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The Australian Organic Food Products Market: Overview, Issues and Research Needs

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Abstract

The demand for organic food products has expanded rapidly in the past decade on a global basis, stimulated by consumer perceptions that organic products are safer, cleaner and more ethical than conventional products. The demand for organic products was estimated to grow at a rate of 15-20 per cent per annum in key organic markets, 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, not much is known about the Australian organic industry, especially by other agribusiness sectors, because little market research and policy analysis on organics has been conducted and published. 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 collection and reporting of data on 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 Australian organic sector. Outputs from the suggested areas for further research will provide additional market information to the organic industry and help identify marketing opportunities and develop strategies for meeting market requirements and sustaining industry growth.

Key words: organic food, certification, food labelling, food marketing.

Introduction

Organic agriculture has received increasing attention from both policy-makers and producers because it may offer some solutions to the environmental problems associated with conventional farming practices in the industrialised countries and the low levels of profitability experienced by some conventional producers (Lampkin 1990). In addition, organic agriculture is seen to be potentially beneficial to developing countries by offering additional 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 1 and 2 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 organic food markets in Europe (see for example de Haen 1999, Lampkin 1994) and North America (see for example Klonsky and Tourte 1998, Krissoff 1998, Lohr 1998, Thompson 1998), market and policy analysis in Australia has been relatively limited (see for example, Wynen 1990, 2002 and 2003, Hassall and Associates 1990 and 1996, McCoy and Parlevliet 2000, RIRDC 1997 and 2001, Neeson and Pearson 1998, Pearson 2001, Lyons et al. 2000 and 2002, Lockie et al. 2001 and 2002, DAFF 2004). Moreover, the general public and participants in other industries know little about the organic

industry. 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 new information will be generated through more extensive research to assist organic producers and associated agribusinesses in seizing the marketing opportunities that may be emerging 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 and Zepeda 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 the broader scope of 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). Australia’s organic standard was one of the earlier organic certification systems that were established in the early 1990s and is well-recognised in the world market (McCoy 2002). May and Monk (2001)[2] 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-European Union 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 (Lyall 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 is crucial in facilitating the marketing of organic products. Currently, Australia has seven AQIS-accredited organic or biodynamic certification organizations (DAFF 2004). 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-Dynamic Producers (TOP)
- Organic Food Chain of Australia
- Organic Growers of Australia (OGA)
- Safe Food Production Queensland (SFQ).

For more detail, see BFA (2003), NASAA (2003) and OFA (2002).

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), to 7.6 million hectares in 2000 (Courtney 2003) and to 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 grazing. 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. In 2003, there were about 2,340 certified organic operators nationally, including farmers, processors, retailers, and exporters (DAFF 2004). Of these, the number of certified organic farmers was estimated to be around 1510, which made up about 1 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) and DAFF (2004).

In Australia, organic agriculture covers most commodities. The main types of production are livestock for meat and dairy products; dry-land and irrigated cereals, mainly wheat and oats; fruits of most varieties including exotic and tropical species; and vegetables of all sorts (McCoy and Parlevliet 2000). 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 broad-acre producers, and 10 per cent were engaged in livestock production. These figures were broadly similar to what was reported in DAFF (2004), except that the percentage for meat production (including beef, poultry, pork, and sheep meat) has increased to around 35 per cent. In value terms, Wynen (2003) estimated that in 2000/01, meat production accounted for 38 per cent of the total farm value of organic production, followed by grains (26 per cent) and horticulture (25 per cent). The corresponding figures for 2003 from DAFF (2004) were 44, 14 and 36 per cent. Although the data are sparse, it does appear that organic meats and fruit and vegetables are the main organic product categories.

Hassall and Associates (1996) also found that the scale of operation varied from very small backyard vegetable and egg producers through to corporate broad-acre 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 [2] (DPI 2002, RIRDC 2002a, Courtney 2003, Monk 2003).

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 Chairman of the Organic Federation of Australia was quoted by Grothers (2000) in saying “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”. 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. For example, Wynen (2003) estimated the value of organic production in 2000/01 based on certification data, rather than on an assumed 25 per cent average annual growth rate, and found the farm value to be around A$89 million, which translated into a retail value of around A$165 million (without accounting for imports and exports). The estimated retail value was further adjusted to A$105 million because, according to Wynen (2003), only 64 per cent of total organic production was actually sold as organic. The latest sale figure at the farm gate for 2003 was A$141 million (DAFF 2004)

The recent survey reported in DAFF (2004) confirmed that not all certified organic produce was sold as organic. It was found that in 2003 the percentages of organic products that were actually sold as organic ranged from 35 per cent for sheep and goats to 100 per cent for eggs and vegetables. The figures for beef, cereals and fruit and nuts were around 75 per cent. Not all produce from certified organic farms is sold as “organic” either because farmers cannot find a market for it (Wynen 2003) or cannot receive a premium for it due to the volatility of supply and demand (DAFF 2004). 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. Nevertheless, they are an indication of a serious supply and demand imbalance in the organic products market. One of the challenges for the organic sector, both for Australia and other countries, is the collection of reliable and consistent data that are needed for assessing changing market situations and developing plans and strategies (Wynen 2003, Kortbech-Oleson 2003, DAFF 2004).

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 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 (Lovisolo 1997a,b).

[3]

The export trade in 2000 was estimated to be in the order of A$30-50 million 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 northern hemisphere markets because fresh fruit and vegetables can be supplied during the off-season (McCoy and Parlevliet 2000).

Despite being a net exporter of organic food products in some categories, Australia also imports organic products, mostly processed foods such as biscuits, breakfast cereals, muesli, chocolate, coffee, tea, pasta, olive oil, dried fruits, baby food, etc from the United States and the United Kingdom (McCoy and Parlevliet 2000, McCoy 2002, DAFF 2004). Other commodities, such as kiwi fruit and fresh produce from New Zealand, are imported to fill temporary shortfalls in domestic production (Grothers 2003). The total value of organic imports was estimated to be about A$13 million in 2003 (Organic Monitor, cited in DAFF 2004).

Organic marketing in Australia

Organic food in Australia is available from a variety of outlets (Table 1). However, the bulk of organic food is sold through specialty shops (Hassall & Associates 1996, Kinnear 2002, DAFF 2004). 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 1. 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 2. 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 phyto-sanitary 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 2. 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 trialling 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 (Chang and Zepeda 2004; DAFF 2004). Unlike in Europe, the trialling 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 product recognition, consumer confusion over logos 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 (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 behaviour 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, such as by 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 healthier and of 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, in Australia the average price premium for a basket of organic products over the conventional products was found to be about 80 per cent (DAFF 2004). For some products, the premiums may be as high as 100-200 per cent (DPI 2002; DAFF 2004). Given the issue of limited supply 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 more 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 and keep an eye on. More research is also

needed to understand how consumers respond to changes in the price of organic products relative to their conventional counterpart and their attitudes towards imported organic products.

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 pre-condition 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 issue at the time 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. [4] 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. The government's position appears to have remained the same since 2002.

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 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 labeling and certification process on market demand and access to export markets, as argued in the submissions (Chang 2005).

Market structure. While the eventual size of the organic food products market is under question, all participants do not necessarily welcome significant growth in this market. 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 would consumers react to an industrialised organic sector? What is the impact of industry growth on small organic producers and retailers?

Adoption of organic farming practices. Marshall (1993) outlined several important factors that were likely to impact on adoption of organic farming in Australia, including the financial competitiveness of organic farming, the management skills of organic farmers, agro-climatic conditions and social considerations. Overseas studies of farmers' motivations to convert to organic production also emphasise concerns over

technical issues and financial security (Midmore et al. 2001).

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 organic 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, monoculture versus systems farming, etc which are not determined by the choice of farming system (Lampkin 1990). Secondly, given that there are potential environmental and social benefits associated with organic farming, such benefits, if they exist, should also be taken into account and included somehow 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 in a highly risky environment. 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. Research has shown that yields from organic farming are often lower and more variable than conventional agriculture because of restrictive farming practices that prevent the use of modern inputs and technology. 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 framing 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 with more favourable agro-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. 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. The fact that organic farming tends to concentrate in traditional farming regions means that organic and non-organic farming is likely to be operated side by side. Therefore, potential conflicts between the two sectors are likely to occur because of practical issues of chemical drift and GM contamination. Such conflicts need to be managed. Feasibility studies of the development of organic zones or regions for niche marketing purposes is therefore worth considering by local governments and regional development agencies.

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 where it is believed that government intervention in the form of farm subsidies will not only be costly but unlikely to produce desired results in the long term. Slow growth in organic production in some European Union countries after the reduction or withdrawal of farm subsidies is a case in point. Moreover, international competitiveness, based on private initiatives rather than subsidies, is believed to be the key to survival and success in the global market for an export-oriented country such as Australia.

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 either rule it out or promote it as an alternative approach to mainstream agriculture. Even so, government support in Australia would likely to be in the form of research and extension, rather than through taxes or subsidies.

Further, if organic agriculture is truly beneficial to individual health and the environment and such benefits are recognised and appreciated by consumers, consumers will be willing to pay for the extra benefits received and producers will be rewarded with an increased demand and price premiums, and thereby be encouraged to increase production. Although government subsidies in the European Union are a key element for the expansion of organic farming there, price premiums associated with organic products do appear to be encouraging growth in organic production elsewhere in the world, especially in developing countries aiming at exports. This points to focusing the role of government on regulation (such as development and review of organic national standards, prevention of false organic labels and claims on both domestic and imported products) and technical assistance (such as provision of funding for research and extension on key production and marketing issues as identified in this paper). Most organic research conducted so far in Australia is either on-farm by farmers or funded by the Rural Industries Research and Development Corporation through the Organic Produce Research Programs and various state departments, with the exception of the DAFF (2004) study which was commissioned by the Commonwealth government. However, there appears to be a need for a greater degree of networking and coordination among these agencies (Dumaresq and Greene 1997) and for improving the quality of information and advice provided.

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 have grown 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 some issues which are well recognised in Australia.

Because reliable statistics are either unavailable or incomplete, most research on organic products market is based on limited observations in rather localized areas. As such, care must be exercised when using those data and research results. 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, those perceptions and attitudes have been changing over time as more information and more products become more readily 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 vital data on demand and supply, especially on the regional and national scale, must be supported on a continuing basis because reliable and consistent data are crucial 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 and associated technical issues, and analysis of government policy pertaining to the organic industry present ample opportunities for further research. For the Australian organic food products industry to grow and mature, supply chain issues and consistency in standards and labelling appear to be key issues that need to be resolved. It is only after these issues are resolved that organic producers and associated agribusinesses will be in a position to capitalise on opportunities presented by the market now and in the future.

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[2]

The problem with arriving at estimates based on historical, and sparse, data is that the market situation may have changed considerably over time, rendering such estimates inaccurate. This is particularly true when the growth rate was calculated initially from a small production base since growth is likely to slow down as the market develops further. Therefore, caution should be exercised in interpreting estimates arrived in this way.

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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).

[4]

The ins and outs of the industry submissions and government responses, and the relative merits of self-regulation and government regulation on organic labelling, are provided in Chang (2005).

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