (eds), *Organic Agriculture in Australia, Proceedings of the National Symposium on Organic Agriculture: Research and Development, 30 June – 3 July, 1996*, RIRDC Research Paper No. 97/14, RIRDC, Canberra, pp. 20-23.

Barber, R. 2002, “The human face of food”, in *Proceedings of the Local Global Organics Conference, October 3-4, 2002*, Lismore, NSW, pp. 21-26.

Barstow, C. 2003, “The mechanics of organics: an agriculture-marketing professor sheds light on how retailers can cater to the growing organic/natural foods market”, *Progressive Grocer*, 82(4), p.12.

BFA (Biological Farmers of Australia) 2003, “Organic certification: the easy way”, BFA, Toowoomba.

Byrne, P.J., U.C. Toensmeyer, C.L. German, and H. Reed Muller. 1991, “Analysis of consumer attitudes toward organic produce and purchase likelihood.” *Journal of Food Distribution Research* 22(2): 49-60.

Chang, H.S. and Zepeda, L. 2004, “Consumer perceptions and demand for organic food in Australia: focus group discussions”, unpublished working paper.

Courtney, P. 2003, “Organic grains”, aired 3 March 2003, <http://www.abc.net.au/landline/stories/s794284.htm>.

Crosson, P. and Ostrov, J.E. 1990, “Sorting out the environmental benefits of organic agriculture”, *Journal of Soil and Water Conservation*, January/February, pp.34-41.

DPI (Department of Primary Industries, Queensland) 2002, “Trade opportunities for organic food”, <http://www.dpi.qld.gov.au/business/1538.html>.

Dumaresq, D. and Greene, R. 1997, “Major reviews of industry”, in Dumaresq, D., Greene, R. and van Kerkhoff, L. (eds), *Organic Agriculture in Australia, Proceedings of the National Symposium on Organic Agriculture: Research and Development, 30 June – 3 July, 1996*, RIRDC Research Paper No. 97/14, RIRDC, Canberra, pp. 95-109.

FAO 2001, “Organic markets for fruit and vegetables”, FAO, Rome, <http://www.fao.org/DOCREP/y1669E/y1669e0g.htm>.

Friends of the Earth Brisbane 2002, “Towards a community supported agriculture”, Friends of the Earth, Brisbane.

- Goldman, B.J., and K.L. Clancy. 1991, "A survey of organic produce purchases and related attitudes of food cooperative shoppers." *American Journal of Alternative Agriculture* 6(2): 89-96.
- Govindasamy, R., and J. Italia. 1999. "Predicting willingness-to-pay a premium for organically grown fresh produce." *Journal of Food Distribution Research* 30(2): 44-53.
- Greene, C. and Kremen, A. 2003, *US Organic Farming in 2000-2001: Adoption of Certified Systems*, Agricultural Information Bulletin No. 780, ERS, USDA, Washington DC.
- Grothers, L. 2000, *Australia Organic Products: Organic Market Continues to Expand 2000*, GAINS Report Number AS0027, FAS, USDA, Washington, DC.
- Grothers, L. 2003, *Australia – Exporter Guide Annual 2003*. FAS, USDA, Washington, DC.
- Haen, H. de 1999, "Producing and marketing quality organic products: opportunities and challenges", paper presented to the Sixth IFOAM Trade Conference: Quality and communication for the organic market, Florence, 23 October 1999, <http://www.fao.org/organicag/doc/IFOAMf-e.htm>.
- Hall, J. 1997, (no title), in Dumaresq, D., Greene, R. and van Kerkhoff, L. (eds), *Organic Agriculture in Australia, Proceedings of the National Symposium on Organic Agriculture: Research and Development, 30 June – 3 July, 1996*, RIRDC Research Paper No. 97/14, RIRDC, Canberra, pp. 28-29.
- Hassall & Associates 1990, *The Domestic Market for Australian Produced Organic Food*, RIRDC, Canberra.
- Hassall & Associates 1996, *The Domestic Market for Australian Organic Produce: An Update*, RIRDC Research Paper No. 96/1, RIRDC, Canberra.
- Kennedy, Q. 2002, "Industry analysis", *Australian Organic Journal*, Spring, p.19.
- Kinnear, S. 2002, "Retailing organics—the changes and the challenges", in *Proceedings of the Local Global Organics Conference, October 3-4, 2002*, Lismore, NSW, pp. 76-79.
- Klonsky, K. and Tourte, L. 1998, "Organic agricultural production in the United States: debates and directions", *American Journal of Agricultural Economics*, 80(5), 1119-1124.
- Kortbech-Olesen, R. 2003, "Market." In M.Yussefi and H. Willer (eds.), *The World of Organic Agriculture 2003—Statistics and Future Prospects*. Tholey-Theley: International Federation of Organic Agriculture Movements.

Krissoff, B. 1998, "Emergence of U.S. organic agriculture—can we compete? Discussion", *American Journal of Agricultural Economics*, 80(5), 1130-1133.

Lampkin, N. 1994, "Organic farming: sustainable agriculture in practice", in Lampkin, N. and Padel, S. (eds), *The Economics of Organic Farming: an International Perspective*, CAB International, Wallingford.

----, 1990, *Organic Farming*, Farming Press, Ipswich.

Lockeretz, W. 1989, "Problems in evaluating the economics of ecological agriculture", *Agriculture, Ecosystem and the Environment*, 27, 67-75.

Lockie, S., Lyons, K., Lawrence, G., and Mummery, K. 2002. Eating 'green': Motivations behind organic food consumption in Australia. *Sociologia Ruralis* 42 (1):23-40.

Lockie, S., Mummery, K., Lyons, K., and Lawrence, G. 2001. Who buys organics, who doesn't, and why? Insight from a national survey of Australian consumers. Paper presented to the Inaugural National Organics Conference, 27-28 August 2001, Sydney.

Lohr, L. 1998, "Implications for organic certification for market structure and trade", *American Journal of Agricultural Economics*, 80(5), 1125-1129.

Lovisol, R. 1997a, "Export requirements for the marketing of organic and bio-dynamic products", in Neeson, R. and Pearson, D (eds), *Conference Proceedings for Marketing Organic and Bio-Dynamic Products*, NSW Agriculture.

Lovisol, R. 1997b, "Federal government initiatives", in Dumaresq, D., Greene, R. and van Kerkhoff, L. (eds), *Organic Agriculture in Australia, Proceedings of the National Symposium on Organic Agriculture: Research and Development, 30 June – 3 July, 1996*, RIRDC Research Paper No. 97/14, RIRDC, Canberra, pp. 5-7.

Lyll, I. 2001, "Australian regulations for organic produce", in *Proceedings of the Inaugural OFA National Organics Conference 2001*, RIRDC Publication no. 01/121, RIRDC, Canberra, pp.79-80.

Lyons, K., Lockie, S. and Lawrence, G. 2000. Consuming 'green': The symbolic construction of organic foods. *Rural Society* 11, no. 3:197-210.

Lyons, K., Lockie, S. and Lawrence, G. 2002, "Global moves on the local level—community supported agriculture", in *Proceedings of the Local Global Organics Conference, October 3-4, 2002*, Lismore, NSW, pp. 27-28.

Macarthur Agribusiness & Quarantine and Inspection Resources Pty. Ltd. 1999, *Organic Certifier—AQIS Charge Review*, RIRDC Research Report MS900.20, RIRDC, Canberra.

Marshall, G. 1991, "Organic farming: should government give it more technical support", *Review of Marketing and Agricultural Economics*, 59(3), pp.283-296.

Marshall, G. 1993, "Organic farming in Australia: an economist's perspective", in Proceedings from the AIAS Organic Agriculture Conference, 17 June 1993, pp. 61-68.

May, R. and Monk, A. 2001, *Organic and Bio-dynamic Produce: Comparing Australian and Overseas Standards*, RIRDC Publication No. 01/05, RIRDC, Canberra.

McCoy, S. and Parlevlier, G. 2000, *Export Market Potential for Clean & Organic Agricultural Products*, RIRDC Publication No. 00/76, RIRDC, Canberra.

McCoy, S. 2002, "Organic agriculture – introduction", Farmnote No. 21/2002, Department of Agriculture, Western Australia, <http://www.agric.wa.gov.au>.

Misra, S.K., C.L. Huang, and S.L. Ott.1991, "Consumer willingness to pay for pesticide-free fresh produce. *Western Journal of Agricultural Economics*. 16(2): 218-227.

Monk, A. 2003, "CEO's report", *Organic Food & Farming Report Australia 2003*, Biological Farmers of Australia Cooperative Ltd, Toowoomba. Available at: http://www.bfa.com.au/Downloads/Documents/Organic_Farming_Report_Australia_2003_NOGRAPHICS.pdf

NASAA (National Association for Sustainable Agriculture Australia). 2003, Australian Quarantine and Inspection Service accredited certifiers. <http://www.nasaa.com.au>.

Neeson, R. and Pearson, D. 1998 (eds), *Marketing Organic and Bio-dynamic Products*, Conference Proceedings for Organic and Bio-dynamic Grain and Livestock Marketing, 28-29 September 1997, Orange, NSW.

OFA (Organic Federation of Australia) 2002, "Organic Federation of Australia", <http://www.ofa.org.au>.

OPEC (Organic Produce Export Committee) 2002, *National Standard for Organic and Biodynamic Produce*, AQIS, Canberra, Australia.

Organicsupersite 2003, "New market opportunities", http://www.organicsupersite.com/pages/ofa_meat.htm.

Pearson, D. 2001, "How to increase organic food sales: results from research based on market segmentation and product attributes", *Australian Agribusiness Review*, Vol. 9, Paper 8, http://www.agrifood.infor/Review/2001v9/Pearson_2001/Pearson_2001.htm.

RIRDC (Rural Industry Research and Development Corporation) 2002a, "Organic Produce", <http://www.rirdc.gov.au/programs/org/html>.

RIRDC (Rural Industry Research and Development Corporation) 2002b, “5 Year R&D Plan for Organic Produce 2001-2006”, <http://www.rirdc.gov.au/pub/organic/html>.

RIRDC (Rural Industry Research and Development Corporation) 1997, *Proceedings of the National Symposium on Organic Agriculture: Research and Development*, 30 June- 3 July 1996, RIRDC Publication No. 97/14.

RIRDC (Rural Industry Research and Development Corporation) 2001, *Proceedings of the Inaugural OFA National Organics Conference*, 27-28 August 2001, Sydney, RIRDC Publication No. 01/121. <http://www.rirdc.gov.au/pub/organic/html>.

Swanson, R.B., and C.E. Lewis.1993, “Alaskan direct-market consumers: perception of organic produce.” *Home Economics Research Journal* 22(2): 138-155.

Thompson, G. 1998, “Consumer demand for organic foods: what we know and what we need to know”, *American Journal of Agricultural Economics*, 80(5), 1113-1118.

Troeth, J. 2001, “Opening paper”, in *Proceedings of the Inaugural OFA National Organics Conference 2001*, RIRDC Publication no. 01/121, RIRDC, Canberra, pp.7-13.

Troeth, J. 2003, “Organic industry ‘gets the picture’ with first national survey”, Media Release, AFFA03/050T, 21 August 2003.

Wang, Q., and J. Sun. 2003, “Consumer preference and demand for organic food: evidence from a Vermont Survey.” Paper presented at the American Agricultural Economics Association Annual Meeting, Montreal 2003.

Wilkins, J.L., and V.N. Hillers. 1994, “Influences of pesticide residue and environmental concerns on organic preference among food cooperative members and non-members in Washington State.” *Journal of Nutrition Education* 26(1): 26-33.

Willer, H. and Youssefi, M. 2002 (eds), *Organic Agriculture Worldwide: Statistics and Future Prospects*, http://www.soel.de/publikationen/s/s_74_wz.html.

Willer, H. and Youssefi, M. 2004 (eds), *The World of Organic Agriculture: Statistics and Emerging Trends 2004*, <http://www.soel.de/oekolandbau/weltweit.html/>

Wynen, E. and Edwards, G. 1990, “Towards a comparison of chemical-free and conventional farming in Australia”, *Australian Journal of Agricultural Economics*, 34(1), pp.39-55.

Wynen, E. 2002, “The economics of organic cereal-livestock farming in Australia revisited”, paper presented to the 46th Annual Conference of the Australian Agricultural and Resource Economics Society, Canberra, 13-15 February.

Wynen, E. 2003, *Organic Agriculture in Australia—Levies and Expenditure*, RIRDC Publication No. 03/02, RIRDC, Canberra.

Zepeda, L., Chang, H.S. and Leviten-Reid, C. in press, “Organic food demand: a focus group study involving Caucasian and African-American shoppers”, *Agriculture and Human Values*, forthcoming.