

Chapter 26

Concepts and Philosophy Underpinning Organic Horticulture

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Abstract Many argue that food products from certified organic production systems are a vital component of meeting global food security challenges into the middle of the twenty-first Century. Whilst the concept of organic in this context, with its emphasis on minimizing the use of artificial chemicals and other external inputs, is not new—as it exists in all systems operating without human contributions, its philosophical position emerged as a reaction against the increased ‘industrialization’ of food production that occurred in developed countries around the 1940’s. Increasing formalization saw the emergence of global coordination through the International Federation of Organic Agricultural Movements and its four principles of health, ecology, fairness and care that are now embodied in formal independent certification systems in most countries around the globe. Sales of certified organic horticultural products are a major component, at around 30%, of what is now a US\$ 60 billion global industry. Continued expansion of sales (and private production) of organic horticultural products is likely to continue due to their natural affinity with local sourcing of healthy fresh products.

Keywords Organic food movement · History · Organic principles · Organic certification

Introduction

As the world population grows, the issue of food security is once again becoming topical all around the world (FAO 2012). In light of the far reaching ramifications of conventional agriculture and the associated chemical use in the 1900s, organic agriculture is now established as one of the crucial components of the global food system. The world is also facing unprecedented issues related to human diets and sustainability of the food system. The population in the industrialized countries is fatter

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than ever before, consuming too much animal protein and not enough horticultural products. Further the consumption of beef and dairy in particular have been linked to negative ecological impacts on the planet (McMichael et al. 2007). For these reasons, it will be important to promote and increase the overall consumption of fruit and vegetables, and keep increasing the market share of organic agriculture around the world.

While the increased output from organic production systems has brought the concept of 'organic' into mainstream society, the idea itself is not new. It could be argued that humans have practiced 'organic' farming since the origins of agriculture. This continued until the Industrial and Scientific Revolution in the 1800s enabled radical changes to the farming practices and started moving the production towards what these days is called conventional agriculture (Treadwell et al. 2003).

Despite growth, overall land used for organic agriculture in the whole world is still quite low, with only 0.9% of agricultural land being organic at the end of 2009. Again, there are large differences between countries, with some having far higher shares (For example: Falkland Islands 36%, Liechtenstein 27% and Austria 18%). Of the 37 million ha of organic agricultural land most is used for grazing, approximately 5.5 million ha (15%) is arable land of which 0.22 million ha is used for vegetables. Permanent crops, of which most important are coffee, followed by olives, cocoa, nuts and grapes, amount for 2.4 million ha (6%) (Willer and Kilcher 2011). In Europe in 2009, the market shares for organic food and drink were still fairly low, with Denmark having the highest shares of sales at 7%, followed by Austria at 6% and Switzerland at 5% (Willer 2011).

Organic horticulture refers to growing fruits, vegetables, flowers, ornamental plants, nuts, olives, medicinal and aromatic plants, root crops, as well as beverage crops such as coffee and tea, using the organic principles. Fresh produce such as fruit and vegetables have so far had the largest market shares in the organic market, and it has been considered the 'gateway' into the world of organic food (Dettman and Dimitri 2009). The growing consumer demand for a wide variety of fresh vegetables has contributed to the fact that many retailers offer organic produce all year round, and the sales of convenient items such as baby carrots and bagged salads has increased rapidly in recent years (ibid). In addition to being of comparable quality with conventional products in terms of freshness, taste and convenience, consumers are attracted to organic horticultural products due to the perception that they are better for their health (Pearson and Henryks 2008) although the scientific evidence for this is not conclusive (Smith-Spangler et al. 2012).

The International Federation of Agricultural Movements has developed the following definition for organic agriculture. It is important to note that its scope is beyond a widely held misconception that organic agriculture simply relates to the use, or lack thereof, of chemical inputs such as fertilizers and pesticides.

Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promotes fair relationships and a good quality of life for all involved. (IFOAM 2011)

What makes this definition particularly useful is that it takes into account the whole supply chain—from farmer to consumer. Thus the focus is not solely on production factors, but also on the social impacts of the process of producing, selling and consuming food. It is inclusive of all products, people and places. Therefore the principles of organic agriculture as specified in the previous definition are adapted to suit a wide variety of different situations.

To fully understand how organic agriculture has developed into the industry it is today, we will begin this chapter by reviewing the history of organic farming. By doing this, we will be able to examine both the environmental as well as the social and economic implications of the organic movement, and how these have formed over the years. We will then look at the requirements for organic certification. Finally, we will investigate the current market for organic products around the world.

History of Organic Farming

In many ways, the relationship most people have with food has always been coloured with anxiety. The main issue throughout our history has been the supply, or lack thereof, of food. This has been exacerbated by an uneven distribution of the available food products. However, as Reed and Holt (2006) point out, for the affluent ones around the world, this concern has been largely replaced by the concern for the quality attributes of food. In many of the developed countries the food supply far exceeds demand, and how much an individual can consume depends solely on their wealth. This may be one of the reasons why the question of food safety has gained a foothold in many households, and issues such as pesticide use in food production and their impact on human health have become topical. Such concerns have in turn paved the way for organic agriculture, and the whole organic movement has been enjoying unprecedented growth over recent decades.

The organic movement "...has a history of almost 100 years, with over 50 years of continuous production on some farms." (Kristiansen and Merfield 2006). However, the concept of organic farming is not new. Organic farming has been practiced since humans started moving away from hunter-gatherer origins and first started cultivating land, as all farming was initially organic by default. In other words, people weren't following organic principles because they were exercising a choice or because they made a conscious decision to do so, but rather because of "absence of a choice". Simply put, farmers did not have access to synthetic fertilizers or mechanical apparatuses that have been the cornerstone of industrial agriculture. However, as El-Hage Scialabba (2007) points out, today "...true organic agriculture is practiced by intent, not default. You do not automatically become organic simply because you never used prohibited chemicals anyway."

Organic farming is not just about the farming practices itself, but also its wider reaching socio-cultural aspects that continue to shape, and be influenced by, our society. Therefore, we will have to look beyond the location of production to gain an understanding of the origins of organic farming.

The first inorganic fertilizers that marked the start of the ‘agricultural revolution’ and allowed farming to move towards being ‘industrialized’, or what is now referred to as ‘conventional agriculture’, were produced in the 1840s (Kristiansen and Merfield 2006). These new agricultural methods were thought to increase the yields and improve food security. Instead, by the early 1900s, agriculture and agricultural science was in crisis, not just because of ecological, but also economic and social problems (Vogt 2007). The consequences of the increased use of inorganic fertilizers started to become obvious as the soil quality began degrading with widespread erosion occurring in many countries including the USA, South Africa and Australia (Holt and Reed 2006) and despite the use of the chemicals that were designed to improve the crops, yields started dropping, and even the nutritional content of the products was proven to have suffered. Consumers started questioning the safety of food, and at the same time, rural lifestyles and traditions changed as more and more people moved into cities.

As a result of these issues with conventional agriculture, many scientists and people in the agricultural area started to look for alternatives (Francis and Van Waart 2009). While Walter Northborne may have been the first to use the term ‘organic farming’ in his book ‘Look to the Land’ in 1940, the origins of the organic movement had already been ignited in the early 1900s. What makes the history of this movement particularly fascinating is the fact that it was not limited to just one or two areas, but was global from the very beginning.

In Germany anthroposophist Rudolf Steiner was approached by two groups of people in the early 1920s. The first group consisted of farmers who were concerned about the rapid degeneration of seed-strains. The second group brought to his attention increases in animal diseases (Pfeiffer 1958). Prompted by these concerns, Steiner conducted his famous lectures on ‘biodynamic agriculture’ in 1924, which provided one of the starting points for the organic movement. Steiner’s approach was not limited to the health of the soil from a scientific perspective, as the agricultural methods promoted by him included a spiritual element and were linked to cosmic forces. Because of this spiritual aspect, his methods have attracted a lot of criticism and ridicule, but as Vandermeer (2011) points out, biodynamic, as this approach is now called, was part of a bigger movement, the Antroposophism Movement, which was especially important in the Western Europe and continues to attract thousands of followers.

Underpinned by the spiritual imperatives of Antroposophism, biodynamic agriculture values the interrelationships between all biological elements of the farming system (Kristiansen 2006). Biodynamic farming methods consequently focus on developing agricultural systems which nurture the health of the whole ecosystem and enable it to be self-sustaining. The movement is not only characterized by its specific methods, such as the integration of farm animals, the use of local crop varieties, and planting based on astronomical cycles, but their belief that a farm must be true to its ‘essential nature’ (Paull 2011). In this sense, the farm is perceived as an individual entity, and thus everything the farm should be available within the boundaries of the system.

The application of Steiner’s philosophy to farming was first publically articulated in ‘The Agriculture Course’ which he ran at Koberwitz in Silesia in 1924 (Paull

2011). The ideas presented in the course were then further developed and compiled in Ehrenfried Pfeiffer's 1938 publication *Bio-Dynamic Farming and Gardening*.

However, the methods used in biodynamic farming are not necessarily connected with their spiritually grounded Anthroposophic origins. As far back as the Marienstein Farmers' Conference in 1928 (Paull 2011) farmers external to the Anthroposophic tradition had observed that these methods improved the quality of foodstuffs (Von Pilsch 1928).

Despite the gradual decoupling of biodynamic methods from their metaphysical origins, the Anthroposophic conception of the farm as an 'organism' has still been greatly influential in the organic movement more broadly. This is largely because the idea was adopted as a foundational concept by pioneers of what became known as the organic food movement, such as Lord Northbourne in his book *Look to the Land* first published in 1940 (Paull 2011).

Steiner was not the only one associated with the origins of the organic movement whose interests and beliefs may have caused concern amongst those who adhered to the strictly scientific principles of agriculture. Vandermeer (2011) has noted two curious trends that occurred simultaneously and that may have created subtle barriers to the "scientific approach to the alternative agricultural movement". According to him, the magazine 'New English Weekly', which was founded in 1932 and commonly associated with the organic movement, "... was much more focused on 'Christian Sociology'". Furthermore, a contributor to this magazine, the agricultural scientist and farmer, Jorian Jenks, was also associated with the origins of the organic movement, and was a member of the British Union of Fascists (ibid).

In the English speaking world, a British scientist, Albert Howard, who worked both in India and the UK is seen by many as one of the founders of the organic movement (Pretty 2005; Francis and Van Waart 2009). Howard saw food as being integral to good health and drew direct links between the health of soil and the quality of food eaten to the health of people:

Real security against want and ill health can only be assured by an abundant supply of fresh food properly grown in soil in good health. The first place in post-war plans of reconstruction must be given to soil fertility in every part of the world. (Howard 1945)

As the first person to start a comparison of organic and conventional farming, in 1939 in the UK, Lady Eve Balfour was also a pioneer of organic farming. She called this the Haughley Experiment and based on her research published a book 'The Living Soil' in 1943. She then cofounded The Soil Association in 1946, which over the years has developed from a small organization based on a farm and mainly focused on research, into the leading charity campaigning for sustainable agriculture in the UK.

In the US, F. H. King of the United States Department of Agriculture traveled in Japan, Korea and China in 1905 and documented the organic systems used in their local agriculture. Another key figure in the origins of the organic movement in the US was the University of Missouri soil chemist William Albrecht, who much in the same vein as Howard, linked soil and food quality with human health. One of Steiner's old colleagues, Ehrenfried Pfeiffer, who had become a vocal proponent

of biodynamic agriculture also brought the movement to the US in the late 1930s (Vandermeer 2011). In 1942 J. I. Rodale created a magazine called 'Organic Farming and Gardening' in which he chronicled the experiences of innovative farmers and taught people how to grow food without chemicals.

Despite the dispersed global interest in organic farming, it remained a minority business in most parts of the world in the years following the Second World War. As the world was trying to recover from the physical and economic consequences of the war, the pressure was on the farmers to produce more food than ever before, and the use of pesticides increased rapidly in many countries. Advances in technology also contributed to this, as for example, aircrafts that were able to spread fertilizers and pesticides quickly and efficiently over the large areas were developed post Second World War (Woods 2003). What's more, the post-war years saw the conception and rapid uptake of the 'Green Revolution' initiatives that were developed to save people from starvation around the world (Hazell 2009). These initiatives included the use of pesticides, herbicides and fertilizers to increase food supply.

The term 'Green Revolution' is used to refer to a range of research, development, and technology initiatives that ran from the 1940s to the 1970s (Hazell 2009). In particular, it involved the development of high-yielding varieties of grains, the modernization of farm management techniques and the expansion of large-scale irrigation infrastructure. The distribution of hybridized seeds and synthetic fertilizers and pesticides to farmers were also key elements of the movement. The 'Revolution' was facilitated by research bodies, such as The International Maize and Wheat Improvement Center, which were created specifically for the task of increasing yields and promoting new 'improved' crop varieties around the world (Hazell 2009).

Initially, the 'Green Revolution' was heralded as a great success and was credited with significantly reducing famine in many countries. However, the limitations of the new methods and crop varieties became increasingly apparent from the 1960s onward.

As pesticide use increased, the scientific evidence of the negative effects of synthetic chemicals started to become more and more apparent. Rachel Carson, an American marine biologist, started to investigate the environmental problems they caused in the 1950s. Her book 'Silent Spring' (1962) brought consumers' attention to these issues and provided a step towards environmentalism amongst the general public. The book also played a significant part in the final ban of the use of DDT (dichlorodiphenyltrichlorethane) as a pesticide in 1972 the USA.

In terms of the history of the organic movement, 1972 also signaled the foundation of the International Federation of Organic Agriculture Movements (IFOAM) in Versailles, France. The initiative for the movement had come from the president of the French farmer organization, Nature et Progrès, and had initially five founding members;

The Soil Association from Great Britain represented by Lady Eve Balfour, the Swedish Biodynamic Association with Kjell Arman, the Soil Association of South Africa in the person of Pauline Raphaely, Rodale Press from the United States of America whose representative was Jerome Goldstein and of course, Nature et Progrès with Roland Chevriot.

However, what makes the history and rising popularity of organic agriculture particularly fascinating is that it started gaining attention amongst the general population even before the majority of the advocacy organizations were established. Lockeretz (2007) lists the following as factors that contributed to the growth of what has become known as the organic food movement:

- Great social and political upheaval worldwide, combined with heightened public awareness of environmental threats, such as the pesticide use and ‘blue baby’ syndrome from increased nitrate levels in drinking water from the use of fertilizers;
- Greater suspicion of synthetic chemicals in all aspects of food; the farmers’ growing concerns of their own health;
- The general strong anti-establishment activism that paved way for both environmental and antiwar activists to join their forces; and finally,
- The countercultural hippie revolution which also promoted ‘back-to-the-land’ principles.

Given its strong roots in countercultural and anti-establishment movements, it is somewhat surprising that the organic movement did not diminish after the years of upheaval were over and the economic climate improved around the world. Instead it grew to find supporters from all walks of life, ranging from the stereotypical anti-establishment hippies to conservative policy makers (Pearson et al. 2011a). Mitchel et al. (1992) examined the rise of environmental organizations between 1970–1990 in the US, and noted that by the end of 1960s, education campaigns alone were found to be insufficient to inspire and mobilize people. At the same time, direct action was considered as too aggressive a method by many mainstream organizations. Instead, policy reform became the new preferred choice for environmental organizations. Prior to the 1960s, only government agencies were granted standing in the administrative proceedings in the implementation of environmental laws and the Reagan government in general had been very dismissive of any environmental issues, but the introduction of interest representation in the administrative law in the US enabled the environmental lobby to engage in the political activity and influence the policy at a totally new level (ibid).

The organic food movement both benefitted and contributed to the increased presence of collective action in the political arena. This no doubt increased its support from a basis in the countercultural ‘alternative’ lifestyle beginnings to having a more mainstream appeal associated with organic principles in general, and the health aspects of organic diet in particular.

By the late 1980s, IFOAM had expanded rapidly from its humble beginnings of five founding members to an organization that networked more than 100 member organizations in 50 countries, representing a total of 100,000 individuals (Geier 1998). A part of this development was, according to Geier, due to the growing interest in organic agricultural methods in the developing worlds, and the countries behind the ‘iron curtain’. IFOAM also started active lobbying to influence the planned regulation for organic agriculture in the European Union, and organized conferences, workshops and scientific meetings to further develop the movement (ibid).

Table 26.1 Price premium of organic above conventional (Source: Derived by the authors from Lin et al. 2008)

	Premium (%)
Fruits	
Apple	34
Banana	36
Grape	22
Orange	19
Strawberry	34
<i>Average for fruits</i>	29
<i>Vegetables</i>	
Carrot	15
Onion	18
Pepper	35
Potato	82
Tomato	19
<i>Average for vegetables</i>	34

From the consumers' perspective, increased production and therefore availability of organic products also contributed to rapid growth (Pearson et al. 2011a). As the availability organic products spread from health food shops and into the more mainstream shopping outlets, such as supermarkets, this ease of access enabled many of those who would not have made the effort to seek out organic products and start purchasing them, and to purchase them more often.

However, in many cases the prices of organic products were, and still are, a lot higher than those produced using conventional methods, and this in turn acts as a prohibiting factor even amongst those who would like to have a completely organic diet (Pearson et al. 2011a).

Retail price fluctuations for horticultural products are much larger than those associated with most other grocery items with the reasons associated for this including variations in product quality and seasonal fluctuations in supply and demand. Further the role that price plays, and the amount of attention that a consumer gives to it is complex, and will depend on the buyer, product and situation (Pearson 2001, 2005). Hence caution needs to be applied to any attempts at making generalizations about the price premiums associated with purchases of organic products. Table 26.1 above provides an indication of the price premiums.

Whilst on average organic products were more expensive, the variation in actual prices paid for a specific product ranged widely—such as the difference between the cheapest and most expensive organic apples being over 10 times (Lin et al. 2008).

In many countries, governments are increasingly recognizing the benefits of organic farming, particularly for the natural environment, and are therefore supporting its expansion.

It is also interesting to note that while the issue of increasing food production is seen by many as being the main driving factor behind increasing industrialization of the food system, some advocates of sustainable agriculture also place blame on the consumers for these developments. For example it may be that 'careless eating' has driven the industrialization and created the demand for unsustainable practices such

as all year round availability of fruit and vegetables (Kleiman 2009). The famous quote from Wendell Berry (1990), “how we eat determines, to a considerable extent, how the world is used” exemplifies this way of thinking well. There is little doubt that consumers are a significant stakeholder in the industrialization of food system, and, perhaps to an even greater extent, they have led and sustained the expansion of the organic food movement.

Requirements for Organic Certification

Organic Production Principles

As previously mentioned, organic production has been defined, by the International Federation of Organic Agricultural Movements (IFOAM), as “a production system that sustains the health of soils, ecosystems and people (IFOAM 2011).

IFOAM provides four principles for organic production, namely, health, ecology, fairness, and care. According to the first principle of health, IFOAM goes on to state that organic agriculture “should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible.” In this context health is considered to be the wholeness and integrity of living systems. Hence it is not simply the absence of illness, but the maintenance of physical, mental, social and ecological well-being. Thus organic agriculture aims to produce high quality, nutritious food that contributes to wellbeing as a form of preventive healthcare. This is achieved by minimizing the use of fertilizers, pesticides, animal drugs and food additives that may have adverse health effects (IFOAM 2011).

The principle of ecology states that organic agriculture “should be based on living ecological systems and cycles.” Thus organic farming, pastoral and wild harvest systems should fit the cycles and ecological balances in relation to the culture and scale in the natural local environment. Inputs should be reduced by reuse, recycling, and efficient management of materials and energy. And finally, organic agriculture should aim to protect and benefit the common environment including biodiversity as well as variety of habitats and landscapes (IFOAM 2011).

The principle of fairness states that organic agriculture should “build on relationships that ensure fairness with regard to the common environment and life opportunities.” This is amongst people, and with other living beings. Individuals should have a good quality of life, hence organic agriculture aims to contribute to food self-sufficiency and the reduction of poverty. Further, animals should be provided with the conditions that accord with their natural behavior (IFOAM 2011).

The fourth and final principle, that of care, states that organic agriculture should “be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment.” This incorporates a blending of scientific developments with traditional wisdom. Thus organic agriculture aims to prevent significant risks by adopting appropriate technologies and rejecting unpredictable ones, such as genetic engineering (IFOAM 2011).

Based on these principles IFOAM has developed standards and associated certification systems for organic products (IFOAM 2012a). Organic standards are used to create an agreement about what an “organic” claim on a product means, and in many cases it is communicated to consumers through a certification symbol or logo. Groups of organic farmers and their supporters, often in one geographic region, began developing organic standards back in the 1940’s. Today there are hundreds of these private organic standards around the world. In addition there are those developed by more than 60 national governments which involve certification by an independent third-party and aim to regulate any kind of an “organic” claim on a product label.

IFOAM provides a minimum set of requirements for organic production and processing (IFOAM 2012b). This substantial document (126 pages) provides details for production (crops, animals, aquaculture), processing, handling, labeling and social justice. Both private standards and government regulations are eligible for consideration for official endorsement through a process referred to as equivalence with this IFOAM baseline. For example the UK based Soil Association has built upon the IFOAM baseline to develop its own standards for certification of organic products (SA 2012).

Organic Certification of Product and Grower

The existence of credible certification process for organic products is extremely important for both the producers and consumers. Certification aims to ensure consistency of the quality attributes embodied in organic products. Thus it reduces opportunities for fraud and increases consumers’ confidence in the product they buy. This helps to maintain and increase sales. As consumer trends throughout the world are towards ‘one-stop-shopping’ for food products, such as weekly purchases from supermarkets, where there is no direct connection with producers, organic certification identifies the production method used. This helps to establish a relationship between consumer and producer whilst also adding to consumer confidence in these products (Zagata and Lostak 2012).

In 2011, 84 countries had organic standards, and 24 were in the process of drafting legislation. The total number of certification bodies in 2011 was 549, with the most located in the European Union, Japan, the United States, South Korea, China, Canada, India, and Brazil (Willer and Kilcher 2011). By way of example, there are seven organic certification bodies Australia (DAFF 2011) each with a different logo.

The United States is a large and well developed marketing for organic products. As such it provides an example of how the organic market may develop in other countries. Their Department of Agriculture (USDA) has a National Organic Program (NOP) that regulates the “standards for any farm, wild crop harvesting, or handling operation that wants to sell an agricultural product as organically produced.” Labeling requirements apply to “raw, fresh product and products that contain organic agricultural ingredients” and are based on the percentage of ingredients, with products

labeled “100% organic” only containing only organic ingredients, products labeled ‘organic’ must consist of at least 95% of organic ingredients, and products with at least 70% of organic ingredients can use the term “made with organic ingredients”. However, only the first two can use the USDA seal on their package (USDA 2008).

In addition to organic certification of organizations, whether they be producer, processor, or retailer, for specific products, there are locally focused approaches that provide access to organic certification for small holders. These Participatory Guarantee Systems (PGS) are supervised by IFOAM and it is estimated that there are about 40 PGS initiatives established worldwide, with Latin America and India having the most farmers certified through the system (*ibid*).

Market for Organic Products

Organic agriculture, including horticultural products, is continuing to experience rapid growth globally. A lot of this expansion is being driven by consumers who are reconnecting with the food production chain and placing value on organic farming (Pearson et al. 2011a). While the global economic crisis with its far reaching ramifications on both funding of organic agriculture as well as the spending power of consumers slowed down the growth in 2009, growth rates are projected to increase rapidly again as countries around the world start coming out of the recession (Willer and Kilcher 2011). Global sales of organic food and drink have grown over three-fold over the last ten years, \$US 18 billion in 2000 to US\$ 60 billion 2010. There has been significant variation between countries though, with highest growth rates reported in France (+19%) and Sweden (+16%) (Willer 2011).

While the market for organic food has continued to expand, the concept of ‘local food’ is seen by many to be offer a suite of benefits to both producers and consumers that may, over time, take sales away from certified organic products (Pearson et al. 2011b). The main reason for this lies behind the fact some organically grown food is produced in “industrial-scaled monocultures far from the places it is consumed” (Kleiman 2009). This is particularly relevant to organic horticulture, as consumers are far more likely to value locally grown fruit and vegetables instead of those that are air freighted across the world.

Conclusions

The concepts and philosophies underpinning organic production have evolved since the 1940’s as an alternative to the increasing industrialization of food production. Today a wide range of organic products are grown and made available to consumers throughout the world through distribution channels ranging from subsistence farming though to supermarkets with multinational supply chains.

Through global leadership provided by the International Federation of Organic Agricultural Movements its principles of health, ecology, fairness and care are now manifest in certification systems and regulations for organic horticultural products throughout the world. As such they provide an example of a food system, and associated products for consumers, that gives explicit emphasis to human health and environmental sustainability.

The continuation of global sales growth for organic horticultural product is anticipated to continue as consumers increasingly reconnect with the source of their food and, as part of this, place value on organic certification. Further, sales of organic horticultural products benefit from their natural synergy with the trend towards local sourcing of healthy fresh products.

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