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by

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An Overview of the Organic Food Products Market in Australia

Hui-Shung (Christie) Chang, Garry Griffith and Lydia Zepeda **

Abstract

Worldwide, the demand for organic food products appears to have expanded quickly in recent years, stimulated by consumer perceptions that organic products are safe, clean and ethical. The growth rate was estimated to be around 10-20 per cent per annum in the next few years, with sales reaching \$US 29-31 billion in 2005. The biggest growth in consumption has occurred in developed countries, such as the United States, Western Europe, and Japan that are also major importers of organic foods. It is clear that Australia, traditionally a major exporter of agricultural products, stands to benefit from the expansion in demand for organic products. The objective of this paper is to provide an overview of the Australian organic food products industry, including production, marketing and certification of organic foods, with the aim of assessing whether the opportunity presented in the world market will be able to be taken. Major issues facing the Australian organic industry are discussed and areas for future research are identified. Production issues include the small production base and conversion to organic farming, while marketing issues focus on prices and product integrity. When applicable, market situations for organics in Europe and the United States are also reviewed to serve as a reference point for comparison.

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Introduction

Organic agriculture has received increasing attention from decision makers, government and industry alike, in many parts of the globe over the last two decades because of the many perceived benefits that it offers. On the production front, it is perceived to offer some solutions to the environmental problems that have been associated with conventional farming practices in the industrialised countries (Lampkin 1990). Some governments have played an active role in promoting organic agriculture. As a result, the number of producers converting to organic agricultural production has increased significantly in some countries, particularly in Europe. Organic agriculture is also perceived to be potentially beneficial to the developing countries by offering export opportunities to the world market (de Haen 1999).

On the marketing front, the demand for organic products worldwide has expanded quickly, boosted by a number of developments over the past decade or so. The first of these is the heightened awareness of the link between health and diet. The second factor is the recent series of highly publicized food scares, which greatly increased consumer awareness and interest in food safety. Another strong selling point for organics is the perceived environmental benefits. Finally, the debate over genetically modified (GM) foods has given further impetus to organic food since organic certification precludes the use of GM materials (Grothers 2000). Other important factors are the increasingly aggressive and targeted marketing and promotion by the mainstream retailers and major food manufacturers as they move into organic product lines (Willer and Yussefi 2002).

The demand for organic foods has allegedly been growing at a rate of around 20-30 per cent per annum for the past decade (McCoy 2002; Lyons *et al.* 2002). World organic sales were estimated to be worth US\$26 billion in 2001, with major organic markets being the United States (US\$10 billion), Western Europe (US\$12 billion), Japan (US\$2.5 billion) and Australasia (US\$250 million) (McCoy 2002; Organicsupersite 2003). Market shares of organic foods in these countries are between one and two per cent of total food sales (FAO 2001). In a more recent study, the growth rate was estimated to be around 10-20 per cent per annum between 2003 and 2005, with sales reaching \$US 29-31 billion in 2005 (Kortbech-Olesen 2003). 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.

However, despite the overall positive outlook, there are potential threats that may hinder the future growth of the organic sector. They include a slow down in the demand for some organic products as the market matures; reduced price premiums for organic products and insufficient profitability among producers as supply increases; increased competition from other forms of environmentally friendly and sustainable agriculture; and potential fraud or negative publicity associated with organic produce (Willer and Yussefi 2002). In addition, some industry observers are questioning whether the current support for organics is a fad or a robust trend that will continue. The question is being raised because of the potential conflicts between demand trends for convenience and self-

indulgence and concerns over food safety and the environment. Because of these conflicts of interest, consumers are not necessarily consistent in their purchasing behaviour when it comes to personal consumption. Indeed, they may say one thing but do something else (Hooke 1997). For example, studies have found that consumers, when surveyed, tended to overstate their willingness to pay, and preference for, organic products.

Another potential inconsistency is the gap between individual consumer interests and community attitudes towards the environment and animal welfare. That is, while the public or the community as a whole may be concerned about the environment and social justice associated with certain production systems or products, things like the cost, the quality (appearance, taste, freshness, etc) and the health benefits associated with the product may still be the primary determinants of individual choice. Therefore, an increasing community concern over the environment or social justice does not necessarily translate directly into an increasing demand for organic foods.

Similarly, there are contradictions on the supply side. The organic production sector was originally founded on the principle of environmental sustainability with a strong, sometimes exclusive, focus on production processes and methods. Producers are yet to come to terms with what is driving consumers and their less than predictable behaviour (Hooke 1997). Can the organic sector satisfy consumers' various requirements at a mutually acceptable price? Currently, there is not enough being learned of what drives the demand for, and supply of, organic products. More market research is therefore needed in order to make a more accurate assessment of future opportunities and potential threats for organic food sales.

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. The objective of this paper is to provide an overview of the Australian organic food products industry, including production, marketing and certification of organic foods. Major issues facing the Australian organic industry will be discussed with the aim of identifying areas for future research. Production issues centre around the small production base and conversion to organic farming, while marketing issues focus on prices and product integrity. Market situations for organics in Europe and the United States will also be reviewed when applicable to serve as a reference point for comparison.

Defining organic agriculture

A general definition of organic agriculture is that organic production systems are those farming practices that do without the application of artificial fertilizers and chemicals and have a high degree of environmental sustainability. In Australia organic agriculture is defined in the Australian National Standard for Organic and Biodynamic Produce (OPEC 2002) as "management practices that create soils of enhanced biological activity, as determined by the humus level, crumb structure and feeder root development, such

that plants are fed through the soil ecosystem and not primarily through soluble fertilisers added to the soil. Plants grown in organic systems take up nutrients that are released slowly from humus colloids, at a rate governed by warmth. In this system, the metabolism of the plant and its ability to assimilate nutrients is not overstressed by excessive uptake of soluble salts in the soil water (such as nitrates). 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 farming requires the nurturing and maintaining of land for future generations. Emphasis is also placed on the use of renewable resources, the need for conservation of energy, soil and water resources and the maintenance of environmental quality. The ultimate objective of the organic system is therefore to be sustainable through:

- producing food of high nutritional value;
- enhancing biological cycles in farming systems;
- maintaining and increasing fertility of soils;
- working as far as practicable within a closed system;
- avoiding pollution resulting from agriculture;
- minimising the use of non-renewable resources; and
- co-existing with, and protecting, the environment

(OPEC 2002).

Similarly, organic agriculture is defined by the National Organic Standards Board in the United States as “an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity. It is based on minimum use of off-farm inputs and on management practices that restore, maintain, and enhance ecological harmony” (USDA 2003).

In general, governments worldwide place great importance in sustainable agriculture to deal with environmental problems. Many definitions of sustainable agriculture have been proposed, most of them incorporate the notion of “being environmentally non-degrading yet economically viable”. Agriculture is sustainable when it is ecologically sound, economically viable, socially just, culturally appropriate and based on a holistic scientific approach. Moreover, sustainable agriculture preserves biodiversity, maintains soil fertility and water purity, conserves and improves the chemical, physical and biological qualities of the soil, recycles natural resources and conserves energy. Sustainable

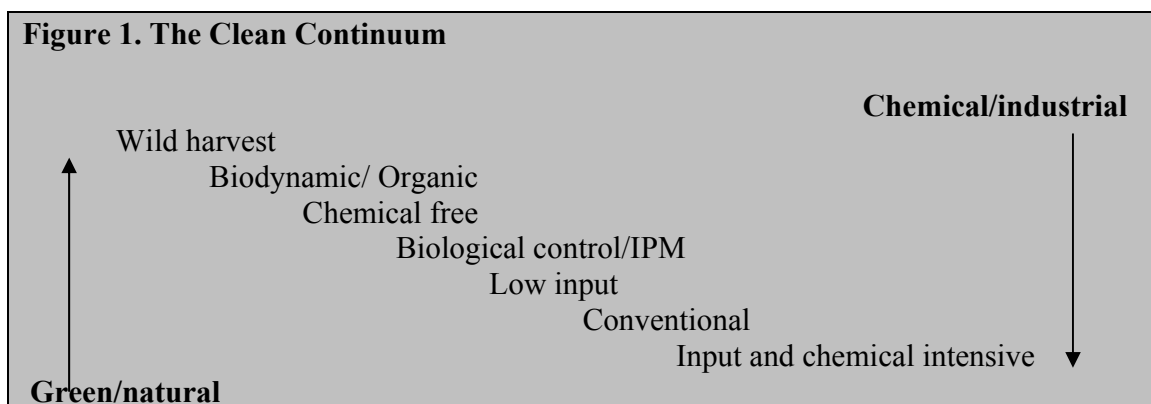
agriculture also means using locally available renewable resources and appropriate and affordable technologies, and minimizing the use of external and purchased inputs.

Obviously, organic agriculture fits in well with these descriptions 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, hence providing a distinctive marketing edge over other approaches (FAO 2001). However, it may not be long before competition from “environmental management system” certification and eco-labelling poses a threat. To envisage such threats, some of these other farming systems and organic sub-systems are described in the next section.

Organic agriculture’s place in conventional and alternative farming practices

In addition to being a part of **sustainable agriculture**, “**Organic**” agriculture is one of the “**alternative**” approaches to “**conventional**” or “**mainstream**” agriculture. The term “alternative” is used because these approaches offer a clear alternative to the agricultural methods that are used predominantly in industrialised economies, where commercially-available land- and labour-saving inputs, eg synthetic chemicals, are used extensively (Marshall 1993). In addition to different input uses, another distinguishing appellation between “conventional” and “alternative” is the nature of the approach to farm problem-solving, as suggested by Marshall (1993). In this view, “conventional” describes a more reductionist approach while “alternative” describes a more holistic approach to farm production. Therefore, a so-called alternative farmer will be highly inclined to look for solutions derived holistically whereas a so-called conventional farmer will be more inclined to use solutions derived from the reductionist approach. Despite the dichotomy, the inclinations of all farmers will at any time be dispersed along the continuum with organic and conventional at the two extremes and, in between, a diversity of farming practices that are non-organic and non-conventional.

McCoy and Parlevliet (2000) have related the continuum of production systems to the notion of “clean quality” implied by them. They call it “the clean continuum”, which is reproduced in Figure 1 below.



Source: adapted from McCoy and Parlevliet (2000).

Based on this conceptual spectrum of production systems, on one direction there is the “clean” quality while on the other direction there is the intensity of chemical use. The assumption is that there is a negative relationship between the clean quality and the intensity of chemical use. Therefore, the closer a system is to the “wild harvest” the higher the clean quality, the lower the chemical use and the closer to the natural process. Although the clean continuum makes intuitive sense, the negative relationship between clean quality and chemical use is subject to debate and remains an empirical question.

Low-input sustainable agriculture (LISA), which has received considerable research funding and support from the US and Australian governments and farming communities, advocates reduced use, not elimination, of certain chemical inputs. As such it is also considered as “sustainable” and an alternative to conventional farming. The other “alternative” to organic farming is **the integrated farming system** being derived from the development of integrated pest management (IPM) where the use of chemical and biological control is integrated in an optimal way (Vereijken and Royle 1990). Both LISA and integrated farming systems allow for conventional farming systems to be modified without a complete change in perspectives and farming practices and are seen as a compromise between intensive conventional and organic approaches. As such, the organic approach is one of the many alternative approaches to the conventional production systems that are currently being advocated (Lampkin 1994).

Within the organic system, there are several sub-systems or variations, including **biodynamic, biological and ecological**. Although they may differ in philosophies and techniques, all see the farming system as a living organism and rely on biological processes and agents to balance themselves and all avoid the use of artificial chemicals and fertilizers. They have in common the emphasis on soil fertility and farmer health (McCoy and Parlevliet 2000).

Biodynamic agriculture methods originated from the spiritual science of anthroposophy pioneered by Rudolf Steiner in 1924—twenty years ahead of the organic movement worldwide, including Australia. It is based on the belief that the health of the soil, plants and animals depends on bringing living things into connection with the cosmic, creative, shaping forces (Bate 2003). It recognizes the spiritual dimension of living organisms and the energies that reside within them. It is believed that when crops are harvested from the land it is not only their substance but also the forces and vitality of the soil that are being removed and consumed. To give back this vitality, special therapeutic preparations are used for the soil, the plants, the compost and manure. It is the regeneration of the forces that is the central aim of biodynamics and that is what makes it conspicuously different from other organic systems. Not only are synthetic pesticides and fertilizers prohibited, but also crops may not be grown in areas subject to strong electromagnetic fields which may interfere with the natural energies.

At the heart of biodynamics is also the ideal of the farm as a self-contained organism, in which all the component parts – the soil minerals, organic matter, microorganisms, insects, plants, animals and humans – interact to create a coherent whole (Lampkin

1994). As such, the farm in itself is a closed system in that it provides its own inputs, including seeds, fertilizers and feed, for a wide range of different plants and animals and a range of environments. It is up to the farmer to develop the right blend of animals, crops and environments to provide a harmonious and sustainable balance for each particular holding. Biodynamic produce is marketed under the **Demeter** symbol and is linked to an international network of Demeter organizations.

Biological is used to describe farming systems that encourage the use of biological systems to improve their land and produce their products. The general organic principles of not using artificial fertilizer and chemicals apply. They may use some biodynamic techniques. Biological farming and 'bio' products are terms often used in European countries as equivalent to organic farming.

Ecological is used in some countries as another way of referring to organic systems. It tends to have its basis in agro-ecological/sustainable systems where companion crops are used to provide a more resilient production system. In many European countries, organic agriculture is known as ecological agriculture, reflecting the reliance on ecosystem management rather than external inputs, chemical or otherwise (Lampkin 1994). Ecological farming and 'eco' products are used in some European countries as equivalent to organic farming. However, the terms are generally associated with agricultural products being produced in an environmentally friendly way, which is not necessarily organic.

In Australia, a distinction is made between organic and biodynamic products for certification (with additional requirements) and marketing (with different logos and labels) purposes because of the long association with the Demeter label since the 1960s. However, in most cases, the three terms, biodynamic, biological and ecological are used interchangeably to refer to organic farming practices. Despite the obvious differences to organic practitioners, for most consumers the proliferation of terms, logos and labels does little to help make the purchasing decision any easier.

Factors driving the demand for organic products

A major concern for the growing number of more affluent consumers appears to be striking a balance between demand for convenience and concern over personal health and the environment (McCoy 2002, p.26). Demand for convenience is a result of changing social and demographic trends, eg women in the work force and dual income families, whereby individuals tend to have busier lifestyles and less time for, or interest in, food preparation at home. The consequence has been a rapid growth in the demand for take-away, eating-out, fast foods, pre-prepared foods and 'one stop' shopping. As more services and processing are provided by the food industry, consumers have little knowledge of, as well as control over, what they eat. In the past, consumers had trusted the food industry and the government to do the right things by them. However, there is a growing concern among the general public about food safety and the trustworthiness of the food system. Extensive media coverage on harmful chemical residues in plants and animals (pesticides and insecticides in fruit and vegetables, antibiotics and growth

hormones in animal products, and artificial food additives in processed products) and on BSE, FMD, salmonella, E. Coli and other microbiological contamination certainly has contributed to the public outcry for improvements. Industrialised agricultural production systems and the increasing concentration of the food industry have been blamed, for example, for the outbreaks, and the spread, of BSE and FMD in Europe. The issue of GMOs in food production in recent year also adds to the long list of food safety concerns.

Increasing environmental awareness is another important development in the food sector. Issues of concern include soil degradation, pollution of drinking water and rivers, the greenhouse effect, depletion of the ozone layer, and the reduction of natural resources and biodiversity. Industrialised mainstream agriculture is again considered to be primarily responsible for these environmental problems because of the large-scale production and the reliance on synthetic chemicals. All of these issues raise doubt about the conventional food system and the impacts it has had on people's health and well-being. And they have made consumers less confident in, and less trusting of, agricultural production systems and the government who was supposed to provide safeguards. The restoration of consumer confidence is therefore a major challenge for the agro-food industry.

In response, considerable efforts have been made by the agro-food industry (including input suppliers, agricultural producers, processors, and food marketers) and governments (McCoy and Parlevliet 2000). For example, governments have banned the use of some toxic chemicals and imposed tighter restrictions on substances and practices that may be harmful to human health and the environment. In addition, regulations on consumer protection and product labelling have been introduced. As a result, product information is more accessible to consumers. Agricultural producers have broadened the range of farming techniques and reduced, or totally eliminated, the use of chemicals. Further, food manufacturers and marketers have put in place quality assurance programs and supply chain management, either at the firm level or the industry level, is being pursued vigorously through strategic alliances of various forms to guarantee traceability and food quality and safety. Many growers and traders market products as residue-free, natural, clean, green or organic, targeting groups of consumers who are health and environmentally conscious. Organic agriculture, being basically chemical-free, is seen to have an advantage over other farming approaches to meeting health and environmental objectives.

Consumer perceptions and product claims

The organic industry seems to have come a long way since the movement began in the early 1960s. There is an undeniable trend in the demand for organic products worldwide because of the many perceived benefits associated with organic farming practices and the resulting outputs. Organic farming is perceived to be beneficial to the environment and human health because its production process forbids the use of harmful chemicals. In addition, organic farming is associated with some social benefits in terms of supporting small farmers and rural communities and protecting animal welfare and biodiversity. Some organic consumers also believe that organic products taste better and are more

nutritious than conventional products. However, for most consumers more scientific evidence is required to back up these claims. The validity of some of the claims is indeed unclear, which is likely to result in consumer confusion as well as deception. The range of terms and marketing claims that are commonly associated with organic products and organic farming practices, such as **clean**, **safe**, and **green** that are described in detail in McCoy and Parlevliet (2000), are presented below.

Clean is usually referred to a product that is free of contamination from various sources, be it physical, chemical or microbial contamination. Physical contamination includes foreign objects and materials imported during the production or processing of foods. Chemical contamination can result from incorrect use or overuse of pesticides, herbicides and fertilizers on farm and other chemicals during processing, leaving unwanted residues in products. Microbial contamination can occur through improper processing procedures and unhygienic work environment and practices. More recently, some consumers may define clean food as being free of genetically engineered organisms. However, it is seldom that a food item is 100 per cent free of any contamination. That is, in reality, it is either physically impossible or economically impractical to reduce the risk of any type of contamination to zero. Therefore, food products that meet all the maximum residue limits (MRLs) and maximum permitted concentrations (MPCs) based on well documented standards and verification systems in domestic and export markets, are considered by law as “clean” and “**safe**” to eat.

Green, on the other hand, is often referred to products and production systems that are perceived to be sensitive and friendly to, or have low impact on, the environment. Therefore, “green” is synonymous with “**environmentally friendly**” or “eco-friendly”.

Because certified organic products are produced following a prescribed program, particularly the elimination of harmful chemicals, they are generally perceived to be clean and green, in comparison with products that are produced via the conventional methods.

Some organic products may also be perceived to be “fresh”, “better tasting” and “more nutritious”. A product is considered **fresh** when the product has recently been produced, not frozen or not processed. As such, it is less likely to be subjected to quality deterioration or contamination. Produce is generally considered fresh when it is produced locally and is available at the local farmers’ markets or can be purchased directly from farmers. Fresh products are often perceived to be more nutritious and better tasting. “Freshness” has been found to be the main purchasing criterion for shoppers in the farmers’ markets of fruit and vegetables in the United States and wet markets for meats in Asia. Nevertheless, the “fresh” claim is only regulated by the USDA for poultry products to mean that any raw poultry products have not been cooled below 24 degrees F (Consumer Union 2003).

Natural is another term that is frequently seen on advertising and food labels although it was originally defined by USDA as “not contain any artificial flavouring, colour ingredients, chemical preservatives or artificial or synthetic ingredients and are only

minimally processed”. It was intended for meat and poultry products only (FISI 2001). Generally, natural means “minimally processed without containing synthetic or artificial ingredients”. Minimally processed means a process that does not fundamentally alter the raw product. Most products found in the specialty health/natural food shops or in the health food section of the supermarkets are natural foods that make claims, in a variety of different ways, about the nutritional and additive-free characteristics of the processed products. Organic produce is often perceived to be “natural” because the growth of the plants, and animals that grow on them, depends almost totally on composted healthy soils rather than being enhanced artificially by synthetic chemicals. Natural food stores frequently specialise in selling organic products, but the products they carry vary greatly from store to store.

In addition to organic products being perceived to have some desirable **physical attributes** described above, they have also been associated with having **social benefits** such as “preserving family farms”, “reviving rural communities and local economy”, “protecting farmers’ health”, “promoting animal welfare”, etc. These associations come about because organic agriculture at its current development stage tends to be seen as a viable alternative for small farmers to produce a unique product that can be sold to local, niche markets at a premium, rather than competing with the big, conventional producers in the supermarkets.

The link between organic agriculture and its social benefits can be best illustrated with the idea of “**community-supported agriculture**” (CSA), promoted originally by the Soil Association, the main organic certifier in the United Kingdom, through its Local Food Links programs. Basically, CSA is a partnership between consumers and local producers, whereby consumers become members or shareholders of a CSA and provide funds to the farmers at the beginning of the growing season. In return, the members receive boxes of produce throughout the harvest. The aim of CSAs is to “link the local food chain, support local farm communities, improve communication, and return the human face to food” (Barber 2002). Most CSAs are involved in organic production.

In all, organic foods have been perceived to possess many qualities such as less likelihood of chemical residues and being environmentally friendly and socially responsible (Dunn 1995). However, can or do organic products meet all these expectations? How real are those benefits? And how meaningful are those claims?

Despite the fact that modern marketing relies heavily on images and perceptions, consumers are often protected by laws (eg Food Standards Code and Trade Practices Act in Australia) against false or misleading claims. That is, marketing claims made by companies are subject to scrutiny by food authorities, consumers and competitors, for validity. Companies are liable for making false or misleading claims. However, according to the Consumer Union (2003), most of the marketing claims that we see relating to organic food products, are rather dubious. In their Label Report Card, eco-labels and many other claims were evaluated based on seven criteria:

1. How meaningful is the label?

2. Does an organization verify that the label standards are met?
3. Is meaning of the label consistent?
4. Are the label standards publicly available?
5. Is information about the organization publicly available?
6. Is the organization behind the label free from conflict of interest?
7. Was the label developed with broad public and industry input?

How well do products claims such as “organic”, “green”, or “environmentally friendly” measure up according to these criteria?

It was found that with the exception of “USDA organic”, none of the other two terms and other eco-labels had met all the criteria. For example, both “green” and “environmentally friendly” fail the tests in all categories. This is because currently there is no standard definition for either “green” or “environmentally friendly” and there is no organization behind the claim other than the company manufacturing or marketing the product. Even the “Demeter certified organic” fails to meet the criteria 5 to 7. Specifically, it was pointed out that there may be a conflict of interest between the private certifying body and the manufacturer or marketer of the product being certified, the latter being the client of the former. Although not included in the report card, Australia’s “certified organic” label should also rate well. Like “USDA organic”, the term is well fined in the Australia’s National Standard and the certifiers that backed up the claims are accredited by the Australian Quarantine and Inspection Service (AQIS). However, one can always argue that in both cases there may still be a conflict of interest between the certifying body and the producers and manufacturer of the product being certified, despite the fact that all the certifying bodies in Australia and the United States are accredited by government. It all depends on how stringent the certification and accreditation processes are in enforcing the national standards and the level of trust in the systems. Organic production in Australia

According to Willer and Yussefi (2002), more than 17 million hectares are managed organically worldwide. The major part of this area is located in Australia (7.7 million hectares), Argentina (2.8 million hectares), Italy (more than 1 million hectares), the United States (900,000 hectares) and Brazil (803,180 hectares). The organic area as a percentage of total agriculture land in Australia is 1.6 per cent (compared with 0.22 per cent in the United States) and of which almost 6 million hectares is devoted to broadacre livestock production, comprising mainly certified pasture and rangeland for the production of organic beef and lamb. 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 and Associates 1996), while in 2003, it was estimated to be 2,000-2,200 certified organic farms (BFA 2003).

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 and to 8.5 million hectares

in 2002 (Courtney 2003). Research also shows that total organic sales increased from A\$28 million in 1990 to A\$80.5 million in 1995 (Hassall & Associates 1996), as total organic sales as a proportion of total food sales increased from about 0.1 per cent in 1990 to 0.2 per cent in 1995. Saunders *et al.* (1997) estimated Australia's organic industry to be worth A\$90 million in 1996, of which export sales were around A\$30 million. In 2002, the overall market was estimated to be worth A\$250 million (DPI 2002a; RIRDC 2002a; Courtney 2003). Putting these figures together, the growth of sales of organic products in Australia was estimated to be approximately 25 per cent per annum with approximately 40 per cent of production being destined for the export market (DPI 2002a). Despite being a net exporter of organic food products in some categories, Australia also imports organic products, such as fruit juices, polenta, olive oil and baby food from the United States and the United Kingdom, in the order of A\$5 million (McCoy 2002).

Given the buoyancy in the demand for organic products in recent years, both in Australia and overseas, future growth at much higher rates, ranging from 30 to 50 per cent, were also being mentioned (RIRDC 2002b; Grothers 2000). It was stated in RIRDC (2002b) that the vision of the Australian organic industry is "to have 2500 certified members generating over A\$350 million in retail value by 2005/6 at a growth rate of 50 per cent". The Chairman of the Organic Federation of Australia was quoted by Grothers (2000) in saying that "Australia is expected to follow Europe, where the prediction is that in 15 year's time 30 per cent of all food sold will be organic." However, recent studies by Wynen (2003) and Kortbech-Olesen (2003) have come up with sales figures, and growth rates, that are much smaller than previous estimates. Wynen (2003) estimated the retail value of organically grown produce in 2000/01 to be around A\$164.8 million and the farm value at A\$88.9 million. Moreover, since only 64 per cent¹ of the total organic production was sold as organic, the retail value of certified organic produce could have been around A\$106.5 million. Not all produce from organic production is sold as "organic" either because it is not "certified" as such or it is certified but there is no demand for it or price advantage to sell it as such.

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 relatively small domestic market in Australia is because the growth in the industry has been driven primarily by strong demand for organic produce from overseas, rather than the growth in the domestic market. Overseas demand for organic food is growing at a faster rate than it is in Australia because Australian consumers believe they are already getting clean green food and because the Australian government is 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. Along with the Export Control (Organic Certification) Orders of 1997, all exports labelled as

¹ Some studies have suggested that sales of organic foods that are not certified can be as high as 75 per cent of the total organic sales (Macarthur Agribusiness 1999).

“organic”, “bio-dynamic”, or words of similar intent must be certified and accompanied by an Organic Produce Certificate, issued by AQIS or AQIS-accredited certifiers (Lovisolo 1997a,b). However, there is no such regulation for organic products that are imported or sold domestically. The lack of domestic organic labelling standards and the proliferation of certification marks remain a major issue at home for the Australian organic industry.

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 2002a). The main organic exports from Australia are noodle 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 markets because it can supply fresh fruit and vegetables during the off-season in the northern hemisphere (McCoy and Parlevliet 2000).

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 is also small production of cotton, oil seeds and grain legumes; nuts; herbs, condiments and sugar; and tea (Hassall and Associates 1996). Based on a 1995 survey of 420 certified organic producers, Hassall and Associates (1996) found that 75 per cent of organic farmers surveyed were horticulturalists; together they operated 10 per cent of the total farmed area and 8 per cent of the total organic area. By comparison, 12 per cent of the certified organic farmers were broadacre producers, operating 75 per cent of the total farm area and 69 per cent of the total organic area, while 10 per cent of the certified organic farmers were engaged in livestock production and together they accounted for 12 per cent and 17 per cent of total farm and total organic areas, respectively (see Table 1).

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

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 and Associates (1996, p. 9).

The scale of operation varies 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 vary considerably by region. There appears to be some concentration of organic farms with similar production in some regions. Some of the commodity groupings and geographical concentrations include wheat in western Victoria, northern NSW, central Queensland and the southern Western Australia wheat belt; 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). As organic farming expands, one can expect the degree of concentration to increase and the issues of distribution to surface.

The regional concentration of organic farms seems to suggest that organic agriculture may be subjected to, or limited by, the climatic and ecological conditions of the farms, more so than the conventional farming operation. This could be the case since organic farming relies on nature (soil fertility and weather) and rather restricted management practices for success while conventional farming is more flexible in terms of input uses and management practices. This means, in converting to organic farming one must re-evaluate the comparative advantage of the operation on a case by case basis rather than based on experiences elsewhere or in conventional farming. Also care must be exercised when making comparisons of yield and profitability across commodities and across regions. Because Australia is a very old and dry continent with poor soils, local agro-climatic conditions may in fact be a limiting factor for expanding organic production to meet increasing demand.

Another potential limiting factor for industry growth is the attitude of producers towards organic farming. In the Hassall & Associates (1996) survey, participants were asked about the reasons for becoming an organic farmer. Some 27 per cent of the responses indicated that the concern for the environment was the number one reason for becoming an organic producer. A concern for family health was the second most important motivation, followed by a desire to secure the long-term economic viability of their

properties, and lifestyle (see Table 2). Reduction in input costs and attainment of price premiums were considered relatively less important. These results mean that about two thirds of the farmers surveyed were in organic production for personal and health reasons, rather than for profits.

Table 2. Reasons for becoming an organic producer

	No. of responses	Percentage of total (%)
Concerns for the environment	354	27
Concern for own and family health	280	21
Long-term farm viability	247	19
Lifestyle	174	13
Reduction in input costs	107	8
Conventional farming not working	62	5
Possibility of price premiums	37	3
Other	70	5
Total	1331	100

Source: Hassall and Associates (1996, p. 15).

Leescot (1998) found these survey results somewhat disturbing. He argued that the focus on the environmental sustainability of most organic farmers may be one of the stumbling blocks for industry growth. This is because such a focus implies that the organic sector is production driven, rather than market, or commercially, oriented. Lacking a market focus, in turn, implies that the organic sector is unlikely to be concerned about knowing and meeting the needs of the consumers, who are in general more concerned with personal health and prices. Without creating a wider appeal to the majority of consuming public, organic production is likely to remain a cottage industry catering only to a small group of consumers who support the philosophy behind the organic movement and organic agriculture.

However, Ikerd (2001) had a different view. He rejected the suggestion that the current biological and cultural architecture of organics was an unnecessary constraint to future profits and growth of the organic industry. He argued that achieving sustainability ought to be the guiding principle and ultimate objective for organic production and organic farming and marketing systems ought to be designed to support a philosophy of life, rather than providing a means for achieving prosperity. The key point is that future profits and growth of organics are to be achieved only by means that will ensure ecological integrity and social responsibility. A system such as the one dominated by large scale, industrialised production is incompatible with the organic principle and therefore cannot be sustainable. Dumaresq and Greene (1997) held the view that although much of the activity at the initial stage of industry development has been ideologically driven, it is unlikely to remain so as the organic market matures and expand significantly to become a significant part of Australian agriculture.

Organic marketing in Australia

Organic food in Australia is available from a variety of outlets, including specialty organic and health foods shops, mainstream supermarkets, farmers' markets, box schemes, consumer buying groups and CSA partnerships. However, despite some variations across states, nation-wide about 80 per cent of domestically produced organic produce was sold through retail outlets (mostly through specialty shops such as organic food, health food and natural food stores) while about 10 percent was sold directly to consumers with some degree of value-adding on-farm (Hassall and Associates 1996, Kinnear 2002). Although there are around 20 farmers' markets, 30 box schemes and a handful of CSA projects 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 public³. However, there is evidence that farmers markets are experiencing growth in Australia, as in the United States and other parts of the world (Friends of the Earth Brisbane 2002). Variations in organic marketing channels across states can be seen in Table 3.

Table 3. Main marketing channels for organic farmers by state (in percentages), 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 and Associates, 1996

Nationally, domestically produced organic produce made up about 95 per cent of total organic food marketed in Australia, with some variations across states in the source of supply (Table 4). As can be seen, 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 quarantine and phytosanitary control measures. For example, South Australia prohibited trade from fruit fly infested areas of unsprayed ripe fruits into the state while Western Australia prohibited fumigated grains from entering the state (Hassall and Associates 1996, p. 73).

³ Australia has the highest degree of urbanisation in the world and 90 per cent of its population live near the coast.

Table 4. Sources of supply of organic produce (in percentages), 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).

Unlike in Europe and the United States, supermarkets in Australia play a relatively minor role in organic sales. The two largest supermarkets in Australia, Woolworths and Coles, with a combined market share of over 50 per cent, have only recently been trialing organic subsections of their fresh fruit and vegetables departments in targeted stores across Australia, 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 the charge on organic marketing, and the initial result has been disappointing. Most mainstream retailers found difficulties in obtaining a consistent supply at the national level a serious limitation to promoting organic products in their stores (Grothers 2000).

In the United States, organically grown food has been produced and marketed for over half a century, having being popularised by J.I. Rodale in the 1940s. In its early days, organic food was marketed directly to consumers through local farmers' markets, CSA partnerships, pick-your-own operations, or farmers' roadside stands (Ikerd 2001). Few organic retail stores existed at that time, except some small health food stores and consumer cooperatives that purchased directly from local farmers or sold local produce on consignment. During the early 1990s, independent natural food stores grew in size and product selection and large natural foods supermarkets began developing while conventional grocery stores and supermarkets were integrating a wider selection of organic products with conventional lines. By 2000, conventional grocery stores and supermarkets accounted for 49 per cent of total organic sales, followed by natural food stores (48 per cent) and direct marketing via farmers market and CSAs (3 per cent) (Greene, Dimitri and Richman 2001). Conventional retailers are expecting to continue to expand into the organic food sector, giving natural food retailers stiff competition. If the trend continues, it is envisaged that more organic foods will be sold through the mainstream supermarkets, perhaps as high as 80 per cent mainly because of one-stop shopping convenience and the low prices that supermarkets offer (Kinnear 2002). It appears that although the marketing system for organics would continue to evolve depending on local conditions, there is little doubt that specialty retailer stores and mainstream supermarkets would soon dominate total organic food sales in Australia, as has been witnessed in Europe and the United States.

Organic certification in Australia

Organic certification is basically a quality management tool to ensure that a certain code of practice is complied with. It involves the setting of organic standards and the enforcement of compliance. The aims are (OPEC 2002):

- to protect consumers against deception and fraud in the market place and unsubstantiated product claims;
- to protect producers of organic produce against misrepresentation of other agricultural produce as being organic;
- to harmonise national provisions for the production, certification, identification and labelling of organically and bio-dynamically grown produce;
- to ensure that all stages of production, processing and marketing are subject to inspection and meet the minimum requirements outlined in the standards;
- to provide a guide to farmers contemplating conversion to organic farming; and
- to raise awareness of ecological requirements in nature and the farm environment.

The resulting benefits of certification based on specific standards are said to be increased consumer confidence, fair competition, and non-discriminatory market access for producers (McCoy and Parlevliet 2000).

Organic certification in Australia is administered by AQIS under the auspices of the Organic and Biodynamic Program. It is based on a third party inspection/certification model, whereby production, processing, and labelling of organic produce are certified through an AQIS-accredited certifying organization. To become AQIS-accredited, a certifying organization must show that its certification program meets all the requirements of the Australia's National Standard for Organic and Biodynamic Produce (hereafter referred to as the Australian Standard).

The Australian Standard was first developed by the Organic Produce Advisory Committee (OPAC) and implemented in February 1992 in response to the increasing demand for organic products from overseas. It contains both the guidelines for operating a certification system and the minimum requirements that must be followed by licensees and their respective certifying agencies. It also provides the framework for Australian certification agencies to develop their own standards and other requirements. The 1992 version was revised in 1998 (Version Two) and again in 2002 (Version Three). The third version has been operational since December 2002 (OPEC 2002).

OPAC was made up of representatives from the organic industry, Federal and state governments, farmers' organizations and consumers' organizations. Its main responsibility was the development and implementation of national standards and certification procedures for organic produce for the domestic and international markets. In 1999, OPAC was dismantled and replaced by the Organic Produce Export Committee (OPEC) with a change to the terms of reference. So, in addition to dealing with standards development, OPEC will also focus on issues pertaining to exports and market access

(Kinneer 2000). There was another name change to OPEC in 2002. Now it is called the Organic Industry Export Consultative Committee (OIECC). The following organizations, most of them certifying bodies, are represented on OPEC/OIECC (AQIS 2002)⁴:

- AQIS
- BFA (Biological Farmers of Australia)
- BDRI (Bio-Dynamic Research Institute) Demeter label
- NASAA (National Association for Sustainable Agriculture Australia Ltd)
- OFC (Organic Food Chain of Australia)
- Organic Federation of Australia
- OHGA (Organic Herb Growers of Australia Inc.)
- TOP (Tasmanian Organic-dynamic Producers)
- Safe Food Queensland
- Organic Retailers and Growers Association of Australia
- IFOAM (International Federation of Organic Agricultural Movements)
- Primary Industries Standing Committee.

Australia has seven AQIS-accredited organic or biodynamic certification organizations listed as follows (NASAA 2003):

- Bio-Dynamic Research Institute (BDRI) with the Demeter label, established in 1976
- National Association for Sustainable Agriculture Australia (NASAA), established in 1986 and accredited by IFOAM and USDA
- Australian Certified Organic Pty Ltd (ACO)/ Biological Farmers of Australia (BFA), established in 1987 and accredited by IFOAM and USDA
- Tasmanian Organic Producers (TOP), established in 1993
- Organic Food Chain of Australia
- Organic Herb Growers of Australia (OHGA), established in 1987
- Safe Food Queensland (SFQ).

These certification organizations conduct physical inspections of farms, storage and transport facilities, processors, manufacturers, input suppliers and other operators involved in the supply chain. Local certification organizations typically have their own written organic standards and inspection systems, fee structure and ancillary services. However, they must show that their certification programs meet all the requirements of the Australian Standard. Organic farmers may be charged initial application fees, membership fees, inspection fees and levies based on the farmer's gross sales of organic products, number of areas operated or number of produce being certified (BFA 2003, NASAA 2003).

⁴ By comparison, the USDA National Organic Standards Board (NOSB) was created by the National Organic Program under the auspices of the Organic Foods Production Act contained in the 1990 Farm Bill. NOSB consists of 15 members, including four farmers, two handlers or processors, one retailer, one scientist who specializes in toxicology, ecology, or biochemistry, three public interest advocates and three environmentalists. Each member serves a five-year term.

In addition to the seven accredited certifying organizations, there are two organizations that are an integral part of the organic industry in Australia. They are the Organic Federation of Australia (OFA) and the Organic Retailers and Growers Association of Australia (ORGAA). OFA was established in 1998 as the peak industry body to represent the organic industry. ORGAA used to offer voluntary retail certification but was not AQIS-accredited, it is now part of NASAA since the merger in 2002 (NASAA 2003).

The organic certification process for organic farmers in Australia is shown in Box 1.

Box 1. Certification process for organic farm production in Australia

Step 1. Cease use of artificial fertilizers and synthetic chemicals.

Step 2. Select a certification organization.

Step 3. Apply to the chosen certification organization. Applicants must register with a certifying body before commencing conversion.

Step 4. Complete statutory declaration regarding past farming/production practices.

Step 5. Initial farm inspection arranged by the certification organization.

Step 6. Follow-up farm inspection and inspector's report reviewed by the certification organization. There is a 12-month pre-certification period after approval and no organic certification is granted during this period.

Step 7. At the beginning of the second year, annual inspection will be arranged and a producer can achieve a '**Certified in Conversion**' status by demonstrating compliance through auditing and monitoring during conversion.

Step 8. At the end of the third year following satisfactory annual inspections, a producer can achieve a '**Certified Organic**' status.

Source: Adapted from DPI (2002b).

Note that the requirements of the Australian Standard and certifying organization must be met for at least three years from the first inspection before the farm produce covered can be sold as "**certified organic**". Once certified, farmers can use the certifying organisation's label and certification mark on their produce. An organic label sends a clear message to consumers that the organic products they buy are genuine and that by buying products so labelled they are not contributing to environmental damages resulting from the use of synthetic, and often harmful, agro-chemicals. It also means that they are avoiding consumption of potentially harmful chemicals. However, an organic label does not mean that the product is safer or cleaner. Indeed, no claims may be made on the label or advertising material that suggests to the purchaser that the organic product constitutes a guarantee of superior taste, nutritional or health quality (OPEC 2002). Nor does an

organic label imply that it is free of chemical residues or GMOs. This is because it is understood that some contamination may happen during production, processing and distribution that is beyond the control of certified operators. Nevertheless, permitted practices do ensure the lowest possible risk of residues at the lowest possible levels.

Australian has a well-regulated system of organic production and processing that has gained a good international reputation (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 is comparable with other standards in major aspects. The Australian Standard conforms with EU Regulation 2092/91 (the EU “supernational” organic standards) and is deemed to be compliant with EN45011 (the European governmental regulatory version of ISO 65 for certification organizations). Australia is one of the eight non-EU countries to gain the third country status on the Article 11 list (FAO 2001). The Australian Standard is also similar to the Codex guidelines for organic production, certification and labelling. 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). Harmonization of organic standards within Australia and on a global scale will facilitate the marketing and international trade of organic products.

Key issues in the Australian organic food products industry

The key issues facing the Australian organic industry were identified in Alenson (1997), Dumaresq and Greene (1997) and RIRDC (2002b). They can be summarised into three main areas, as follows:

- *Marketing*: the low level of consumer awareness and knowledge of organic products and the need for consumer education and promotion; the veracity of organic product claims and labelling; the multiplicity of certification logos and marks; the lack of domestic organic standards; discontinuity of supply; high price premiums; lack of coordination of demand and supply; and lack of processing and value-adding activities.
- *Production*: small production base and resultant inconsistent supply; lack of integrated farm-based research, development and extension; low level of conversion to organic production; sourcing of inputs; weed control.
- *Industry*: fragmentation of the industry and lack of coordination; lack of unity, trust and cooperation among industry participants; lack of government support; public relations and recognition within mainstream agriculture.

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. However, it still constitutes a very small proportion of the total food sales (currently about 1 per cent). This is because there are recognized problems of

quality assurance, product recognition, consumer confusion over logos, certification and trademarks, and uncertainty of supply, quality and price (Dumaresq and Greene 1997). The limited product range, high price premiums, and lack of availability of organic foods in conventional supermarkets are thought to be the major factors limiting demand (McCoy 2002). To increase demand for organic products, these issues have to be addressed.

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 consistent supply of organic produce to be a major constraint to increasing demand. In most cases, this is a result of a small production base in most food categories, compounded by seasonality in supply. Compared with non-organic produce that is available in the supermarkets, not only is choice abundant, 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 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 (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, there is too much risk for farmers to expand, or convert to, organic production without the guarantee of market outlets for their outputs. Unless this paradox can be resolved, limited and inconsistent supply would remain the major barrier to further development of organic markets in Australia.

Price premiums. High price is another reason that discourages greater demand for organic products. Based on a consumer survey conducted by Pearson (2001), it was found 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 2002a). Given that limited supply is the major problem in Australia, 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.

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. Although some consumers may be interested in the ecologically compatible production systems by which the products are produced, demand for, and competitiveness of, organic foods inevitably would depend on what the product itself can offer relative to competing products (Krissoff 1998). Certification and labelling of organic products are supposed to help consumer confidence. However, the use of terms like organic, biological, biodynamic and ecological to refer to organically produced products by different certifying organizations using different logos does little to simplify the choice process for the consumer. What is the real difference in layman's term?

Burlace (1996) pointed out that most consumers want to buy "organic" products, and not necessarily something that is biological, biodynamic or ecological (see earlier definitions). 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 what is good about the product. Given the great divide between urban consumers and rural producers, most consumers are not familiar with food production on farm. Different technical terms understandably are likely to cause confusion among consumers. On the other hand, there may be a marketing niche for various production methods provided that each system can be physically differentiated by the environmental, food safety and social characteristics that it claims and, more importantly, that these attributes mean something to the consumers and have some important influences on consumers' purchasing decisions.

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 receiving these attributes. However, this group of consumers may not be representative of the consuming public – the reason why the organic market remains a niche. Further consolidation and expansion of the organic market might require greater transparency and assurance of the product attributes to the majority of the market (Krissoff 1998).

Labelling of organic products. Organic products have the characteristics of a credence good whose product attributes remain unknown to consumers even after consumption. Without certification and enforcement, an organic label or claim is subject to abuse by unscrupulous producers and marketers, particularly when demand is high and there is a price premium for such products. Although 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, no such laws exist for organic products that are sold domestically. This means that some products can be sold as, or claimed to be, organic without being certified or complying fully with organic standards. The only guarantee consumers have is to buy products that bear the label or logo of a certifying organization. Currently, there are seven certifying organizations in Australia, and each carries its own label or certification mark. Organic products that are imported from overseas also tend to bear their own certification marks. 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. However, after years of discussion and lobbying, labelling of organic products remains one of the key issues facing the industry.

In 1993, the then Australia New Zealand Food Authority (ANZFA) (now renamed as the Food Standards Australia New Zealand (FSANZ)) 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 a requirement that all food labelled as “organic” or similar, was to be certified by AQIS-accredited certifying organizations. The initial response from the then ANZFA was that it did not have the authority to include such a provision in the Food Standards Code and it was concerned about the legality of making a third party certification a pre-condition for selling food as “organic”. Moreover, the ANZFA could not consider any organic labelling provisions without a clear and agreed definition for organic. After years of negotiations, the application for a domestic regulation was finally rejected by the Australian government in 2002.

The government’s position on the labelling issues was quite clear. That is, it would regulate only where 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 is argued that government regulations impose unnecessary costs on business and can create a restrictive and less competitive business environment. Further, government processes can be slow and less inflexible and once in place they are difficult to change, which may result in rigidity in the system and missed market opportunities. 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 strictly regulatory/enforcement-based solutions to those concerns. Under the self-regulatory framework and with better information, both consumers and producers can still be protected under the existing Fair Trading and Trade Practices Act legislations against false or misleading labelling or inappropriate conduct.

Around the world, countries either have controls on the use of the word organic or are developing such controls (Kinnear 2000). For example, the European Union has had strict government controlled domestic regulations since 1992. 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**. Under the legislation, all except the smallest producers (with annual organic sales under \$US 5,000) must be certified by USDA-accredited certifying organisations. They are allowed to use the national organic logo “USDA Organic” once certified (Greene and Kremen 2003). Japan also has similar rules and a common national logo (the JAS mark) 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 and 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 accounting for 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. Nevertheless, as the Australian organic industry develops further and into mainstream, stricter controls over imports and domestic sales may become necessary in the future.

From niche to mainstream. The demand for organic foods in Australia has grown significantly in the past decade and is expected to continue to expand in the next decade. As the growth continues, the industry is gradually being transformed from a niche market to the mainstream. This means organic products are gradually becoming accepted by a greater majority of consumers and marketers and organic sales are taking up a greater share of total food sales. Indeed, the organic sector is recognised to be the fastest growing food sector worldwide. A number of critical changes have occurred alongside the recent expansion in the organic food market. Foremost among these is the entry of new players to the market, including organic input suppliers, food processors, supermarkets and large-scale organic farms. This has caused some aspects of the organic food sector to resemble industrial agricultural systems (Friends of the Earth Brisbane 2002). As a result, established small organic farms and specialised and localised retail outlets are facing increasing competition from large-scale production and mainstream retailing.

While industry growth is welcomed by some industry participants who see the benefits associated with an expanded market, others are concerned about the pressure from competition and the impact on the integrity of the product (organic standards and certification) and organic principles (profits versus environmental sustainability). That is, what is the impact of industry growth on organic standards and the certification process? Will standards be watered down (as was attempted in the United States) and certification compromised over time to make it more “achievable” for corporate interests (Friends of the Earth Brisbane 2002)? What is the impact on the values and ethos of the organic movement? Will profit motives take over the overriding principle of protecting the environment and the ecosystem? Will processing, packaging and value-adding intensify the energy consumption associated with organic food production? What is the impact of industry growth on traditional small players? Will small organic farmers and retailers survive the invasion of corporate farms and supermarket chains? And how do they compete?

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. But, what does this mean to the small players? Some analysts suggest that the transformation from the niche to mainstream does not necessarily imply that small players have no significant role to play in the expanded market (Krissoff 1998). This is

because no matter how mainstream a product or an industry has become, there are always marketing opportunities for some players to specialise in providing a unique product or service to their target markets. Therefore, rather than resisting growth and the inevitable challenge of increasing competition, small players should focus on key strategic questions of where to compete (ie selection of target markets) and how to compete (ie objectives and strategies).

In the United States, while organic sales in the supermarkets, both natural and conventional, are growing quickly, farmers' markets, CSAs and home deliveries are also gaining tremendous support from the local communities (Dimitri and Richman 2000). There are also public/private partnerships to develop wholesale markets for small farmers in rural areas. In addition, farmers are individually or cooperatively custom growing specialty fruit and vegetables for urban centres. Thus, the parallel development of small-scale farms marketing directly to consumers through farmers' markets and other direct outlets, and indirectly through cooperatives and local supermarkets, might be able to compete with large-scale farming, distribution and marketing operations (Krissoff 1998). Therefore, it seems unavoidable, that an industry structure will emerge where smaller farms sell mainly fresh produce to local grocery stores, restaurants, and consumers while large-scale operations sell to distributors and processors competing at the national and international levels. The parallel development makes sense from a strategic management perspective, where an industry is occupied by a group of firms employing different strategies according to their competitive advantage and market opportunities. The more interesting questions are: what is the more desirable path of industry development? And, is there a role for government to play so that a desired industry structure can be achieved?

Adoption of organic farming. 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. These are briefly discussed below. First, 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 and Edwards 1990; Wynen 2002). While some studies found that profitability of organic farming was comparable with conventional farming, others concluded that alternative agriculture was less profitable than conventional agriculture. There have been criticisms of those studies and the way general inferences have been drawn from them. Lockeretz (1989) pointed out that any generalisations are premature because of the limited number of comparisons, which were based on specific regions and enterprise combinations. Lampkin (1990) also argued that most studies failed to sufficiently 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. Furthermore, the environmental benefits of organic agriculture should also be included in the evaluation.

Despite the continuing controversy, it is expected that the organic agriculture can become more competitive as the industry grows and the costs of major inputs and services decline

as a result. However, increases in the size of the industry can also affect the prices received by organic farmers. For example, the price premiums currently available for various organic products may diminish considerably as the number of organic suppliers increases and the market for organic products becomes saturated. Future changes in input cost and output price can be expected to have a significant effect on competitiveness and profitability. However, they should be considered within the context of each organic product.

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 limit 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. Thus, the need for a manager of an organic farmer to be an above-average manager would be lessened considerably.

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 (CSIRO 1983 cited in Alenson 2002). Organic matter is particularly important to organic farming because it increases soil microbial activity, which, in turn, releases tied up phosphorous, nitrogen and other trace elements that are beneficial to plant growth. To build up soil organic matter by organic farming methods may be economically quite expensive, if not impossible, under these conditions. 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 to come by or at high cost and hence limit the possibility for expansion.

Another possible hindrance to adoption of organic agriculture is social considerations. Breimyer (1984) contended that not all farmers are in the business for profits and social factors such as peer pressures can influence sufficiently their decision to convert or not. Some farmers may be inhibited from converting to organic farming because of the risk of alienating their colleagues. On the other hand, in cases where peers are outside mainstream farming, peer pressure may increase the likelihood to convert to organic or alternative farming.

From the above discussion it appears that there are a wide range of factors that need to be considered in predicting the future viability and growth of organic agriculture in

Australia. It also appears that given that price and cost are beyond the control of the farmer or government, one way that adoption of organic agriculture can be encouraged is to educate farmers concerning organic production, both in terms of improving management skills and changing attitudes and perceptions.

Government support. While European and United States governments have provided subsidies and other technical and regulatory assistance to organic farmers, government support in Australia has been limited to facilitating organic production and trade with the development of national organic standards and providing matching funds for research and development. Although adoption of organic production in Europe has been encouraged by government subsidies, it is unlikely to happen here in Australia. This is because the government in general supports deregulation. Government intervention is seen to be costly and unlikely to produce desired results in the long term. Moreover, international competitiveness 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 (Marshall 1991 and 1993). In theory, goods with positive externalities will be under-supplied because producers of such goods are not rewarded for producing those extra benefits. In the case of organic foods, it is argued that the public in general benefits from having a better quality environment and healthier population and smaller public health bills as a result of organic farming, but there is no economic incentive for organic farmers to produce more of them – a case of market failure. Government intervention that encourages organic production or makes it more competitive will increase such beneficial side effects to the community in general.

However, there are also economic arguments against government intervention in organic farming. Firstly, it is not clear how superior organic farming is in protecting the environment and human health in relation to other farming approaches. There appears to be little documented empirical evidence to support the asserted superiority of organic farming in Australia (Marshall 1993) or in the United States (Crosson and Ostrov 1990). Further empirical evidence of the environmental and health advantages of organic agriculture is required before policy makers can confidently promote it as the preferred approach to agriculture. Even so, support in Australia is likely to be in the form of research and extension, rather than through taxes, subsidies or government regulation. Secondly, it is argued that 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. These price premiums, in turn, would encourage more organic production. Given the observed price premiums associated with organic products throughout the world, there do appear to be sufficient market incentives to encourage growth in organic production. This points to focusing the role of government on regulation (eg development of organic national standards and labelling regulations) and technical assistance (eg 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 (RIRDC) and various state departments. There is also evidence that state departments are increasing involved in market developments of organic products. However, there appears to be a need for a greater degree of networking and coordination among these agencies (Dumaresq and Greene 1997). Some research questions that are of great importance to the organic industry are: what are the market trends in consumer demand for organic foods both in Australia and overseas? how does the organic industry fit in with mainstream agriculture? what is the relationship between organic and conventional or mainstream agriculture? how to address issues related to input dependency and the closed system farming philosophy? what are the linkages between organics and environmental sustainability and food safety?

Industry unification. The Australian organic industry is described as being fragmented and lacking unity. This is because of the diversity in the type of enterprise involved, the size of operation and the location of organic farms. As such, it is often difficult to reach a consensus on issues and solutions that are important to the industry. Currently, there are seven certifying bodies in Australia with a total number of certified farmers of around 2,000. Most analysts believe that there is a need for industry consolidation to foster cooperation and avoid undue competition. The division within the industry was blamed for the lack of progress in key issues concerning the industry, such as domestic regulation and labelling of organic foods, a national organic label, the fragmented distribution system and consumer education and promotion of organic production. The division also means that because they do not speak in one voice, the organic industry does not make itself heard when it comes to lobbying for government support.

In 1998, the Organic Federation of Australia was established to be the peak industry body for the industry. Its role is “to develop the Australian organic industry from a niche industry into a major component of Australian agriculture, which is delivering benefits to consumers, producers and the Australian environment” (OFA 2002). It appears that the OFA has begun addressing some of the issues facing the industry and significant progress has been made in terms of bringing the organic industry together and forward.

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, clean and ethical. The demand for organic products worldwide was estimated to grow at a rate of around 10-20 per cent per annum in the next few years, with sales reaching \$US 29-31 billion in 2005. The strong growth will occur primarily in countries such as the United States, Western Europe, and Japan. 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 how applicable they are to Australia given the paucity of available data. Unlike the United States or European Union, problems of quality assurance, product recognition, consumer

confusion over logos, certification and trademarks, and uncertainty of supply, quality and price are well recognised in Australia. As such, it is doubtful that the growth rate of 20-25 per cent per annum reported in other major organic markets, particularly in the United States, the European Union and Japan, will be reflected in Australia.

Because reliable statistics are either unavailable or incomplete, most research on demand for, and supply of, organic products is based on limited observations in rather localized areas. The representativeness of such data is therefore questionable. 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 has 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,

Further, although organic farming has the potential to provide many benefits to the environment and human health, developments in alternative farming systems and their potential threats to organic farming should be carefully monitored and their potential impacts on the organic sector assessed. In addition, while Australia may be well placed to take advantage of the growth in the demand for organic products at home and abroad, lower cost imports are a potential threat. This is especially true when supermarket chains move into organic products in a big way and use their existing global sourcing networks to provide year round supply at lower prices. Finally, industry growth will inevitably lead to a change in industry structure. Major developments that have a bearing on the future industry structure are the involvement of supermarkets and large-scale production units in the supply chain. To increase demand for organic products and to expand the organic industry, these issues have to be addressed.

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