



# Environmentally sustainable food production and marketing

Sustainable food production and marketing

## Opportunity or hype?

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### Abstract

**Purpose** – To identify and analyse the beliefs of value-chain intermediaries regarding the production and marketing of food products conforming to environmentally sustainable standards.

**Design/methodology/approach** – The methodology was in-depth, semi-structured, face-to-face interviews with senior managers of food companies across the value chain.

**Findings** – In Australia, the demand for foods that are produced under environmentally sustainable standards has been slow to take-off because customers do not perceive these products as offering any special benefits; customers distrust the claims made by organisations; these products are much more expensive than traditional products, and the implementation of environmental standards is expensive. Customers claim that the use of different terminologies such as organic, green and environmentally friendly in promoting food products is confusing.

**Research limitations/implications** – Findings are not generalisable because the study is based on a small sample.

**Practical implications** – Value-chain intermediaries are unlikely to voluntarily adopt environmental standards because of low demand for such foods and the high costs of adopting and monitoring environmentally sustainable production and marketing regimes.

**Originality/value** – The story supports previous research findings from the USA and EU.

**Keywords** Sustainable development, Organic foods, Value chain

**Paper type** Research paper

### Introduction

A number of recent studies in the USA and UK suggest that customers observe whether organisations behave in an environmentally responsible manner and these observations influence their decisions to purchase (Carlson *et al.*, 1996; Crain, 2000; Davis, 1993). Environmental responsibility can result in beneficial commercial outcomes as a result of customers switching to or being loyal to organisations that they



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judge as being environmentally responsible. The desire to satisfy the environmental concerns of customers has encouraged several organisations to adopt environmentally sustainable production and marketing standards. Notwithstanding that some organisations have adopted environmental standards because of altruistic reasons, it appears that several organisations use claims of environmental responsibility purely as a marketing gimmick aimed at appealing to environmentally conscious customers. Spurious environmental claims have impacted on the trust and believability of such claims and there is evidence that customers are more discerning about environmental claims made by organisations (Newell *et al.*, 1998).

Also, environmental responsibility is of greater concern to customers in some countries than in others (Bhate, 2002). Current studies indicate that customers in the USA and some countries in the EU are becoming more conscious of the environmental behaviour of firms. In the USA and the EU, environmental standards are being adopted from a whole-of-chain perspective with increasing numbers of food producers (Wintherop, 1999; Eurogap, 2004), food processors (Maier and Finger, 2001; McEachern and McClean, 2002) and food retailers (Grabner-Kräuter and Schwarz-Musch, 1999) adopting environmental standards. To some extent, adoption of environmental standards in the USA and UK was driven by organisations using coercive power on suppliers to adopt environmental standards. Thus, it seems that the adoption of environmental standards is not necessarily driven by the market power of consumers but more often by the market power of value-chain intermediaries (Bjørner *et al.*, 2004; McEachern and McClean, 2002; Roe *et al.*, 2001).

Based on our assumption that trends in the USA and UK will be replicated in Australia, we postulated that value-chain intermediaries in Australia would be oriented to adopting environmental standards. We attempt to review the trends in Australia by interviewing senior managers of companies across the value-chain to determine their beliefs regarding environmentally sustainable food production and marketing. This study has significant theoretical, managerial and public policy implications. Value-chain intermediaries can influence suppliers to adopt environmental standards and therefore the power of channel intermediaries is an important influencer in the adoption of environmentally sustainable standards of production and marketing. However, if value-chain intermediaries do not believe that there are benefits in adopting environmentally sustainable standards of production and marketing, this can be a significant barrier to the adoption of environmental standards.

### Literature review

#### *Motivations to adoption of environmental standards*

Past studies identify the following benefits from adopting environmental standards:

- (1) greater market penetration because of positive customer beliefs about the organisation; and
- (2) cost savings arising from implementing sustainable systems and processes.

Demands by customers have been the major motivation to adopting environmental standards (Bjørner *et al.*, 2004; McEachern and McClean, 2002). Customers prefer products that are environmentally friendly. Consumer products targeted at the environmentally conscious market include phosphate-free detergents, recycled paper products, sustainably produced wood and other building materials, and organically

farmed foods. Customer oriented organisations would readily switch to environmentally friendly products if there was demand for such products and customers are willing to pay the price premium (Bigsby and Ozanne, 2002; Clift and Wright, 2000; Peattie, 2001; Roarty, 1997).

Environmentally sustainable products can enable organisations to differentiate their offerings from that of competitors (McEachern and McClean, 2002; Dosi and Moretto, 2001). Environmental responsibility can foster a positive corporate image and provide points of differentiation to the organisation (Carlson *et al.*, 1996; Morris *et al.*, 1995).

Production, distribution and marketing activities based on environmental standards generate greater efficiency (Porter and Van der Linde, 1995; Vis and Standish, 2003), increase profits (Business for Social Responsibility, 2001; Menon and Menon, 1997) and reduce product life cycle costs (Beamon, 1999; Porter and Van der Linde, 1995). Efficiency, profit growth and cost savings can result from better waste management through activities such as recycling, re-use of waste material or sale of waste material in its original form or in a modified form (Polonsky and Rosenberger, 2001; Beamon, 1999; Clift and Wright, 2000; Ottman, 1998).

#### *Reinforcing believability of claims*

A whole-of-chain approach is necessary to reinforce beliefs regarding environmentally sustainable food production and marketing. However, frequently it is often beyond the power of one organisation to map environmental fall-out across the entire chain (Miettinen and Hämäläinen, 1997). Environmentally irresponsible actions by one organisation in the value-chain can diminish the believability of claims because this can influence customer perceptions regarding the environmental standard of the final product (Zhang *et al.*, 1999; Van der Grijp and Den Hond, 1999). In order to reinforce the believability of claims, organisations may choose to publicise that only specific parts of the product conform to environmental standards. However, such actions would make it difficult to classify many final products as satisfying environmental standards just because some of its contents do not satisfy environmental standards.

Performance-based environmental claims must be verifiable in order to be believable (Eco-labels, 2004; Federal Trade Commission, 1995; Carlson *et al.*, 1996). For example, claims regarding the biodegradability of garbage bags when exposed to sunlight may be viewed as a spurious claim as garbage bags in landfills are not exposed to the sun and therefore the usage situation of the product could mean that the product is not biodegradable (Mendleson and Polonsky, 1995; Ottman, 1998). Similarly, disposable diapers may be environmentally friendlier than the cloth alternative in regard to water usage but disposable diapers are more damaging to the environment if production and wastage issues are considered (Clift and Wright, 2000; Paulos, 1998). “Greenwash” or non-credible environmental claims have made customers suspicious of environmental claims (Polonsky *et al.*, 2002; Davis, 1993). It is important that communication regarding environmental sustainability clearly canvass the scope and limits of such claims (Kaberger, 2003; Roarty, 1997).

#### *Cost implications*

Implementing environmentally sustainable production and marketing regimes that customers trust, would call for channel-wide commitment and the capability of channel members to control and monitor the protocols used by other intermediaries in the

value-chain. Consequently, the adoption, monitoring and verification of standards across the entire value-chain are a precursor to making claims that products conform to environmental standards. Establishing collaboration and commitment across the entire value-chain can be expensive and also difficult to sustain over the longer term. Because of the costs and demands in implementing control and monitoring regimes, the price of environmentally sustainable products tend to be substantially greater than for comparable products that do not make environmental claims. Higher prices impact on demand for these products. Customers will only pay premium prices when they believe that the benefits of purchasing environmentally sustainable products outweigh the costs of such purchases (Laroche *et al.*, 2001). Consequently, notwithstanding positive customer beliefs regarding environmentally friendly products, the market for such products is in its infancy and seems to be growing at a slow pace (Paulos, 1998; McEachern and McClean, 2002). Because of low and uncertain demand, many organizations adopt a “wait-and-see” attitude or offer environmentally friendly products as an extension to their traditional range.

For many organizations, particularly small-to-medium scale enterprises, the introduction, implementation and monitoring of environmentally sustainable standards may seem be far too complex and beyond their resource capabilities. For example, the implementation of reverse logistic systems to manage waste streams is often beyond the financial resources of even many large organizations (Beamon, 1999; Clift and Wright, 2000; Peattie, 2001).

#### *Power and influence of channel intermediaries*

Reseller intermediaries such as supermarket chains or food service franchisors can influence suppliers to adopt environmentally sustainable standards. For example, starbucks, a large coffee franchisor, mandates that its suppliers conform to stringent environmental standards such as sustainable sourcing and recycling of wastes. As a result, immediate suppliers to starbucks and even suppliers further down the value-chain are forced to adopt environmental standards. It is evident that organisations adopt environmental standards when such actions deliver benefits such as being a “preferred supplier” to large customers that mandate these standards (Bjørner *et al.*, 2004; McEachern and McClean, 2002; Roe *et al.*, 2001). However, the cost of adopting these standards can price some suppliers out of the market and consequently such initiatives are not always feasible.

#### *Situational Influences and Impacts*

Environmental standards can capture a wide range of situations. Claims and accreditation can be specific to product use (for example, “produces no greenhouse gases”), to the raw material (for example, “made with recycled materials”), to the production process (for example, “organic”) (Barham, 2002; De Boer, 2003; McEachern and McClean, 2002). Environmental claims can refer to biodegradability, recyclability of packaging, energy conserving nature of the production process, and non-use of pesticides and herbicides. Process-based environmental labelling is sometimes labelled as life cycle analysis (LCA). LCA captures the entire life cycle of a product, from procurement of raw materials through production, processing, distribution, usage and disposal (Beamon, 1999; Gillett, 1993; Mehta, 1994; Scammon and Mayer, 1995).

LCA can be difficult to track as the standards incorporate environmental impact analysis across diverse and complex activities.

Further, environmental standards may also capture a broader context than what is commonly understood to be an environmental issue. For example, the Better Banana Program incorporates not only matters pertaining to sustainability but also includes matters pertaining to labour practices (Wintherop, 1999). Similarly, standards pertaining to greening the retailing process include not only what goods are sold in retail stores but also environmental impact analysis pertaining to matters such as store design, waste disposal and energy use (Nadel, 1999). The large numbers and wide variety of issues covered under the environmental standards umbrella makes it difficult for customers to fully understand and make cost-benefit judgements on all environmental impacts in a system (Mendleson and Polonsky, 1995).

#### *Special interest groups and governments*

Special interest groups (SIG) and governments can act as change agents by mandating greater attention to environmental standards. Initiatives by SIGs often generate extensive publicity and consequently engender community awareness and government action (Ottman, 1998). SIGs have successfully campaigned for the adoption of eco-friendly codes of conduct such as “Dolphin Safe Tuna” (D’Souza, 2000). Because SIGs do not profit from their campaigns and adopt an arm’s length position to the issue, accreditation of standards by SIGs can foster trust and believability of claims (Eco-Labels, 2004). Greater engagement on environmental issues between SIGs, value chain intermediaries and governments can improve initiatives in developing, monitoring and verifying environmental regimes and standards (Roe *et al.*, 2001).

#### *Third party accreditation*

Past studies conclude that even if customers do not have sufficient knowledge and information to make informed evaluations of environmental claims, they are concerned about the environmental impact arising from their consumption decisions (Beamon, 1999; Bech-Larson, 1996; Dosi and Moretto, 2001; Peattie, 2001; Titterington *et al.*, 1996). *Ceteris paribus*, customers would switch to environmentally responsible products and suppliers because of their innate desire to “do the right thing” (Barham, 2002; Thøgersen, 1999). The adoption of environmental best practices and showcasing of environmentally responsible behaviour tends to generate demand for environmentally friendly goods (Paulos, 1998). However, it is difficult to understand and appreciate what are environmental best practices. Consequently, in situations where customers are concerned about environmental impact but are not fully informed or are unable to measure environmental impact, third party accreditation provides confirmation of the environmental standing of the product. The image and credibility of the third party plays a vital role in generating confidence and trust in the claims (McEachern and McClean, 2002; Mendleson and Polonsky, 1995). However, third party accreditation can derive from a variety of sources and the large numbers of accreditation sources can confuse customers and impact on believability of claims.

#### **Methodology**

The study was conducted through completing a detailed literature review, drawing on past studies to construct an open-ended and semi-structured questionnaire; pre-testing

the questionnaire; revising the questionnaire on the basis of the pre-tests and, finally, conducting face-to-face interviews with 15 senior managers in 15 food enterprises.

Maximum variation sampling, a purposeful sampling technique, was used in identifying the organisations and the persons to be interviewed in these organisations. The technique entails systematically identifying a wide range of variation across the sample on dimensions of interest and also organisations that demonstrate homogeneity that transgress these variations. In this study the variations that we attempted to capture was that the organizations must represent different elements of the value chain and should comprise both large companies and SMEs. The common pattern that we attempted to capture was that the organisations are key players in the food industry in Victoria. The interviewees comprised senior managers in the two major supermarket chains, eight food processors, three grocery wholesalers and two fruit and vegetable growers and packers. Each interview lasted about one hour. All interviews were tape recorded, the interview notes were transcribed and sent to the interviewees for review and confirmation that the notes accurately captured their comments at the interview.

Some level of methodical triangulation was invoked through using both quantitative and qualitative techniques in data collection and analysis. However, it must be emphasised that the same semi-structured questions were used in interviewing all participants in the survey and all participants were only interviewed once. This was because the survey sample was only 15 organisations and each of these organizations represented different elements of the value-chain. A triangulation methodology in its pure form would involve applying two different techniques (an open-ended questionnaire and then close-ended questionnaire or vice versa) on two different groups or on the same group in two separate interviews and then comparing the results. Notwithstanding that the interviews itself did not conform to traditional triangulation technique, the data was analysed using quantitative ( $\chi^2$  and frequency analysis) and qualitative (content analysis of common themes expressed by interviewees) and the results were then analysed to check the congruence in results obtained through the two techniques. Finally, the findings of the survey were compared and analysed with findings of past studies (discussed in the literature review).

## Findings and discussions

### *Environmentally sustainable standards*

With the sole exception of the term organic, extant studies (Maier and Finger, 2001; McEachern and McClean, 2002; Walley *et al.*, 2000; Ottman, 1998) have used the terms green, environmentally sustainable and eco-friendly in an interchangeable manner. Past studies conclude that the range of issues captured by terminology such as environmentally sustainable is confusing to customers (Wintherop, 1999; Nadel, 1999; Mendleson and Polonsky, 1995). Based on the findings in the literature review, we hypothesised that the use of different terminologies such as green, environmentally sustainable and eco-friendly will be confusing to channel intermediaries and their customers. Consequently, we decided that it is important to understand the meaning and scope that interviewees attributed to these terminologies. We attempted to “suss-out” through free and frank discussions with the interviewees, their own as well as what they believed to be their customers understanding of the scope of the different terminologies used.

The response of most interviewees ( $n = 12$ ) was that the terms green, environmentally sustainable and eco-friendly captured different farming methods, production process, processing methods and product attributes. Interviewees ( $n = 12$ ) suggested that green is a marketing jargon coined to promote positive environmental images of the production source. The term green suggests that the foods originate from a pollution free and hygienic environment. Interviewees suggested that even if the term green did not mean that a regulated production or processing regime was used, it implied that the food is safe and hygienic because of the stringent farming, processing, quality assurance and regulatory standards in the country or region from where the foods originated.

Nearly half the interviewees ( $n = 6$ ) canvassed that the term environmentally sustainable implied that longer-term environmental footprint including management of desalination, soil degradation, pollution of water and air, chemical residue, impacts on bio-diversity etc were considered in the production and marketing regime. Some ( $n = 3$ ) proposed that environmentally sustainable was a location specific term and that environmental issues were important only in communities where there is environmental problems such as desalination or degradation of water systems. Interviewees canvassed that as Australia did not face major environmental problems and therefore Australians are less concerned about environmental issues when making purchase decisions. The predominant opinion ( $n = 12$ ) was that the terms environmentally sustainable and eco-friendly are subsets of organic production. Two interviewees said that eco-friendly is a consumer-oriented term that incorporates recycling of wastes whereas environmentally sustainable is an industry-oriented term, the differences in usage being determined by the context of discussion. As evident from the following comments, there is substantial confusion regarding the meaning of these terms, viz.

Example 1:

... I will treat them all as quite different ... organic is a particular prescriptive set of requirements ... sustainable ... can be repeated on an on-going basis and ... not depleting our resource by using it ... green ... what we are doing is not harmful to the environment ... environmentally friendly ... I might choose to grow fruit and I might do it in a way it is sustainable but I might be using chemicals ... that have some residual effects on the environment ... so while it might be sustainable ... I might not be able to continue doing it for the foreseeable future ... green would say that what we are doing is not harmful to the environment ... so I would see them all slightly differently ... I would say that organic is a subset of green and I would think that mostly organic would be in itself be a subset of sustainable ... green is a subset of sustainable ...

Example 2:

Sustainability ... far more holistic statement in respect of food ... will take account of all inputs and the sustainability of the inputs ... what fuel they might have used in the tractor ... green ... fertiliser used were natural and that the soil was treated in a natural way ... organic food ... no fertiliser only. ... on grading organic at low level, green just a little bit above and then sustainable quite a bit above that ... environmentally friendly ... clouded concept

Example 3:

... it would depend on the product category ... for something like timber it would be really meaningful. ... most people would assume that in agriculture you could continue to farm a piece of land in perpetuity subject to water table not falling, salt not rising ... so if you are

offering me timber products or paper products ... from sustainable, renewable production rather than from old growth ... I will find that attractive ... for products like meat or wheat, I will just assume that it was sustainable ... it might matter to me that as much as possible was recyclable ... I am not sure what environmentally friendly means ... what it means to one and what it means to another could differ ... for me to make a claim about environmental friendliness and put it on the pack, while it would be important, there would have to be an industry definition against which we can be audited ...

A  $\chi^2$  test of responses revealed that interviewees do not perceive significant differences between the terms organic and green ( $\chi^2 = 2.91$ ,  $df = 2$ ,  $p = 0.23$ ) and organic and eco-friendly ( $\chi^2 = 4.5$ ,  $df = 2$ ,  $p = 0.11$ ) (Table I). Organic and environmentally sustainable was perceived to be significantly different ( $\chi^2 = 6.24$ ,  $df = 2$ ,  $p = 0.04$ ). All respondents ( $n = 15$ ) indicated that the term organic conveys the use of specific production protocols, third-party accreditation of the protocols and beliefs regarding product attributes. Most interviewees found the three other terms (green, environmentally sustainable, eco-friendly) to be vague and to convey very little about the production regime and product attributes.

Most interviewees ( $n = 15$ ) believe that the term organic is at the apex of the hierarchy in that organic foods are farmed and processed without the use of chemical fertilisers and pesticides, are subject to strict inspection and accreditation regimes and, as a result, can be clearly differentiated from non-organic foods (Table II). The terms green, environmentally sustainable, and eco-friendly describe production systems that are not subject to any accreditation, quality assurance or legislative controls and therefore the scope and meaning of these terms were more vague. Interviewees believe that their customers do not perceive the different terms as capturing different product attributes and production standards ( $\chi^2 = 4.80$ ,  $df = 3$ ,  $p = 0.19$ ).

*Difficulty in authenticating claims*

Interviewees identified another problem when adopting environmental standards, difficulty in verifying claims regarding the core and ancillary offerings. Past studies (Zhang *et al.*, 1999; Van der Grijp and Den Hond, 1999; Miettinen and Hämäläinen, 1997) conclude that it is important to substantiate claims and that verification of

**Table I.**  
Beliefs regarding  
different production  
protocols

Production systems	Clearly different	Somewhat different	Subset	Total responses
Organic	15	–	–	15
Organic vs green	5	5	1	11
Organic vs sustainable	1	5	9	15
Organic vs eco-friendly	1	4	7	12

**Table II.**  
Customer beliefs  
regarding production  
systems

Production systems	Strict protocols (1)	Consumer awareness (2)	Accreditation (3)	All (1 + 2 + 3)	None (1 + 2 + 3)
Organic	15	9	15	9	–
Green	0	5	0	0	12
Sustainable	0	3	0	0	12
Environmentally friendly	0	3	0	0	12



substantiated claims will increase the believability of the claims. Interviewees suggested that it would be expensive and difficult to verify claims across the entire value-chain. The predominant position was that greater product transformation and value-addition would make it difficult for organisations to substantiate environmental claims. Where interviewees supported their responses with examples, the examples were always of non-food products such as cleaning aids, aerosols, minerals, etc. It seems that the interviewees sub-consciously believe that environmental issues are not a major concern in the food industry.

#### *Trade marks and labels*

Labelling and trade marking food products as green, environmentally sustainable or eco-friendly is unlikely to increase the demand for these products because interviewees:

- could not differentiate between the tacit or implied benefits and attributes of products labelled as green, environmentally sustainable or eco-friendly; and
- indicated that their customers do not perceive food products described as green, environmentally sustainable or eco-friendly as having special attributes that is of value to them.

Interviewees contended that incorporating accredited symbols would only increase the cost and the selling price of the product and this could impact negatively on demand. The majority of interviewees claimed that the costs of

- producing and marketing foods that conform to environmental standards;
- implementing inspection and accreditation regimes; and
- incorporating accreditation symbols can be prohibitive and will not deliver any commercial benefits.

Given the small market for environmentally sustainable foods, it is not feasible to incorporate symbols signifying that the product conforms to accredited environmental standards. The following comments demonstrate the general opinions of interviewees:

... industry bodies [drawing comparison to the Heart Foundation] that have those stamps [trade marks/logos] charge you to use them ... you are looking at one or two per cent and that alters our economics enormously because our margins are small. So another industry body, another regulatory authority ... not an appealing thought. Common definitions that would be useful but regulatory bodies just add cost to the system ...

The majority of interviewees believed that the use of accredited symbols might only be important for organic foods (Table III). Even in this case, several interviewees ( $n = 7$ )

Production systems	Very important	Becoming important	Not at all important	Total responses
Organic	3	8	4	15
Green	–	2	12	14
Sustainable		4	8	12
Environmentally friendly		3	12	15

**Table III.**  
Use of logos and  
trademarks

expressed concern and lack of confidence in the accreditation system. Interviewees said that in the case of organic foods there were several accrediting bodies and that this impacted negatively on the believability of claims. Notwithstanding this, several interviewees ( $n = 8$ ) indicated that it is beneficial to market organic products with accredited symbols. One interviewee suggested that the term organic implied that the product conformed to a strict production regime and that consumers believe that organic foods have superior attributes such as better taste, health benefits, etc. The following comments by an executive in one of the supermarket chains demonstrates the confusion even when products are accredited by third parties:

... tell me what is organic, what is the certification process, I mean there are seven certification bodies in Australia for organics. The biggest issue we have here is, I want an organic product tell me what it is, tell me what I've got to do to ensure it is organic so that I can put it in front of a customer ...

#### *Demand trends*

All interviewees ( $n = 8$ ) from food processing companies reported that consumers are slowly developing positive beliefs (health, flavour, taste, etc.) about organic foods and consequently, in the longer term, there could be benefits in introducing a range of processed organic foods. Other reasons for the gradual switch to organic foods were attributed to (a) "feel good factors" such as community responsibility (b) concern about what foods the family consumed, and (c) food scares such as BSE and the Avian flu. Interviewees from food processing companies indicated that consumers are now willing to pay a price premium for organic foods. Despite these positive observations, interviewees were of the opinion that, even in the longer term, high production costs, scale diseconomies and shortfalls in organic produce (raw materials) would constrain the growth in demand for processed organic foods.

However, interviewees from the supermarket chains ( $n = 2$ ) commented that, although demand for organic foods is increasing, their research and experience suggests that consumers are not prepared to pay the price premium. They claimed that they have been unable to introduce organic foods at competitive prices because of the high wholesale prices and the low volume of sales. They forecast that demand for organic foods would gradually increase and that in the next 20 years its market share would increase from current levels of about one to two per cent to about five to eight per cent. Several reasons, including falling production costs, greater community concerns about food safety and health, and even generational changes, were canvassed as the reasons that would contribute to the growth in demand for organic foods and, in the longer-term, to the growth in demand for foods that conform to environmentally sustainable production and marketing standards.

Growers and packers of fruits and vegetables ( $n = 2$ ) suggested that organic foods were less aesthetically appealing and that poor aesthetics (lack of uniformity in size, colour, texture etc) impacted negatively on consumer perceptions and constrained demand. Interviewees contended that scale diseconomies and wastage impacted on price competitiveness. The growers and packers claimed that there was no demand from their customers (supermarkets and green grocers) for produce that is farmed according to environmentally sustainable standards.

Most interviewees ( $n = 12$ ) believe that a significant constraint to promoting environmentally sustainable foods is the power of the two supermarket chains.

The prohibitive costs and bureaucracy of selling into the major supermarket chains was cited to be a major barrier to introducing “new” products. The interviewees contended that their knowledge of trends in other developed countries and their experience in selling into independent supermarkets, health food stores and contacts with consumers suggest that there are opportunities to develop the sales of organic foods and, in the longer-term, environmentally sustainable foods. However, the interviewees claimed that it was difficult to develop sales because the two large supermarket chains which control about 80 per cent of food retail sales in Australia were unwilling stock these low volume products. An interviewee described the problem as follows:

... I guess a major force is the supermarkets ... supermarkets shape what we do to a very large extent. It is you know 90 per cent of our business and the industry is very concentrated so they have got an inordinate amount of power ... given that what consumers can buy is a function of what they stock, again there is significant power ... now, if I have got an organic range of spices here that I think you will find very exciting. They [supermarkets] might say no ... consumers won't even know they exist because ... they won't be stocked ... the power of the supermarkets is enormous. Two of them control 80 per cent of the market

### Conclusions

The findings of this study support conclusions in past studies conducted elsewhere in the USA and the EU (Bentley, 1995; Grolleau and BenAbid, 2001; Peattie, 2001) that the demand for foods produced according to environmentally sustainable standards is in its infancy. Businesses find that it is expensive to adopt and conform to environmental standards, to obtain environmental accreditation, and to develop systematic marketing programs for food products with environmental accreditation.

A holistic, environmentally sustainable food production and marketing program appears not to have been attempted anywhere in the world. Existing production and marketing programs, even in the case of non-foods are very limited in scope. Current programs pre-eminently focus on claims that the product is biodegradable or recyclable or that animal welfare and bio-diversity issues were addressed. Therefore, developing a holistic program will entail substantial collaboration and investment by all value-chain intermediaries.

Experience with organic foods suggest that, notwithstanding customer beliefs about product benefits, growth in demand for foods conforming to environmental standards will be slow and constrained by high production costs arising from diseconomies of scale and low profits. Thus, in the short-to-medium term, it may not be commercially viable to adopt environmental standards in food production and marketing. Even in the longer-terms, the market is unlikely to be substantial. In the next 20 years the environmentally conscious market segment is forecast to account for about two to five percent of category sales.

Based on experience with organic foods, it seems that many food producers and marketers are not likely to switch to environmental standards. It is likely that initially a small number of food producers will adopt ISO14001 standards and EMS protocols and sell these products to the supermarkets. If demand increases, other suppliers will join the bandwagon and based on the success with these programs more comprehensive environmental management programs may be adopted.

Marketing initiatives such as incorporating symbols to differentiate environmentally sustainable foods are not expected to generate demand. Accredited symbols would

enable customers to identify such products with ease. However, customers and end-users are unaware of the value propositions in descriptions such as green, environmentally sustainable and eco-friendly. Ambit claims and improper use of descriptors such as green, environmentally sustainable and eco-friendly friendly have confused customers and this has impacted on their beliefs regarding the production and marketing of environmentally sustainable foods.

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#### Further reading

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