EcoRange: Market-Oriented Environmental Certification for Rangeland Pastoral Industries


Part of the EcoRange project report series

A report for the Rural Industries Research and Development Corporation

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Foreword

EcoRange: Development of Market-Oriented Environmental Certification for Rangeland Pastoral Industries arose out of a desire of government, industry and community for market forces to encourage the adoption of on-farm environmental management and assurance standards. It is a collaborative project between the Department of Primary Industries, Queensland (DPI) and CSIRO Sustainable Ecosystems.

The EcoRange project provides marketing information and strategies for ‘environment-friendly’ food and fibre products, describes and contrasts a range of market-oriented environmental management and assurance standards that could be used on farms, and makes recommendations on the application of these to agricultural production. Recommendations were based on the views and expectations of the main stakeholders along the supply chain, agricultural industry organisations, and a number of community interest groups.

The outputs of this project, contained in the research reports listed on page v, are:
2. An international market analysis, outlining market potential and the requirements of target markets for ‘environment-friendly’ food and fibre products.
3. The outcomes, principles and broad practices for environmental certification of pastoral products.
4. The identity of a suitable existing certification scheme or environmental management module that can be added to existing schemes.

This report aims to determine the role of environmental assurance in marketing strategies for meat and wool produced in Australia’s rangelands. It describes trends and requirements of supply chains and consumers in Australia and overseas for ‘environment-friendly’ products. The report also outlines a marketing strategy for ‘environment-friendly’ meat and wool.

This project was funded from RIRDC Core Funds, which are provided by the Australian Government.

This report is an addition to RIRDC’s diverse range of over 1500 research publications. It forms part of our Rangeland and Wildlife Systems R&D sub-program, which aims to facilitate a more diverse rural sector, enhanced biodiversity and innovative industries based on non-traditional uses of the rangelands and their wildlife.

Most of our publications are available for viewing, downloading or purchasing online through our website:
- purchases at www.rirdc.gov.au/eshop

Peter O’Brien
Managing Director
Rural Industries Research and Development Corporation
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We gratefully acknowledge the funding provided to this project by the Rural Industries Research and Development Corporation, Department of Primary Industries (Queensland), CSIRO Sustainable Ecosystems, and the Natural Heritage Trust.

The EcoRange project has had many contributors. This has enabled it to gather much information on environmental assurance in agriculture, from one end of the supply chain to the other, and from several stakeholder organisations. A great deal of thanks is extended to people that worked on this project at various times: Dan Cloonan, Craig James, Christine King, Jim Longworth, Wendy McLeish, and Katrina Warman.

We also thank ACNielsen and MarketSense for their professional conduct and reporting of the consumer and grazier telephone surveys, and the consumer, environmental group, and grazier focus group meetings.

Thank you also to Roslyn Sharp for her very valuable assistance with preparing, editing and publishing this and other EcoRange reports; to Jodie Oversluizen for her help with organising the stakeholder workshop, preparing for the phone interviews, and with formatting project reports; to Liz Queenan for her contributions to formatting reports, and to Elysa Riedel for her comments on the final draft.
EcoRange reports

The findings of the EcoRange project are presented in seven reports. The first of these, the project overview, is a synthesis of the project findings and, as such, recommends outcomes and procedures for market-oriented environmental assurance in rangeland pastoral industries. These recommendations were informed by the results of extensive consultation. This included surveys of domestic consumers, rangeland pastoralists and members of environmental groups, interviews with companies in Australian and international meat and wool supply chains, interviews with representatives of agricultural industry, environmental and consumer organisations, and a review of on-farm standards that could be used to deliver the requirements of these stakeholders.

Full reports, as follows, can be accessed from the RIRDC website (http://www.rirdc.gov.au/fullreports/).

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Other reports of the EcoRange project are available on request from Lester Pahl (lester.pahl@dpi.qld.gov.au), or by phoning 07 4688 1302.

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<tr>
<td>AFFA</td>
<td>Agriculture, Fisheries and Forestry Australia</td>
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<tr>
<td>BRC</td>
<td>British Retail Consortium</td>
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<tr>
<td>EMS</td>
<td>environmental management system</td>
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<td>EU</td>
<td>European Union</td>
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<tr>
<td>EUREPGAP</td>
<td>Euro-Retailer Produce Working Group for Good Agricultural Practice</td>
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<tr>
<td>GMOs</td>
<td>genetically modified organisms</td>
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<tr>
<td>GuT</td>
<td>Association of Environment Friendly Carpets</td>
</tr>
<tr>
<td>HACCP</td>
<td>Hazard Analysis at Critical Control Points</td>
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<tr>
<td>ISO</td>
<td>International Organization for Standardization</td>
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<tr>
<td>IPPC</td>
<td>Integrated Pollution Prevention and Control Directive</td>
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<tr>
<td>LEAF</td>
<td>Linking Environment And Farming</td>
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<td>OH&amp;S</td>
<td>occupational health and safety</td>
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<td>QA</td>
<td>Quality assurance</td>
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<td>TFA</td>
<td>The Food Alliance</td>
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<td>UK</td>
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<td>UNCTAD</td>
<td>United Nations Conference on Trade and Development</td>
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Key terminology

The following explanations provide a guide to the use of these terms in this report.

‘Environment-friendly’ or ‘green’
‘Environment-friendly’ or ‘green’ products are those that result from production and processing practices that are less harmful to the environment compared with those for conventional products. Consequently they have a higher level of environmental performance than conventional products.

Standards
Standards are accepted specifications or codes of practice that define materials, methods, processes and practices. When effectively implemented, these ensure that consistent and acceptable levels of quality, performance, safety and reliability are achieved (Standards Australia 2001).

Standards have been developed for internal use by organisations (sometimes called process standards) and for specifying product attributes and production practices (product standards).

Schemes
Schemes may also define materials, methods, processes and practices that are used by an organisation or in the production of products. They differ from standards in that they are not official or accepted specifications, as a person or organisation develops them without consultation for their own use. They may also contain few or no specifications, as is the case with some environmental claims on products (eg Environmentally Aware).

Assurance
The concept of assurance underlies all standards, environmental claims and verification processes. It sums up the motive or starting point for standards development — the desire or need for a guarantee or assurance that a product or organisation complies with the claims made about them.

It also describes the desired end result of the verification processes: that is, users or communities are assured that the products and organisations are as represented.

In practice, assurances about the environmental claims of products and organisations vary in their credibility. For example, third-party certified claims provide a high level of assurance, whereas self-declared claims may provide a low level of assurance.

Auditing
Auditing refers to the systematic examination of an entity, such as a firm, organisation, facility or site to determine whether, and to what extent, it conforms with a specified standard.

There are internal or self-audits (carried out by an organisation on itself); second-party audits (an external audit carried out by one organisation such as a processor, working on its own behalf, on another such as a supplier); and third-party audits (an external audit carried out by an independent organisation on another organisation (Mech and Young 2001).

Certification
Certification is the successful result of the procedure whereby an accredited third party, such as a certification body or regulator, gives written assurance that they have methodically assessed, and are sufficiently confident of, the extent of compliance with a clearly identified standard.

If a certification body is accredited as being independent, competent and consistent, third-party certification can be used to provide public assurance that an organisation or product has complied with a standard (Mech and Young 2001).
Accreditation
Certification bodies are accredited by an Accreditation Body such as the Joint Accreditation System of Australia and New Zealand for the purpose of providing confidence in certification processes. ‘Accreditation is the formal recognition of competence that an authoritative body gives another body or person in order to empower them to perform specified tasks such as third-party auditing against given standards for the purpose of certification’ (Mech and Young 2001).

Intrinsic product quality
Intrinsic qualities of products are those that are tangible components of the product. For meat, this may include texture, colour, pH, and age (see AFFA 2002).

Extrinsic product quality
Extrinsic qualities are external to the product. They consist of production practices and their outcomes, such as environmental management, animal welfare, workplace health and safety, and farm worker employment conditions. In this way they relate more to the ethics of food and fibre supply chains.

Environmental management system (EMS)
An EMS is based on the continuous improvement cycle of ‘plan, act, check and review’. The international standard for an EMS, ISO 14001, is a process standard that specifies the components of an environmental management system that are to be implemented by an organisation. It does not specify production practices or environmental performance targets, and instead allows the implementing organisation to do this.
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Executive summary

Communities around the world are becoming increasingly concerned with the impact of agricultural production systems on the natural environment, and this is now becoming a topic of interest for consumers. However, point-of-purchase information on the environmental performance of food and fibre producers is usually not available to consumers, limiting their capacity to make informed purchasing decisions. Various forms of environmental assurance aim to provide consumers with this information, enabling them to choose products that are ‘environment-friendly’, and thereby actively encourage forms of food and fibre production that have less impact on the environment.

Market research undertaken by the EcoRange project aimed to determine the potential role of environmental assurance in marketing strategies for food and fibre products from the rangelands. If consumers of such products are prepared to include environmental criteria in their purchase decisions, environmental assurance could provide an opportunity for environmentally responsible rangeland enterprises to gain a competitive advantage.

Domestic market research

EcoRange conducted focus group studies and a quantitative survey of 605 consumers, and qualitative surveys of wholesalers, processors and retailers involved in meat and wool. The results were used to develop strategies for marketing products produced with concern for the environment.

The quantitative consumer survey indicated that there was a relatively high level of interest by consumers in the environmental aspects of food production, but confirmed that consumers are somewhat sceptical of the environmental claims made on products currently in the supermarket, with less than 1 in 10 feeling ‘very confident’ of such claims.

The results indicated reasonably strong interest in the concept of a certification/assurance scheme for meat guaranteed to have been produced with concern for the environment; the results for wool were less conclusive.

International market research

International markets are of particular interest for rangeland producers, with the majority of wool and meat produced in these areas being exported. The international market research indicated that environmental issues have a higher profile in some of the key export markets than they do in Australia, with concern for environmental issues being higher in European markets than in the United States and Asia. The large food retail chains in Europe, and the United Kingdom in particular, have developed production protocols for the purpose of improving the environmental performance of their suppliers. Many of these firms have multinational linkages and through them are defining and driving requirements for food assurances in international markets.

Market analysis

Research undertaken by the EcoRange project has indicated that to some degree the environment now influences the purchasing decisions of mainstream consumers but it remains the most important consideration only for a niche segment of consumers. Generally the environmental impact of the production system is secondary to price, safety, quality, style, brand loyalty, personal taste, national loyalty and availability.

It concluded that there are some opportunities for developing environmental certification aimed at niche markets. The opportunities are probably greater for meat than wool, but they could be significantly enhanced for both products by greater education of consumers about the production systems in the rangelands. Those niche markets with the greatest opportunities are probably in Europe, although research has indicated that the United States and the Australian domestic market also provide
some opportunities. It is likely to be some time before there are significant opportunities in Asian markets, but it is expected that the most affluent Asian countries, particularly Japan, will follow Europe’s lead.

This study does not clarify the type of environmental assurance scheme for meat that is required by markets. Some processors interviewed suggested a simple scheme that can be adapted to suit individual market requirements, which could be at least second-party and/or third party audited. Others suggested that it should be part of a common standard for all on-farm assurances. However, for any scheme to be regarded as a success, it should produce a clearly differentiated product and add value at each point of the chain.

For wool industry businesses, chemical residues, waste and effluent disposal are the greatest environmental issues. Most of these wool businesses have developed their own environmental control systems and policies, with some using EMS (ISO 14001) and eco-labelling (ISO 14024). Very few wool businesses currently receive orders containing an environmental specification; those that do are involved in small amounts of organic wool trading/processing. Currently the greatest driving force to implement environmental assurance is Government regulation. Most of these businesses say that environmental assurance would not encourage the loyalty of current customers. However, in the future, most agree that this could change and that environmental assurance may be needed to attract new business. EU environmental legislation such as the IPPC Directive that comes into full effect in 2007 will cause EU wool processors to actively seek out low chemical residue wool.

Domestic marketing strategy
The first challenge to overcome is the lack of consumer understanding of what exactly ‘environment-friendly’ means in relation to food and fibre products, as this will make it difficult for ‘environment-friendly’ products to be differentiated in the market place and to gain a competitive advantage. To be successful, an environmental assurance scheme will have to clearly communicate what it represents and the environmental issues it addresses. Consumers should be able to visualise the link between what graziers are doing and the product they are purchasing and, importantly, the benefits.

Targeting consumers who are already predisposed to ‘environment-friendly’ products, both in their purchasing behaviour and personal beliefs, will provide the easiest point of entry into the market. However, this group is likely to be the most demanding in terms of the validity and credibility of any assurance scheme. Getting it right with this group can, however, provide a catalyst to the wider market.

A critical issue for consumer adoption of ‘environment-friendly’ products will be price or, more importantly, value (retail price and the quality and attributes of the product). The research indicated that 18 per cent of consumers would be prepared to pay a 10 per cent premium for meat produced with concern for the environment.

Any supporting assurance scheme must meet specific consumer criteria: it must be easy to understand, clearly identified on packaging, associated with a product that is widely and consistently available, regulated by a recognised and trusted source, and demonstrate validity and credibility.

In conclusion, the research indicates that consumer demand exists for an assurance scheme and the challenge lies in addressing the above issues and gaining consumer acceptance of the concept. The decision on which way to proceed from here must depend upon the level of support from supply chains and consumers. In terms of further research, there would be merit in testing proposed communication strategies and concepts with the target market, focusing on those who currently purchase ‘environment-friendly’ products and have concern for rangeland production methods.
Recommendations

1. Market-oriented environmental assurance in agriculture should be developed in response to consumer demand and requirements for ‘environment-friendly’ food and fibre, rather than the expectations of the whole community (eg government, research organisations, environmental and other community groups).

2. Opportunities exist in niche markets for ‘environment-friendly’ food and fibre, particularly in Europe and Australia, and environmental assurance should be used as a means of differentiating branded products in these markets, with the aim of adding value to traditional food and fibre products.

3. In all cases the environmental credentials of a product should be marketed in conjunction with consumer priorities for safe and quality food and fibre, and particularly those attributes that consumers associate with their health and personal wellbeing.

4. Environmental assurance should provide credible regulation and verification of claims of ‘environment-friendly’ production or products, with third-party certification in accordance with national standards being the model most trusted by consumers.

5. The target market segment should consist of consumers who already have a leaning towards ‘environment-friendly’ products, being those who regularly buy organic food and who consider environmental issues during purchase decisions. A high proportion of consumers have a latent propensity to purchase ‘environment-friendly’ products, and this could be mobilised by success with the small market segment that currently purchases organic and ‘green’ products.

6. Communication of the environmental assurance scheme to consumers is vital. This must emphasise stakeholder support for the scheme, environmental and personal benefits, how it operates, and that the organisations responsible for regulating it are reliable. Consumers need to be able to visualise production practices associated with food and fibre and appreciate the superiority of labelled products.

7. ‘Environment-friendly’ food and fibre must have clear and credible benefits. At the point of purchase, consumers should be thinking: ‘This is about the same price as I normally pay but I know it’s better for me and for the environment’.

8. Price premiums are expected for products with assured environmental credentials. However these should be no more than 10 per cent, as only a very small proportion of consumers will tolerate higher prices.

9. In terms of further research, there is merit in more closely identifying potential target markets and determining their core requirements for ‘environment-friendly’ food and fibre. It will then be necessary to test communication strategies and concepts with these market segments.
1. Introduction

1.1 Background
The project EcoRange: Development of Market-Oriented Environmental Certification for Rangeland Pastoral Industries arose from a desire of community, government and industry for agricultural enterprises to achieve and demonstrate ecologically sustainable use of natural resources. A focus of EcoRange was the growing world-wide consumer interest in ‘environment-friendly’ food and fibre, particularly the role this may play as a driver of ecologically sustainable agricultural production.

Communities around the world are becoming increasingly concerned with the impact of industry on the natural environment. Large manufacturing industries were the first targets for this concern, but over time more and more industries have been required to improve their environmental performance. These concerns of the community for the natural environment are slowly influencing consumers’ purchasing decisions. Many consumers now claim to consider the environment when buying products, and in some cases, such as with energy- and water-efficiency ratings on whitegoods, this information is prominent at the point of sale.

Similarly, a number of electricity suppliers now provide consumers with the option of ‘green-power’ electricity from a renewable resource, with a price premium generally charged for its supply to cover the higher costs involved in generating such electricity. Such products introduce consumers to the concept that they are able to have a direct impact on the ecological sustainability of production processes and practices.

Agricultural industries account for a large proportion of land areas and therefore their potential impact on the natural environment can be significant. Consumers have not generally considered the environmental impacts of agricultural production when purchasing food and fibre, and instead have been more concerned about price, safety and quality. To counter this, there is an increasing amount of point-of-purchase information on the environmental performance of producers appearing in retail outlets. This enables consumers to demonstrate a preference for ‘environment-friendly’ food and fibre, and thereby send a powerful message on the need for ecological sustainability to the production end of supply chains.

1.2 Purpose and objectives of EcoRange market research
A major component of the EcoRange project was to describe market demand for ‘environment-friendly’ products, and to determine the extent to which this may drive the adoption of ecologically sustainable practices in rangeland pastoral industries. To achieve this it was important to have an understanding of consumer and supply-chain demand and requirements for ‘environment-friendly’ products, including how product claims were made and verified.

EcoRange was mainly focused on meat and wool, the major products of rangeland pastoral industries, however many of its research findings are relevant to the production and marketing of ‘environment-friendly’ fresh foods and natural fibres generally. For this reason, this report mainly discusses environmental assurance in the context of food and fibre, with occasional more specific references to meat and wool.

The objectives of this report are to provide:
• an analysis of the attitudes, demand and requirements of domestic and international consumers, processors, wholesalers and retailers for ‘environment-friendly’ meat and wool products;
• a marketing strategy for ‘environment-friendly’ food and fibre products and any supporting assurance scheme.
2. Methodology

A summary of the consumers and meat and wool supply chain organisations interviewed by EcoRange is provided in Appendix 1. The methods used for this market research are briefly described below.

2.1 Domestic consumer research
Domestic consumer research was undertaken through a literature review, focus group study and national phone survey. The focus group study was conducted by Market Sense Pty Ltd in November 2001 and involved two groups of 10 consumers each (see MacNamara and Pahl 2003). The purpose of the focus group research was to identify consumer awareness of and propensity to purchase ‘environment-friendly’ food and fibre products, and to provide a basis for the development of a formal consumer survey questionnaire.

The domestic consumer study, based on a national random telephone survey of the main grocery buyer in 605 households across all States of Australia, was conducted by ACNielsen during November–December 2001 (MacNamara and Pahl 2003). Results were then weighted to reflect the known age and gender characteristics of the main grocery buyers in each state, to ensure that they were representative of the national market.

2.2 Domestic supply chain research
Interviews were conducted by phone or during personal visits with Australian meat and wool processors, wholesalers and retailers.

Thirteen representatives from the Australian wool supply chain, including wool brokers, scourers, top-makers, spinners, weavers, knitters, product manufacturers and retailers were interviewed during July 2001.

Fourteen representatives from the meat-products supply chain were interviewed during August 2002. Businesses included abattoirs (domestic and export), wholesalers (domestic and export) and major retailers across Queensland, New South Wales and Victoria.

2.3 International market research
The international research commenced with a review of published market research reports and was followed by in-market interviews in a number of target countries. EcoRange conducted personal interviews with businesses in the meat supply chain in the United Kingdom and Belgium in March 2002, in Japan in August 2002, and commissioned Austrade to conduct a literature review and interviews in the United States in January 2003.

Interviews were undertaken with importers, wholesalers, retailers, and food service organisations in these countries.
3. Consumer interest in ‘environment-friendly’ products

3.1 International consumer interest in ‘environment-friendly’ products

The major markets for Australia’s food and fibre products are often overseas, and this is particularly true for the meat and wool products of the pastoral industries in the rangelands. It is therefore important to determine if consumers in key international markets have an interest in ‘environment-friendly’ products, and then to consider this in the context of their overall requirements for food and fibre.

International consumers are becoming increasingly concerned with production systems for food and fibre. In many cases, this is being driven by health concerns, especially as a result of outbreaks of livestock diseases such as BSE (mad-cow disease), foot-and-mouth and swine fever, and contamination by Salmonella. Such considerations are particularly evident throughout Europe, Japan and the United States, where these issues are influencing the purchasing behaviour of mainstream consumers.

This concern about production systems was also evident in the findings of a Canadian study that identified the key environmental attributes that have potential to influence agri-food trade in Japan, the European Union, Germany and the United States. It found that an important consumer trend was a preference for less intensively produced food (Woodward-Clyde 2000). This study identified an overall decline in public confidence in some modern farming and processing methods, and an increasing consumer awareness of food-borne hazards such as pesticides, antibiotics, hormones, and artificial ingredients and additives. These trends are being expressed through increasing demand for foods produced by organic production methods, or at least with lower chemical inputs.

It is likely, therefore, that a concern for health rather than a concern for the environment is responsible for consumer interest in food production practices. Also, for the majority of consumers, cost, convenience, and quality still have more influence than the environment on their purchasing decisions.

Environmental considerations remain the primary motivator for only small groups of highly committed consumers. This niche of discerning consumers, representing approximately 7 per cent of the population in the United States and 5–15 per cent in the United Kingdom and Germany, is willing to sacrifice other attributes and convenience in order to purchase ‘green products’, often at higher prices (McCoy and Parlevliet 2000, NCC 1997, UNCTAD 1999). Other than these committed ‘deep-green’ shoppers, the majority of consumers do not make a link between the environment and the way in which their food is produced (McCoy and Parlevliet 2000).

However, a number of consumer studies have shown that mainstream consumers are willing to buy ‘environment-friendly’ products, provided other attributes are not compromised and the environmental status of a product is perceived as an ‘additional benefit’ within a ‘bundle of attributes’ (UNCTAD 1999).

3.1.1 United Kingdom

A 1995 survey of United Kingdom consumers by the National Consumer Council (NCC 1997) found that between 30 and 40 per cent of consumers were motivated to purchase ‘environment-friendly’ products. On the basis of this survey, consumers were segmented into five distinct categories according to their ‘green’ behaviour. These categories were ‘Affluent Greens’, ‘Recyclers’, ‘Careful Spenders’, ‘Young Greens’ and ‘Sceptics’ (see Appendix 2 for details of these categories). The ‘Affluent’ and ‘Young Greens’ are the two groups most likely to actively seek out and purchase
‘environment-friendly’ products. These two groups combined make up 36 per cent of the population and they are prepared to pay more for these products.

Qualitative surveys in the United Kingdom found that the ‘greenness’ of a product was only one factor considered when choosing what to buy. Products also had to meet other criteria such as price and performance. Interesting information arising from these surveys was that many of the true ‘green’ shoppers did not have an in-depth understanding of how their purchasing decisions actually affected the environment. They were often vague about the environmental reasons for buying green products and the ‘effects ingredients such as phosphates and bleach might have on the environment’ (NCC 1997).

The NCC (1997) report also reviewed a number of earlier British consumer surveys and observed that there was considerable variation in the reported levels of consumer support for ‘green’ products. Some surveys reported that high proportions of consumers, often around 50 per cent, claimed to have purchased ‘environment-friendly’ products, while in other surveys the proportion was much less. NCC (1997) noted that different sampling techniques, particularly in relation to how questions were phrased, and different sampling times appear to have had a strong influence on results. In addition, defining a ‘green’ product is difficult, and there is no standard definition of this. Therefore, surveys of consumer interest in so-called ‘green’ products could easily have targeted different products. NCC (1997) report that their surveys of consumers did not find the widespread ‘green’ shopping reported in other surveys of British consumers, and that this was consistent with the sales figures of ‘green’ products provided by retailers. For example, sales of products with environmental claims in 1995 constituted half of one per cent of Sainsbury’s total sales. Another supermarket claimed that its own ‘green’ brand of detergent, bleach, tissue and toilet paper had a market share of less than five per cent at the time this brand was dropped, while ‘green’ washing-up detergent constituted 1.1 per cent of the market for this product group. Clearly, sales of ‘green’ products appear low in comparison to claims about ‘green’ purchasing behaviour made by consumers during surveys. The relatively high proportion of consumers who indicated that they are prepared to purchase ‘environment-friendly’ products and pay more for them (36 per cent) does not appear to translate into sales.

The main reason for these low sales figures appears to have been the limited availability of ‘environment-friendly’ products that also met consumer expectations for quality, price, and convenience. NCC (1997) wrote: ‘People seem concerned about environmental issues that directly affect them, but are less willing to pay a premium for environmental beneficial products. If anything, the demand for service, quality and value for money is increasing, though with an underlying expectation that this will not be at the expense of the environment or of animal welfare.’ They concluded that there are sizable groups of British consumers who are interested in environmental issues and are willing to act on these beliefs, but most have difficulty in finding sufficient ‘green’ products that meet the key criteria of brand, price and performance.

Similarly, the NCC (1997) survey found that although one in three consumers claimed to be committed to organic or green shopping, only 9 per cent of the population buy organic food. The major reasons for buying organic products are:

- health (46 per cent of organic food purchasers);
- absence of chemicals or pesticides (41 per cent);
- taste (40 per cent);
- animal welfare (26 per cent); and
- impulse/curiosity (21 per cent).

This is supported by a survey by Waitrose supermarkets that found consumers of organic products are buying organic products primarily because ‘it is better for you’ (42 per cent), ‘it tastes better’ (32 per cent), and ‘it does not contain chemicals’ (29 per cent) (McCoy and Parlevliet 2000). The environmental aspects of the production system do not appear to have been identified as an issue in these surveys.
3.1.2 Germany
Although environmental awareness is high and quite constant in Germany, ranging between 70 and 80 per cent of all consumers, this does not necessarily translate into high levels of ‘environment-friendly’ product purchases. According to an UNCTAD (1999) report on green consumerism in Germany, between 5 and 15 per cent of consumers can be considered ‘deep-green’ they regularly purchase ‘environment-friendly’ products and are prepared to pay moderately higher prices for them. Approximately 50 per cent of the population are willing to buy these products, provided they are not more expensive than regularly purchased products; for the remaining 40 per cent of the population, the environmental status of a product is not part of their purchase decision.

The UNCTAD (1999) report suggests that there has been a consolidation in the growth of ‘green’ markets in recent years and that there is a significant and ongoing interest in environmental products and production in Germany. They highlight three key factors driving this interest:
• the high level of environmental awareness in Germany;
• the environmentally sound behaviour of at least a core group of ‘deep-green’ consumers who are willing to pay more for eco-products; and
• the plethora of ecological product labels and environment-related standards.

3.1.3 United States
Consumers in the United States are showing increasing concern for the impact of products on the environment. According to the 2001 Roper Green Gauge Report, the environment is the cause that most US consumers would like companies to address (Austrade 2003). Forty-nine per cent of respondents also said that they wouldn’t buy a product if it were made in a country with poor environmental practices. The Roper Green Gauge Report found that more than 53 per cent of Americans bought a product because the label claimed that it was environmentally safe or biodegradable (Austrade 2003). The report also noted that consumers are willing to pay 5 to 10 per cent more for pesticide-free fruits and vegetables. This trend is supported by EcoRange’s in-market research that identified a rise in popularity of branded meat products in the US retail market. In particular, brands that are vying for product differentiation based on health and safety are, in some cases, receiving significant price premiums.

The findings of the Roper Green Gauge Report support those of an earlier report from the Hartman Group that found 52 per cent of United States consumers want to buy ‘earth-sustainable’ products (McCoy and Parlevliet 2000). However, most of these consumers reported difficulty in finding products that also met their core purchase criteria, including price, taste, quality and availability. Only the ‘true naturals’ had a commitment to ‘earth-sustainable’ products that was strong enough to overcome inconvenience and price barriers.

According to McCoy and Parlevliet (2000), barriers limiting demand for organic and ‘green’ products included lack of product availability, limited product ranges and confusion about trademarks, as well as price. It was found that in the United States a price premium of no more than 10 per cent should be expected, whereas premiums in Europe of up to 30 per cent could be charged.

The United States is the world’s largest market for organic products, with an estimated US$9.5 billion in sales in 2001. This market segment is growing very rapidly and retail sales may reach $20 billion by 2005 (Kortbech-Olesen 2002). This growth has been fuelled mainly by consumer demand for healthier food, strong retail marketing campaigns and the introduction of national organic standards regulated by the United States Department of Agriculture (USDA).

While consumer demand for organic products is primarily driven by health concerns, the link to sustainable agriculture can be a significant secondary motivation. Roughly two-thirds of organic consumers are motivated by health and nutrition concerns, although studies by the Hartman Group
have also found that one in four purchases of organic products was motivated by environmental concerns. This interest is mainly driven by a generation of 18–29-year-olds (Interpress 2002).

3.1.4 Japan
There appears to be little information published about Japanese consumers’ levels of interest in the environmental and other aspects of food and fibre. However, research on Japanese consumer attitudes to organic food provides some insight into their interest in ‘environment-friendly’ food. The Ministry of Agriculture, Forestry and Fisheries (MAFF) found that the most likely reason for the purchase of organic vegetables by Japanese consumers in 1995 was that they were safe and healthy (McCoy and Parlevliet 2000). In other words, the Japanese consumer is driven more by the personal benefit to be gained from an organic product than by its positive environmental impact.

Research reported in Woodward-Clyde (2000) also concluded that Japanese consumers appear to purchase organic food primarily because they perceive it to be safe, and to a lesser extent because of their concern for the viability of Japanese agriculture.

As in the US, Japanese consumers place considerable importance on food safety. An ‘environment-friendly’ food is also a safe product, and provided that it is marketed as such, should also appeal to this market.

3.2 Australian consumer interest in ‘environment-friendly’ products

The Australian consumer research commenced with two focus groups. One of the issues identified by the focus groups was that Australian consumers appeared to have a much greater interest in the environmental aspects of food production than in fibre production. Consumers did not closely associate a woollen product with its production system and their interest in the environmental impacts of wool production systems appeared to be low. Consumer purchasing behaviour for a garment was not likely to be influenced by claims that the production of the fibre used in the garment was ‘environment-friendly’ (MacNamara and Pahl 2003). For this reason the domestic consumer survey was focused on meat, as this is the other main product from the rangelands.

The domestic consumer survey indicated that there was a relatively high level of interest in the environmental aspects of food production. Six out of ten consumers surveyed believed that their personal actions were influential in making a difference to the environment, with those who currently purchased organic meat and/or ‘environment-friendly’ food being even more likely to perceive that their behaviour could make a difference.

Just under half of the respondents claimed currently to buy at least one type of ‘environment-friendly’ food product, with fruit, vegetables and eggs being the most frequently purchased categories. In comparison, only 10 per cent of consumers claimed to buy ‘environment-friendly’ meat. In these instances there appeared to be a tendency for consumers to equate ‘fresh’ and unprocessed with ‘environment-friendly’, and obviously the two are not necessarily the same.

Furthermore, there also appeared to be confusion between what constituted ‘organic’ and ‘environment-friendly’ food products. While consumers associated the term ‘organic’ with being chemical-free, there was no clear understanding of the term ‘environment-friendly’, with most consumers choosing either organic or chemical-free as the best description. Motivations to purchase organic and ‘environment-friendly’ meat products appeared to be largely based on a desire to achieve personal health and wellbeing, rather than altruistic desires to protect the environment.

In terms of specific environmental issues associated with meat production, just over half of the consumers surveyed could not think of anything unprompted. For the others there was no one environmental issue of particular concern, with equal mention of soil erosion, overgrazing and use of
chemicals. When prompted with a list of issues, again opinion was divided, with salinity, use of chemicals, water pollution, soil erosion and tree clearing all mentioned as being of concern. The focus group research also indicated that a lack of knowledge of production practices was one of the main reasons for the low levels of consideration currently given to environmental issues when purchasing products.

While the majority of consumers had little knowledge of meat production practices and associated environmental impacts, there appeared to be a small core of consumers who were concerned with the environmental effects of meat production. Thirteen per cent of respondents claimed to think about this issue on all purchase occasions and, perhaps not surprisingly, these people were also more likely to purchase organic meat. One in five consumers claimed currently to purchase organic meat, with higher levels of purchasing in New South Wales/ACT, Queensland and Tasmania than in Victoria.

An earlier survey of Queensland consumers (Smith 2000) also identified considerable consumer interest in ‘environment-friendly’ products. It found that for 30 per cent of consumers, the environmental status of a product was an important factor when purchasing everyday food items. However, quality, price, and brand were regarded as the most important attributes of products; only four per cent of consumers considered the environmental status of a product to be the most important factor in their purchase decisions.

The EcoRange survey also found that consumers were somewhat sceptical of the environmental claims made on products currently in the supermarket, where less than 1 in 10 consumers felt ‘very confident’ of such claims. Most reported themselves to be ‘somewhat confident’ while just over a quarter of consumers were ‘not at all confident’ of the environmental claims made on products (MacNamara and Pahl 2003).

Not surprisingly, therefore, consumers see the importance of having a system in place that guarantees meat is ‘environment-friendly’ – 60 per cent rated this as very important. There are two key triggers to acceptance of such a scheme: government regulation or endorsement by an environmental group.

3.2.1 Price premiums

A critical issue for consumer adoption of ‘environment-friendly’ products will be price, or more importantly value for money, where value takes into account the retail price and the quality attributes of a product.

The importance of price is evident when consumer purchasing intentions are examined at a range of price premiums. EcoRange found that eight in ten consumers surveyed reported a strong interest in purchasing ‘environment-friendly’ meat with no price premium. This fell to six out of ten at a premium of 10 per cent, and less than four out of ten at a premium of 25 per cent.

With the introduction of a price premium, current behaviour and attitudes determine whether a consumer is willing to pay more for ‘environment-friendly’ meat. Those who currently buy ‘environment-friendly’ food items, and/or organic meat, or consider the effects of meat production at the point of purchase, are more likely to accept a price premium. For these consumers, a price premium of 10 per cent is quite acceptable. A price premium of 25 per cent is only acceptable to a smaller market of current organic meat purchasers and those who consider the environmental impact of meat production at their point of purchase.

There are two issues for consideration in the interpretation of these findings. Firstly, consumers always over-estimate their purchasing behaviour in the context of a consumer survey. Secondly, the results assume that all consumers will be completely aware of and fully understand the environmental claims made about products, and that products will always be available for consumers to purchase. This is unlikely in the real market, and consequently the estimates of demand provided by consumer surveys need to be adjusted downwards to reflect these limitations.
To provide more realistic estimates of demand, a weighting was applied by ACNielsen to the reported results which gives the following demand estimates:

- At no price premium: 22–44 %;
- At a price premium of 10 %: 18–37 %; and
- At a price premium of 25 %: 13–27 %.

The lower estimates of demand should be seen as a starting point in likely take-up of the scheme while the higher estimates are closer to an ‘ideal’ market situation with perfect consumer knowledge and product availability.

There is a strong consumer perception that ‘environment-friendly’ products come with a price premium, with as many as 70 per cent of Queensland consumers surveyed in 2000 believing that ‘environment-friendly’ products were over-priced (Smith 2000), and this is by far the main barrier to consumer adoption.

The full results of the EcoRange domestic consumer survey are reported in MacNamara and Pahl (2003). Also, further insights into Australian consumer attitudes and requirements are contained in the following chapter.
4. Requirements of meat supply chains for environmental assurance

While significant consumer demand for ‘environment-friendly’ products will be the main driver of the adoption of environmental assurance for food and fibre production, it will also be important for environmental assurance to be compatible with and supported by businesses along supply chains.

Meat products such as beef, mutton, lamb and goat are major products of rangeland pastoral industries. Therefore the EcoRange project undertook research to determine if supply chains for these products had specific environmental requirements associated with the production and processing of meat.

Large businesses within supply chains have played a major role in setting specifications for fresh food and in developing procedures for verifying that these requirements have been met. Retailers in the United Kingdom and Europe have been at the forefront of developing these processes for fresh food. These processes, initially established for vegetables and fruit, now also apply to the on-farm production of fresh meat.

4.1 International trends in fresh food specifications

Food retailers are becoming increasingly important in raising the awareness of environmental issues in the food industry (Woodward-Clyde 2000). The British supermarket chains have been the leaders in developing and implementing production protocols for fresh food, and have taken responsibility for setting standards on behalf of their customers.

AFFA (2002) has identified three main categories of European retailer specifications for fresh food:

- food safety;
- intrinsic product quality; and
- extrinsic product quality.

4.1.1 Food safety

Food safety is a non-negotiable requirement of food retailers. They believe that food safety is essential due to legal compliance and requirements for ‘due diligence’, and therefore must be met by suppliers (AFFA 2002).

4.1.2 Intrinsic qualities of food

Intrinsic food qualities are specific technical quality standards that generally must be met as part of the condition of supply to retailers. Common fresh food specifications identified by AFFA (2002) are:

- **Fruit**: variety, size, colour, absence of damage, storage conditions, days to ripening, packaging and presentation;
- **Vegetables**: variety, freshness, size, trimming, storage conditions, and presentation;
- **Meat**: carcase grade, ageing, storage environment, joints and cuts, fat levels, packaging and presentation, and ‘sell by’ and ‘use by’ dates; and
- **Milk**: age, absence of taints, fat levels, and ‘sell by’ and ‘use by’ dates.

In Europe, intrinsic product quality does not usually vary much from retailer to retailer, and hence differentiation of products is more likely to be made on the basis of extrinsic quality attributes (AFFA 2002). In these cases retailers have developed policies and codes of practice that they expect suppliers to conform with.

4.1.3 Extrinsic qualities of food

Extrinsic food qualities identified by AFFA (2002) include:

- animal welfare;
- environmental protection;
• biodiversity management;
• wild sourcing; and
• ethical trading and social accountability.

4.1.4 Fresh food production protocols and standards
A wide range of technical standards and verification procedures have been developed to ensure that the specifications of retailers have been met (see Pahl 2003). There has been an emergence of joint-retailer standards such as the British Retail Consortium (BRC) and Euro-Retailer Produce Working Group for Good Agricultural Practice (EUREPGAP) that are the basis of the fresh food procurement protocols of many of the large UK and European retailers. Such standards are becoming global in nature and are important because they have the potential to influence future market access and market share for Australian suppliers.

UK retailers generally require independent third-party audits of their suppliers against their own or group standards and other HACCP-related standards to ensure that their expectations have been met (AFFA 2002). However, they do not audit individual growers unless they are part of a select or ‘premium producing’ group. Instead, growers are audited by the large integrating suppliers (wholesalers) contracted by a retailer, or through industry farm assurance schemes such as the British Farm Standard.

4.1.5 Globalisation of the fresh food industry
While Australia’s food exports to the European Union are very small relative to its exports to the Asian region and the United States, European protocols are important to consider in light of global trends towards increased retailer concentration. This concentration is not only prevalent in Europe, but also throughout South-East Asia, where the presence of large European retailers is rapidly expanding.

According to DFATS (2002), the globalisation of food retailing is bringing about historic change in the agri-food supply chain, with the most significant effects being:
• massive increases in the purchasing power of global retailers;
• marked reductions in the number of suppliers used by fewer and larger global chains;
• increasing trend for retailers to source food regionally and globally rather than locally;
• increasing use of house brands and private labels by retailers; and
• large shifts in power away from agri-food processors to the food and beverage retailers.

The trend towards retailer buying groups is important to Australian producers wishing to export fresh food. Buying groups can have a powerful influence on markets as they purchase extremely high volumes of food in accordance with their fresh food standards. Many European retailers are now rationalising their operations, with some consolidating, some forming international buying groups, and others expanding joint ventures and franchising operations (AFFA 2002). These groups often use common technical standards that specify the supply of food that meets particular criteria, with a number of these relating to extrinsic factors such as animal welfare and the environment.

4.2 Environmental requirements of international meat supply chains

4.2.1 Environmental assurance in the United States meat market
Recent increases in the demand for beef in the United States have been attributed to the prevalence of branded beef programs in both supermarkets and food service establishments (Austrade 2003). There are currently 54 USDA-certified and process-verified beef programs in the United States, with most programs based on yield and quality requirements (Austrade 2003). There is no data on the number that make environmental claims.
There are also growing numbers of suppliers offering ‘natural’ beef. This label is not certified and is defined broadly by the USDA as meat and poultry that does not contain any artificial flavouring, colour ingredients, chemical preservatives, or other artificial or synthetic ingredients, and that is only ‘minimally processed’ (Sierra 2002). There is little or no premium for beef sold as ‘natural’ if the claim is made solely in compliance with the USDA requirements. However, there are premiums of US$1.10 to $6.61 per kilogram for ‘natural’ beef whose production-practice claims (such as no use of hormones or antibiotics, and that animals are fed vegetarian diets) are certified (Austrade 2003).

Branded beef products are rapidly gaining market share in supermarkets, resulting in chains such as Safeway’s showing interest in developing their own branded beef programs (Austrade 2003). With the proliferation of brands, the Consumers Union has produced a Label Report Card for meat to assist consumers evaluate the meaning and credibility of labels on branded beef products. This report card evaluates labels in relation to issues such as:

- meaningfulness;
- verification and consistency of claims;
- extent to which the standard was developed with broad stakeholder input; and
- public availability.

While there are a large number of organic labels, there are also several environmental labels that focus on at least some aspects of sustainable production. A comprehensive summary of foods marketed with environmental attributes and/or environmental assurances is available on the United States Consumer Union website (see www.eco-labels.org). These labels have been categorised according to the following types of claims:

- general claims;
- sustainable agriculture;
- organic;
- pest management; and
- sustainable fishing.

According to the Consumers Union, there are a total of 89 labels currently in the United States that fall under one or more of the above categories. A number of the more prominent environmental labels used in beef production are briefly described below.

Conservation Beef markets fully mature, range-fed beef, which is predominantly sold to restaurants and online (see www.conservationbeef.org). Sales of Conservation Beef were estimated at US$200,000 in 2000, which included sales to over 20 white-linen food service establishments in the Eastern States. Production is concentrated in Montana and production capacity in 2000 was approximately 50,000 acres (Balachander 2000). Farmers who are enrolled in the program are paid a guaranteed price of 15 cents per pound above the market price by Conservation Beef.

The TFA Ecolabel, Food Alliance Approved, was launched in 1999. This label certifies that growers have met approved standards related to soil and water conservation, use of pesticides and fertilisers, and worker welfare. There is no specific data on Food Alliance Approved beef sales, although 2001 farm-gate sales of all Food Alliance Approved products is estimated at US$5 million (Austrade 2003).

In 2002, the Kelloggs Foundation funded a study titled Market-based change, which included assessment of the impact of the Food Alliance Approved label. Although the program has been successful for a number of farmers in terms of creating market access to new vendors or increasing sales, gaining acceptance of ‘sustainably produced’ meat products in the retail sector was found to be particularly challenging. The major issue identified was lack of production volume and the consequent inconsistency of quality and supply, issues for which retailers have little tolerance. There has been a varied reception to the Food Alliance Approved label amongst the retail industry, ranging from unwillingness to stock the product due to the belief that it would result in reduced sales of organic products, through to strong support for locally supplied sustainable product.
Another smaller, regionally focused branded beef label is the Yampa Valley Beef Program, which only supplies local markets. This program was developed by Colorado State University as a result of surveys where two-thirds of local residents indicated that they would pay a premium for ‘environment-friendly’ beef from local cattle suppliers. To qualify for the Yampa Valley beef program, at least a quarter of the cattle must be supplied from local areas that have some conservation measures in effect (Charteris 2001).

The Austrade (2003) research conducted for EcoRange in the United States meat market concluded:

The number of environmental messages attached to food is creating confusion amongst consumers. A study conducted by Roper Starch Worldwide, Inc., found that three out of four consumers (75 per cent) are unable to differentiate between organic foods and those labelled ‘all natural’. This was supported by an interview with a large importer who claimed that many of their customers do not recognise the difference between ‘natural’ and organic beef products, and they assume the natural beef product they supply is organic.

However, despite confusion over the number of environmental messages on food products, branded beef products are gaining market share in the retail sector and, in some cases, are attracting significant price premiums. Studies of unbranded beef products showed that an unbranded single cut of beef (cut not specified) was selling for US$6.06 per kg, while the same cut branded as natural and hormone-free sold for almost $17.63 per kg (Charteris 2001).

While branding or labelling can result in price premiums, launching a new label is costly and requires long-term investment. The United States is one of the most expensive markets in which to develop a branded product, and strong labelling and promotional material are vital to the success of a label.

Product variety, volume, consistency and quality are also key factors for ‘environment-friendly’ meat products. One of the major learning’s from the Kelloggs Foundation study on the Food Alliance Approved label is the necessity of having a critical mass of products and strong supply to gain retailer acceptance of the products.

‘Sustainability’ is a challenging concept to communicate clearly. Consumers do not attach meaning to the word ‘sustainable’ and there is a lot of confusion between sustainable and organic products, requiring significant public education and awareness-raising.

There is strong interest in the supply of locally grown product, which could affect the demand for imported, ‘environment-friendly’ meat.

Processors and other food manufacturers are also expressing interest in ‘environment-friendly’ food products that could expand the market opportunities beyond the retail sector.

The United States Consumers Union has a strong political voice in the United States and has defined key criteria to determine the validity of eco-label products including ‘Meaningful and verifiable standards’; ‘Consistency and clarity’; ‘Transparency’; ‘Independence (free of conflicts of interest)’; ‘Opportunities for public comment’.

4.2.2 Japanese retailer and food service requirements

Two-thirds of Australia’s food exports go to the Asian region where Japan is Australia’s largest food export market, valued at AUD$4.2 billion dollars per annum in 2000. Meat is Australia’s third largest export to Japan (Brazier 2001).

Currently, the retail sector accounts for 39 per cent of the food market in Japan, although the market share of the top four retailers is only around 7 per cent (Brazier 2001). Japanese retailers and other stakeholders are placing strong emphasis on non-GMO food supply and food safety issues. While
retailers in Japan do not generally demand formal systems of food safety such as EUREPGAP, all retailers and importers interviewed for the EcoRange project in Japan indicated that HACCP is a preferred but not essential part of their requirements. Japanese companies tended to rely more on the relationships with their suppliers and the trust developed through this relationship. However, it is expected that, over time, Japanese retailers may require more formal food safety systems, particularly considering the recent outbreaks of BSE and the potential litigation associated with this and other food safety issues. As an indication of this, leading retailers are developing formal systems to enable traceability of Japanese beef, and the Japanese Ministry of Agriculture Forestry and Fisheries is also working on a system that may become mandatory.

As with other food, the Japanese meat market is currently most concerned with food safety and quality. Priority issues are traceability due to BSE, low chemical residues (growth hormones, antibiotics) and low counts of *E. coli*. Consequently, except for niche opportunities, the Japanese market is unlikely to drive the adoption of environmental assurance for beef and lamb in the near future due to the focus on food safety and a perception of limited consumer interest.

Many of the companies interviewed by the EcoRange project in Japan had implemented ISO 14001 for their head office or factories because they wanted to be perceived as ‘good corporate citizens’. One company interviewed had also implemented ISO 14001 in their meat processing facilities in Australia. The motivation for this was not related to consumer demand, but rather to the business environment in Australia. When setting up their abattoir several years ago, they felt that an environmental management system (EMS) would create positive public relations and goodwill within the community. Furthermore, although many retailers and importers may have ISO 14001 for their head office or retail stores, this does not translate into demanding an EMS or other form of environmental assurance from their suppliers.

Market research undertaken in Japan by the EcoRange project found that extrinsic quality requirements were not yet making an impact on the way that the majority of retailers sourced food products. However, a small number of retailers were currently looking at procuring products with environmental assurances and these retailers were being watched by competitors to assess the success of this strategy. Based on interviews with companies in the meat supply chain, consumer interest in environmental assurances for meat is expected to increase over the next five years.

One retailer in Japan, who is currently working on the launch of an eco-label, plans to develop their own standards rather than adopting an international environmental standard. These standards will include requirements that feed for livestock should be more than 85 per cent organic, animal manure should be recycled and no growth hormones should be used.

A number of interviewees suggested that in order for an eco-label to be successful, considerable promotion to the end consumer is required. Japanese consumers are not familiar with environmental labels and therefore would not seek out products carrying these labels. In other words, for an eco-label to be successful in Japan, considerable market education would need to be undertaken to explain the attributes of the products.

It should be noted also that there are significant differences across regions in Japan in terms of awareness and knowledge of environmental assurance. The majority of companies interviewed in Sapporo (the only area in Japan that imports lamb) were not aware of EMS and felt that the environment is not of particular interest to the consumer. However, those interviewed in Tokyo, particularly those considered industry leaders, are already on the path to environmental assurance through the use of an eco-label. When asked the motivation for developing an eco-label, one retailer indicated that they considered themselves to be industry leaders and wanted to make their customers more aware of and place greater value on environmental issues.

Two companies interviewed in Japan suggested that an eco-label with an animal welfare component would be a more powerful brand. The issue of animal welfare was spontaneously raised by the
interviewees and was not prompted during any interview. This may indicate that animal welfare could become increasingly important in Japan, and that trends associated with this issue could become important for Australian exporters.

4.2.3 United Kingdom and Belgian meat supply chain requirements

The in-market research conducted by EcoRange found food safety, quality, and price were the major issues of interest for the small number of meat supply chain businesses interviewed in Belgium and the United Kingdom. Traceability, associated with food safety and quality assurance schemes, is an emerging requirement in the meat industry in Europe. This is understandable given the impact of BSE and foot-and-mouth disease on the industry and on consumer demand. These outbreaks have received very high media attention and retailers are aware that consumers now have greater expectations regarding the safety of meat products.

In comparison, the interest of supply chains in environmental issues associated with meat production appear minimal at this time, except for a small number of products that are marketed with environmental claims.

These trends are illustrated by the comments of United Kingdom and Belgian companies recorded during interviews by EcoRange. For example, the main specifications of a British importer of Australian beef who supplies product to a Northern England retailer with 110 stores relate to price and quality (fat score, cattle under 100 days old, and shelf-life issues related to guaranteed eating quality). The importer also requires that cattle are BSE- and GMO-free, and in this respect traceability is as an emerging issue. All fresh produce is currently sourced through assured produce suppliers where all farms are independently assessed and verified by certification bodies in accordance with the European Standard EN 45011. This importer believed that demand for ‘environment-friendly’ Australian beef to be limited, and commented that ISO 14001 wouldn’t mean much to them or their customers, as is also the case with ISO 9002. Their customers are really only interested in price, and retailers are not prepared to pay for assurances on other attributes of products.

Similarly, an interview with a major lamb importer in Belgium found that price and quality were their most important issues: ‘Ultimately, the main concern for retailers is price and quality. The rest is a reaction to the media, with quality programs being part of the marketing strategy.’ For this reason, this importer is receiving many requests from retailers for information on the types (breeds) of lambs he is importing, plus lists of questions on production methods. The reason for these requests is due to the retailer needing to be prepared for media enquires in case of food scares. Traceability is again important, with a number of retailers developing their own systems for tracing products back through the supply chain. This importer believes that assurance systems are inevitable, and that market entry requirements rather than regulation will drive their adoption in supply chains. Supply chains need to accept that this is the way of the future, that standards will keep getting higher, and that they should focus on improving the quality of products. The importer had doubts about the future of an environmental label, suggesting that such a label would get lost amongst others: ‘In reality, consumers are overwhelmed with information and are very cynical.’

While safety, quality and price are the major issues for a major supermarket chain interviewed by EcoRange in the United Kingdom, this chain also has two environmental partnership programs with producers; biodiversity, and environmental protection plan/management. Both programs are based on continuous improvement and are not benchmarked. The supermarket has a number of premium product labels that have a positioning statement such as ‘produced under a biodiversity scheme’, and this range of products is expanding and developing. They are looking to extend the partnership program to all countries. For example, there is a lamb program for New Zealand producers that is fairly similar to that used in the United Kingdom, but with some specific differences. In terms of future trends regarding eco-labels, this supermarket does not rule out segmentation but it is a very complex area and they don’t want to undermine other schemes by over-promotion of one label.
An emerging interest of UK retailers in the sustainability of food production has provided an opportunity for the farm environmental management program known as LEAF (Linking Environment and Farm). The LEAF mark logo, that aims to link integrated farm management to the consumer, is now being used by Waitrose, Safeway and Tesco for fruit and vegetables. The objective of the LEAF mark logo is not to achieve large premiums at the retail level, but rather to build brand recognition and give consumers an alternative to the more expensive organic produce. That is, LEAF is aiming for the middle ground.

4.3 Environmental requirements of Australian meat supply chains

4.3.1 Specifications for meat

Processors, wholesalers and retailers were asked if they currently sourced meat in accordance with specifications. The responses from these businesses indicated that the specifications placed on livestock or meat supply largely depend on the position of a business in the supply chain. Processors generally have requirements for the whole carcass and are concerned with issues such as chemical residues, animal welfare, age, meat colour, fat colour, eye muscle area, marbling, rib fat and P8 fat.

Wholesalers have requirements for individual cuts of meat and are concerned with fat colour, marbling and eating quality. Domestic retailers buy specific types of meat graded on the basis of eating quality, and have developed relationships along their supply chain to deliver these requirements. In short, these requirements are for intrinsic qualities of livestock, carcasses and meat cuts.

Most of the processors, wholesalers and retailers interviewed did not include environmental and other extrinsic quality criteria in their product specifications. Generally, their emphasis was on food quality and food safety and they did not consider environmental issues to be an interest of their current markets.

The meat supply chain businesses interviewed by EcoRange were asked if their direct customers expressed a desire for particular characteristics of meat. The most common customer requirements for particular characteristics of meat mentioned were food safety and eating quality. One processor commented: ‘Food safety is at the forefront of consumers’ minds due to BSE, foot-and-mouth disease and E. coli. Quality is something that consumers expect and they are looking for assurances to underpin specific product claims.’

Other characteristics important to Australian meat processors, wholesalers and retailers were:
- basic cuts at reasonable prices;
- consistent eating quality; ‘clean and green’ beef – particularly for Japanese clients;
- low chemical residues;
- hormone-free meat;
- yearling beef;
- breed; and
- Meat Standards Australia (MSA) eating quality standards.

One processor said that MSA beef was becoming a sizable share of their product range and they were killing 600 head per week for that market. Another processor said 15 per cent of current clients want organic meat.

The majority of businesses interviewed indicated that their direct customers show no interest in environmental issues related to the production of meat. However, a speciality food retailer said that their customers were expressing interest in knowing more about the environment that the meat animal was raised in. They are looking for sustainability within that production system. A producer/processing company also claimed that the sustainability of their supply chains was important to their retail alliance partner. The other environmental interests mentioned were related to consumer
interest for ‘clean and green’ or ‘natural meats’. However these specifications relate more to issues of chemical use on animals than the impact of production on the environment.

4.3.2 Communicating meat specifications to suppliers
A number of the meat processors/wholesalers interviewed by EcoRange have alliances with producers of livestock and communicate their required product specifications through these dedicated supply chains. One of these alliances has 500 members who supply 90 per cent of the processing company’s throughput. This company holds field days for new members and sends out quarterly newsletters to communicate the changing market requirements.

Where livestock are purchased through saleyards it is difficult for the buyer to stipulate specifications relating to the environmental impacts of production, as there is often no history provided about the animals. Supply-chain relationships with producers or producer groups provide a greater opportunity for specifying environmental criteria at the time of purchase, as the identity of the stock can be tracked throughout the production process. The processors who trade with producers on an ‘over-the-hook’ (OTH) basis are able to inform producers of the requirements for livestock grown for particular markets. However, they mainly communicate their requirements through their price grid.

In many other cases businesses communicate their specifications to their suppliers through established standards. For example, organic standards specify products that are largely free of synthetic chemicals, with assurances provided by organic certification bodies. A wide range of other standards, mostly focused on food safety and quality, are used by meat supply chains.

4.3.3 Assurance schemes used in meat supply chains
There were numerous schemes and/or standards used by meat supply chain businesses to specify characteristics of livestock or meat, and to provide assurances that these specifications have been met. The most common were:
- ISO 9002: Quality Assurance (QA) management procedures;
- Own QA program developed to suit the company’s specifications;
- AS 3806: this complements ISO 9002;
- HACCP 9000: food safety compliance standard;
- MSQA: V2: AQIS Meat Safety Quality Arrangement for export plants;
- MSA Accreditation: ‘Paddock to plate’ meat grading scheme;
- AUS-MEAT Accreditation: national industry standards for meat processing;
- Cattlecare/Flockcare: on-farm QA programs;
- Truckcare: livestock transport QA programs;
- Organic certified;
- QSAFE: Queensland food safety assurance scheme for retailers;
- ISO 14001: Environmental Management Systems;
- AS 4804: Occupational Health and Safety (OH&S);
- AQIS export accreditation;
- Production protocols (eg Tesco’s supermarket chain in the United Kingdom); and
- Viascan system, used to provide feedback to producers on meat yield and score.

The majority of these are food safety and quality assurance standards, emphasising the high level of importance placed on these attributes by processors, wholesalers and retailers. Only one standard, ISO 14001, is a dedicated environmental standard, while some environmental issues are also addressed in organic standards and in Tesco’s production protocol.

Meat supply chain businesses made a number of suggestions for improving the workability and credibility of the environmental assurance schemes that could be used by graziers for meat production. Some indicated that these do not need to be third-party audited every year. Other suggestions for environmental assurance schemes were that:
• They should be at least second-party audited where they are used for the benefit of the business acquiring livestock or meat;
• They should be kept simple and cost-effective, and make a difference;
• Independent auditors are required;
• Schemes should provide verification of animal treatments, chemical use or animal welfare practices;
• A paper trail is needed to validate ‘clean and green’ claims;
• The scheme requires elements of OH&S, QA, animal welfare, HACCP and environmental assurance;
• Penalties should be applied to those who do not comply with the scheme;
• It should be based on principles of Flockcare or Cattlecare;
• It should require the use of accurately completed National Vendor Declarations (NVDs);
• It should be user-friendly and sensible; and
• It must be measurable, transparent and must capture all the issues relevant to processors and producers to make it sustainable.

It is apparent that businesses in supply chains are more interested in ensuring that environmental assurance is practical and cost-effective. To this end they also desire that environmental assurance be integrated with their requirements for quality and safety, and with the emerging issue of animal welfare. These businesses appear more concerned with how environmental assurance will operate along the supply chain, rather than the environmental issues that should be addressed.

4.3.4 Environmental assurance in the context of supply chain requirements
A small number of specifications for livestock and/or meat products are indirectly related to the environment, such as those concerning the use of synthetic chemicals. However, no meat companies currently have direct environmental specifications for the production or processing of livestock. Similarly, environmental standards are rarely used in meat supply chains, with ISO 14001 used at only one or two abattoirs, although it is also being introduced to a small number of feedlots by large vertically integrated companies. At this stage only the vertically integrated beef companies are considering applying ISO 14001 at the farm production level, and only with their company farms. Apart from one large retailer who is considering introducing some environmental elements into their on-farm quality assurance program, no other meat supply businesses have communicated an intention to do this.

Instead, the priorities of meat supply chains are safety and quality, and the main assurance schemes used are accordingly based on HACCP for food safety and ISO 9002 for quality management systems. However, a number of supply chain businesses predict some future demand for environmental assurance for livestock and/or meat products, particularly in the United Kingdom, United States and Japan.

Some of the processing and retailing companies have set up dedicated supply chains to ensure the integrity of any safety or quality claims they make on their products, involving an auditable paper trail from the paddock to plate. As well as underpinning their claims, this approach prevents any possible substitution of low for high eating-quality meat and provides greater consumer satisfaction.

Chemical residues and animal welfare are more important issues for the meat industry at the moment than are environmental issues, because they can be directly related to food safety and quality. Hence, specifications in the market place at the moment for low chemical residue meat (e.g. natural beef/lamb and organic) and good animal welfare practices are much more common than specifications for the environment.

Some retailers, who are interested in demonstrating that their supply chains are environmentally sustainable, may at some time develop environmental specifications for livestock and meat products. Likewise processors who have dedicated supply chains and who are developing their own contractual quality assurance for their suppliers may also play a role in introducing environmental specifications.
Close alliances with producers put processors in a position to specify environmental criteria and higher quality end products in the future. However, the leaders in the area of environmental assurance are the large vertically integrated companies that control most if not all of the supply chain. These companies are now moving towards implementing some form of environmental assurance along the entire supply chains that they control, and this will set the standard for the rest of the industry. At this time the standard that is being implemented along supply chains by vertically integrated companies is ISO 14001. It would appear that these companies would use this standard to underpin ‘environment-friendly’ claims or labels associated with a particular retail outlet.

Other meat supply chain companies have a preference for sustainable environmental practices to be embedded in on-farm QA standards such as Cattlecare or Flockcare. However, it may be easier for processors to incorporate environmental requirements into the contractual QA arrangements that they have with producer alliances, especially if the processor has a close relationship with a retailer. The retailer may then be able to use this form of environmental assurance as a tool to position its whole image or specific products as ‘environment-friendly’.

EcoRange research indicated that meat industry businesses are starting to sense a need for ‘environment-friendly’ meat products. An environmental certification or assurance scheme would be required to verify products claiming to be ‘environment-friendly’. Some of these businesses see this as a top-level tier to their current assurance package. However, just having an environmental claim alone will not guarantee a sale, unless quality and safety aspects are already in place. Then, there is also the need for product consistency, volume and timing.

Overall, export processors and wholesalers appear to be more interested than are their domestic counterparts in the role that environmental issues may play within the marketplace, due largely to the higher level of importance placed on the environment in prominent overseas markets such as the United Kingdom and Europe. Hence, producers who are looking for outlets for livestock produced in accordance with an environmental assurance scheme may be better to target companies with an export orientation.
5. Wool supply chain requirements for environmental assurance

Wool is also a major product of the pastoral industries. For this reason EcoRange conducted research into the environmental and other requirements of wool supply chains, and the implications of this for Australian wool producers.

International market research took the form of a review of published literature relating to the environmental requirements of consumers and supply chains. This indicated that consumers did not appear to be particularly interested in the environmental aspects of wool production. Consequently, the main driver of environmental requirements of international markets for wool at this stage appears to be environmental legislation that impacts on processors and manufacturers.

Initial domestic market research by EcoRange found that Australian consumers also did not readily associate the garments they were wearing with environmental impacts arising from wool production, and for this reason this was not pursued by the domestic consumer survey. Instead, EcoRange interviewed a number of businesses in the wool supply chain about their environmental and other requirements for raw wool.

5.1 Environmental issues in the international market for wool

Shaw (1996) claims that wool has a great deal in its favour as an ‘environment-friendly’ raw material, as it is natural, renewable, and generally produced in a sustainable manner. For example, New Zealand’s wool is promoted as a ‘clean and green’ product, and is perceived by markets as ‘environment-friendly’ by virtue of being a natural fibre (Woodward-Clyde 2000).

While environmental issues are not the most critical challenges facing the wool industry today, they are still important. Production and processing of wool can have adverse impacts on the environment, and consumer concern about animal husbandry practices also appears to be an emerging issue for the wool industry. Questions are being asked about the overall environmental impacts of the wool industry, focusing on issues such as land degradation, loss of biological diversity, and the use of pesticides, herbicides, and fertilisers (Shaw 1996).

Consumer purchase decisions for textiles and clothing are influenced by many factors, but particularly fashion and function (UNCTAD 1999). While somewhat dated, a 1993 survey of German and UK consumers commissioned by the International Wool Secretariat (now Australian Wool Innovation) noted similar results (Shaw 1996). Environmental considerations in purchase decisions of textiles were very weak compared with factors such as design, style, colour and price.

However, consumers and governments are becoming increasingly concerned about potentially hazardous chemicals that are used in the production and processing of textiles. This concern has resulted in the introduction of stringent legislation to control processing operations in some countries, particularly in the United Kingdom and Europe.

5.1.1 Environmental impacts of wool processing

The tightening of regulations covering the effluent from wool processing plants has been led by Western European countries, while requirements in Eastern Europe and Asia are less stringent. These regulations have had a major impact on the cost structures of processors and have been a contributing factor in the shift of production facilities from Western Europe to other countries, particularly to Asia. Perhaps this has been a contributing factor to the decline in Australia’s exports of raw wool to Europe. In 2001/02, Australia exported 26 per cent of its raw wool to Europe compared to 33 per cent in 1994/95 (ABARE 2003).
The EU has now enacted the Integrated Pollution Prevention and Control (IPPC) Directive that requires all EU members to introduce legislation aligned to integrated pollution prevention and control. This directive became operative in 1999, and will be fully implemented through the enactment of national legislation of member states by 2007 (Armstrong et al. 2001). This legislation is forcing wool processors to upgrade their treatment and disposal of effluent, as they will be compelled to adopt the highest standards of environmental management in order to minimise their emissions of listed substances.

European customers of Australian wool will be very reluctant to purchase wools that are contaminated with chemical residues, and may discount contaminated lots (Shaw 1996). Accordingly, wool buyers may require certification of the pesticide content of wool. Future access to some European markets may require Australian producers to achieve reduced pesticide residue levels in their wool at the time of shearing (Armstrong et al. 2001).

However, in the immediate future it is the wool-processing sector that is likely to be influenced most by environmental concerns and subsequent legislation. While environmental legislation in some export markets may restrict access of Australian wool, it is important that the magnitude of this be quantified. Around 40 per cent of Australian fleece wool has no or almost no chemical residues, with much of this coming from the low-input pastoral zones (Couchman and Crowley 2001). While this indicates that many Australian wool growers can produce low chemical residue wool, this by itself is not sufficient to guarantee access to the EU wool market. It is also necessary to credibly identify compliant wool prior to sales, so that processors seeking low chemical residue wool can assemble the types of wool needed for specific orders.

5.1.2 Eco-labelling of wool and other textiles

Credible and accessible textile eco-labelling, if available in the future, could play a role in catalysing improvements in environmental performance of wool producers and the wool textile industry. However, apart from a few niche markets, there is no clear evidence of consumer demand for eco-labelled textile products.

Voluntary schemes such as eco-labelling that limit or preclude the use of some chemicals have also been introduced. There are many eco-labelling schemes that cover textiles such as clothing and carpets, with some notable examples being the German Blue Angel, the EU Eco-label, the White Swan, Ecoproof, Eco-tex, GuT (Association for Environment Friendly Carpets), and Greenline (UNCTAD 1999). Most of these labels are based on the consumer health impacts of hazardous substances in textiles.

Some eco-labels represent a high proportion of a market. For example, 75 per cent of carpets manufactured in Europe are produced in accordance with GuT (Woodward-Clyde 2000). Other labels have niche market status only, and while there has been significant growth in sales of some eco-labelled products in countries such as Germany, these still account for only 1 to 2 per cent of the entire textile market in that country (UNCTAD 1999).

The application of life-cycle eco-labels to textiles has proven difficult compared with other products. For example, the life-cycle analysis for domestic washing machines found that water and energy consumption during use was such an overwhelmingly large part of the total life-cycle impact that no other criteria were required (Shaw 1996). Such life-cycle simplification is less easily achieved with textiles as many of the environmental impacts of textiles such as cotton and wool occur during production, processing and use, and therefore are outside the influence of garment manufacturers and retailers. However, in spite of this an abbreviated life-cycle analysis has also occurred with textiles. The EU Eco-label for textiles is an example of a simplified life-cycle analysis, with a focus on emissions and residues associated with processing and manufacturing.
The EU Eco-label for textiles stipulates maximum levels of pesticides that will be tolerated in wool. In 2001, around 75 per cent of Australian wool clip met the pesticide specifications of the EU Eco-label (Russell 2001). A revision of this scheme in 2002, with the inclusion of insect growth regulators and restrictions on synthetic pyrethroids, now means that only 58 per cent of Australian wool will qualify for the EU Eco-label (Russell 2002).

Raw wool with chemical residue levels specified by the EU eco-label for textiles is also compliant with the IPPC Directive that comes into full effect in January 2007 (Ian Russell, personal communication). This means that this eco-label can be used as a standard for raw wool that will be needed by EU processors, possibly as early as 2006. This provides very little time for wool production systems throughout Australia to adjust their pest management practices to comply with the new EU regulations.

The Environmental Choice eco-labelling program in New Zealand also has a number of specifications that relate to the wool sector, including specifications for wool pile carpets and wool-rich pile carpets. Specifications include both environmental and product characteristics. However these only relate to the manufacture of woollen carpets, from scouring of new wool through to the fabrication of the carpet, and do not address on-farm production.

5.1.3 A case study: eco-labelled textiles in Germany
Many German textile manufacturers and retailers are aware of the consumer requirement to act in an environmentally responsible way, but pro-activity in the ‘greening’ of their businesses is viewed sceptically in terms of the potential economic returns (UNCTAD 1999). While it is expected that increasing public debate about environmental management will lead to an increase in eco-labelled products, market share for such products is very small. In Germany, eco-textiles had a market share of only 0.2 per cent in 1993, and by 1998 this had grown to between only 1 and 2 per cent of the entire German textile market (UNCTAD 1999). Not surprisingly, a single strong eco-label for textiles does not exist in Germany, and no textile products were certified to the EU Eco-label in Germany or Austria as of March 2000 (Lohse and Wulf-Schnabel 2000).

According to Lohse and Wulf-Schnabel (2000), major concerns with the EU Eco-label amongst businesses in the German textile industry were:
- the EU Eco-label lacks visibility in the market; fees and testing costs are too high, the criteria are too complex, and there is a lack of credibility concerning proof of compliance, particularly amongst foreign suppliers;
- consumers ignore labels in their purchasing decisions;
- existing labels contribute to consumer and business confusion;
- expected benefits are not perceived to offset the additional effort required; and
- generally, producers blame retailers for lack of promotion of the label and retailers are opposed to promotion due to potential consumer criticism of unlabelled products.

Similarly, UNCTAD (1999) identifies two essential standpoints amongst producers, manufacturers and retailers towards eco-labels:
- Fear of negative spill-over: This is the fear amongst retailers that non-certified products will be discriminated against at a retail level. Qualitative research suggests that there is a preference amongst retailers for ecological improvements in products to be achieved via mechanisms such as ‘eco-guidelines’ for procurement.
- No impact due to a variety of labels: Many retailers doubt the effectiveness of eco-labels due to the wide variety of labels in the marketplace and the corresponding confusion this appears to create amongst consumers. Hence, there are doubts about the usefulness of eco-labels as a marketing tool, as success is dependent upon the reputation, acceptance and number of eco-labels visible in the marketplace.
Large mail-order companies that have issued their own eco-labels dominate the eco-textile market. Research conducted by the European Commission to determine opportunities for the uptake of the European Eco-label, indicated that the use of their own eco-labels excludes any interest in additional environmental labels (UNCTAD 1999). Many of these firms have high ecological standards that surpass current textile regulations and include a focus from the ‘cradle to the grave’. Business practice is characterised by strict adherence to high environmental standards and close, direct contact with suppliers. They have long track records and have consequently developed a strong following from their established clientele, which are characterised as the most ‘environmentally sensitive’ consumers. Growth in this market segment has been estimated between 15 and 60 per cent annually. The largest player in this segment is ‘Panda’, which has estimated annual sales of DM$100 million, and approximately 800,000 customers (UNCTAD 1999).

Apart from speciality ecological firms in the mail-order category, evidence of environmental change in the retail sector can also be seen in the procurement policies of large department stores. However, advances in the development of mass-marketed ‘green’ products with integrated supply chains is not yet prevalent, and would require an ‘eco-pioneer’ (UNCTAD 1999).

Other distribution outlets such as speciality shops and department stores display varying degrees of environmental behaviour. Generally, these stores shun eco-labelling of their product lines in order to avoid consumer confusion, although eco-labelling is found amongst certain product lines such as children’s clothes, underwear, and bed linen (UNCTAD 1999). Some of these schemes are exclusionary, as they are available only to corporate or industry association members.

The environmental principles of department stores are reflected in their procurement procedures. The ‘Oko-Tex Standard 100’ has become the ‘informal standard for many large department stores’ and is leading to a ‘gradual greening of a wide range of products’ (UNCTAD 1999). While ‘eco-brands’ are not prominent on retail shelves, large department stores, such as C & A, will publicise in-store the award of ‘Oko-Tex Standard 100’ assurance when it is achieved by one of their suppliers (UNCTAD 1999).

Large retailers and garment manufacturers have led the way in terms of developing environmental criteria for their suppliers. These companies include Europe’s largest garment manufacturer, Steilmann, based in Germany, Marks and Spencer, Next, Peek and Cloppenburg, and Patagonia. The environmental criteria of many of these companies have been self-developed as a result of the view that current schemes are inappropriate in terms of having a national focus, too expensive, inflexible or too narrow in scope (Shaw 1996). The self-developed guidelines also tend to focus on the product as well as all aspects of production and require assurance from suppliers that the guidelines have been met (Shaw 1996).

5.1.4 Other environmental assurance schemes for wool

While the procurement protocols for textiles of some retailers have been the main instrument for setting environmental standards for wool processing and manufacturing in parts of Europe, this may also occur through eco-labels as environmental legislation impacts on global industries. Across Western Europe, retailers and garment manufacturers have already engaged in a number of eco-labelling schemes, some of which are self-designed, while others are EU-wide, national and supranational schemes. A number of other environmental assurance schemes are also used for textiles, including wool.

The New Zealand wool industry is attempting to differentiate its wool by linking its clean and green image with product quality and animal welfare (Woodward-Clyde 2000). The Fernmark Quality Program provides for quality assurance based on ISO 9002, and targets processors and merchants. *Fernmark Gold* is the quality brand or label for wool sourced entirely from the Fernmark Quality Program. It is used in the manufacture of quality-critical textiles and applies specifically to on-farm
and early stage processors. To qualify for Fernmark Gold, all components of the supply chain must be accredited to the Fernmark Quality Program, and then the environmental and animal welfare expectations of the final consumer are added to this. Assurances are given that the wool has been produced in farming systems that protect the environment, safeguard animal welfare, and are free of excessive chemical residues.

Environmental Management Systems (EMS) have been taken up by only two New Zealand wool-processing companies as of July 1999 (Woodward-Clyde 2000). While the adoption of quality management systems is seen as an essential requirement to maintain market share internationally, the requirement for a formal EMS appears less significant. The principal driver for developing and implementing an EMS appears to be legislation, with no direct market pressure currently being experienced.

Organic wool, while difficult to produce, also provides opportunities for differentiation of wool and niche marketing. There is an increasing demand for organic wool, with signs that this relatively small market will expand in the short term (Woodward-Clyde 2000). Small but increasing supplies of certified organic wool are available from Australia, but there are some problems with defining, certifying and maintaining an organic processing pipeline that can produce wool garments with the performance characteristics expected by consumers. There are also problems in sourcing sufficient volumes of wool that meet the specifications required and are available on a regular basis.

It is not easy to be a certified quality producer of wool, and it is even more difficult to certify the whole supply and processing chain, from production to scouring and dyeing (Couchman and Crowley 2001). Supply chains for niche markets such as eco-labelled or organic apparel may also have other requirements that must be met. They may require wool with certain specifications, such as being less than 18 micron in diameter, and continuously available in sufficient quantities. This is often not possible due to the small quantities of certified wool available, particularly during the early phase of industry development. It is important to note that a reduction in chemical residues alone will not ensure success in overseas markets. There is an equal if not larger need to meet requirements for price, design, ethical concerns, country of origin and supply (Couchman and Crowley 2001).

5.2 Environmental requirements of Australian wool supply chains
EcoRange interviewed 13 representatives from the Australian wool supply chain, including wool brokers, scourers, top-makers, spinners, weavers, knitters, product manufacturers and retailers. The objectives of these interviews were to:

- determine current environmental specifications for wool supply chains;
- identify the types of environmental assurance schemes used in the wool supply chain; and

5.2.1 Environmental issues identified by wool supply chains
The majority of the respondents said environmental issues at the farm level had only a small effect on their trading/processing/ manufacturing decisions. Most respondents regarded their own businesses’ effluent and wastewater disposal as being a bigger problem than anything else occurring at the production end of the chain. However their responses depended greatly on their respective stage in the wool supply chain.

The organisations most affected by environmental issues were the scourer/top-makers. They are at the first stage of wool processing and are responsible for producing more waste than the later stages. Waste disposal is regarded as their biggest problem and the hazardous content of the waste they produce is related to the chemicals that are applied during wool production. These businesses have their effluent and wastes monitored by the Environmental Protection Agency (EPA) and their greatest concern with environmental issues was meeting EPA regulations.
The fabric weaver and knitter respondents rated environmental issues as having little effect on their businesses. They both mentioned that environmental issues have the most effect at the stages before (scouring) and after (dyeing) their stage in the wool processing chain. Once again EPA regulations were a high priority for these businesses.

The knitter/clothing manufacturer said that the European standards were very strict on the use of certain dyestuffs in the garment. They were very conscious of what chemicals and dyestuffs were being used to dye fabrics as they were aware that these would be tested and audited by some of their international clients.

Almost all of the respondents indicated that environmental specifications had little or no effect on the wool purchasing decisions of their current customers. One of the top-makers said, ‘They want the lowest cost of conversion. They are not concerned about effluent controls or the environmental side of things’. However there were a few exceptions. The wool broker claimed that some of the Italian buyers were starting to consider environmental issues and a fabric weaver and knitter had spoken with Japanese clients who now included the use of recyclable materials in their corporate policy.

Most of the respondents indicated that no environmental specifications were included when placing orders for products. However, again there were a few exceptions. One scouring company had a customer that processed about 12 tonnes of organic wool through them for a market in England.

Another top-maker has some clients that request the use of a special biodegradable scour detergent. This is called the ‘green wool’ option. A spinner, weaver and finisher company said that they had an export customer in the United Kingdom who had an environmental code of practice. However this code specifies processing practices and the chemicals that can be used for processing, and does not specify wool production practices.

5.2.2 Environmental assurance and wool supply chains

Most of these businesses claimed to be aware of the purposes and processes of environmental assurance. However, when it came to naming the ones they used, there was a wide variety of responses which indicated that environmental assurance meant different things to different organisations in the wool chain. A few of the respondents named processing standards as their form of environmental assurance. Some said they used the ISO 9002 standard for quality of processing and one said their business used Oko-Tex. Two of the other respondents used vendor declarations to provide an assurance that the raw wool supplied was free of chemical residues. Four of the respondents had their own internal systems for waste and water controls, wool-buying activities, and reduction of energy use, and two used the ISO 14001 system. Three of the respondents had no environmental assurance scheme at all.

EcoRange interviews with businesses in the wool supply chain indicate that the following key issues be considered when developing a credible and workable environmental assurance scheme:

- It should be standardised across the wool and textile industries at both the fine and broad end of the wool fibre-diameter production spectrums, and a whole-of-chain approach was necessary;
- It should be integrated with all parts of a total quality management system, including occupational health and safety;
- It would require proper marketing and promotion to create consumer acceptance, possibly with promotion by The Woolmark Company;
- Some respondents believed it would require third-party auditing through bodies such as AWEX (Australian Wool Exchange) and AWTA (Australian Wool Testing Authority);
- Others thought that their own internal monitoring of chemical residues and wastewater quality was enough;
- Some thought that a system of identifying chemical residue status of the raw wool or wool product was all that was needed.
• The system should be promoted on the final garment’s swing ticket so that the consumer understands the care that has been taken with the production, processing and manufacturing of the product.

5.2.3 Demand for environmental assurance in wool supply chains

As in the fresh food industry, processors and retailers are defining the environmental requirements of wool production systems. They do this through procurement policies that contain environmental considerations, which are placing increasing pressure on suppliers and producers to provide evidence that their environmental and other performance criteria have been met. Private companies are not subject to the rulings of the World Trade Organization, and thus are able to use their marketing power to set world standards for wool production.

While environmental legislation is the main reason for wool supply chain concern about environmental impacts of processing in Australia, the most important factor driving the implementation of an environmental assurance scheme for their businesses was customer demand. Occupational health and safety, ethics, waste-handling efficiencies, and cost were other less important reasons for adopting environmental assurance.

In terms of using environmental assurance to attract or retain business, only four of these businesses said that this would assist in retaining current customers. However seven thought that environmental assurance would attract new customers in the future. Some believed that while price was the governing factor for current clients, environmental assurance may attract new clients in the future as consumer demand for ‘environment-friendly’ products increases. Others felt that consumers will never really drive demand for the adoption of environmental assurance along wool supply chains, but environmental legislation will force them to do this.

All interviewees identified some reasons why they felt market opportunities would exist for certified ‘environment-friendly’ wool from Australia. Many felt that Europe would begin the enforcement of environmental standards on the production and processing of wool. The use of standards such as ‘Eco-Tex’ and the EU Eco-label for textiles in European countries is likely to make their consumers more environmentally aware.
6. Conclusions and recommendations

6.1 Consumer perceptions and market potential

Consumers who value the environmental credentials of products to the extent where this overrides other attributes make up 5–15 per cent of the population, and these are also often willing to pay premiums of around 10 per cent for products that have high levels of environmental performance. However for a number of reasons these consumers purchase very few ‘environment-friendly’ products, placing these in the niche market category. Market share for these ‘green’ products is mostly around just one per cent, and consequently there are limited market opportunities for producers of these products.

Consumer interest in ‘environment-friendly’ food and fibre has most likely arisen from their growing concern for intensive agricultural practices, where they have associated this with unsafe levels of pesticides in food, diseases that can be transferred to humans, over-use of antibiotics and growth hormones, and genetic engineering. Foods produced by natural, organic and less intensive practices are often more highly regarded by consumers in many countries. These are associated with personal health and wellbeing, and are a higher priority for consumers than is environmental protection.

While ‘green’ markets are limited, many affluent consumers in Australia and overseas have a well developed interest in ‘environment-friendly’ food and, to a lesser extent, fibre. However, for most of these consumers this interest does not translate into purchases, as the environment is a lower priority than brand, quality, safety, price, convenience, and country of origin, and they do not understand the environmental aspects of food and fibre production. Approximately 50 per cent of consumers in Australia, the United States, the United Kingdom and a number of countries in Europe would like to purchase ‘environment-friendly’ products providing these also possess their priority attributes. These consumers represent a significant untapped market segment, with limited availability of ‘environment-friendly’ products that also possess priority attributes being the biggest impediment to sales.

Market share has also been limited by a lack of consumer confidence in claims that products are ‘environment-friendly’, as many have proven misleading or false, and in other cases so-called ‘green’ products were not suitable for their intended use. It appears that consumer trust and therefore market potential for ‘environment-friendly’ products will be increased if environmental assurance is based on third-party auditing and widely accepted national standards.

Safe and healthy foods produced by natural or organic farming methods that do not harm the environment, and which have the quality, value-for-money and other attributes equivalent to conventional products, appear to be very attractive to affluent consumers.

EcoRange research indicates that consumer demand exists for environmental assurance and the challenge lies in gaining consumer understanding and acceptance of the concept. The decision on which way to proceed from here must depend upon the level of support within supply chains together with the resources and budget allocated to marketing the scheme.

The following marketing strategy is targeted at the market segment of consumers who are currently predisposed to purchase ‘environment-friendly’ food, including the 5–15 per cent of consumers who currently purchase ‘environment-friendly’ and organic products, as well as those who are considering this but who do not yet buy these products. This is a marketing strategy for market-oriented environmental assurance, and therefore is associated with the second level of environmental assurance described in Pahl (2003). This involves the use of standards of environmental assurance that are suited to value-chain trading, where products with certified intrinsic and extrinsic qualities are produced for high-value market segments.
The additional environmental and social requirements of the wider community are not addressed by this strategy, as these are currently above and beyond the capacity of supply chains. Complementary mechanisms, associated with the third level of environmental assurance in agriculture, are recommended for delivering wider community requirements (see Pahl 2003).

6.2 Marketing strategies

Given that there are some opportunities for ‘environment-friendly’ products in appropriate target markets, the next step is to develop marketing strategies that could be used to reach the consumers in them and determine what steps are likely to maximise uptake of the concept.

Market-oriented environmental assurance should be developed in response to consumer demand for ‘environment-friendly’ products, and its design should be based largely on the requirements of consumers and supply chains, with consideration given to the expectations of other stakeholders.

It is concluded that some opportunities exist in niche markets for ‘environment-friendly’ food and fibre, particularly in Europe and Australia. Environmental assurance should be used as a means of differentiating branded products in these markets, with the aim of adding value to traditional food and fibre products. In all cases the environmental credentials of a product should be marketed in conjunction with consumer priorities for safe and quality food and fibre, and particularly attributes that consumers associate with their health and personal wellbeing.

The following marketing strategies are mainly aimed at the Australian domestic market, but they are also generally relevant to international markets provided appropriate account is given to slight differences in consumer requirements.

Environmental assurance scheme

For any environmental assurance scheme to be successful, it should produce a clearly differentiated product and add value at each point along the supply chain. The scheme must be well supported and involve the participation of all links in the supply chain through to the retail outlet.

In terms of consumer acceptance, the scheme will need to meet specific criteria. It must be:

- easy to understand;
- associated with environmental issues that are of concern to consumers;
- clearly identified on packaging;
- associated with widely and consistently available product/s;
- certified by a recognised and trusted organisation; and
- based on a national standard with government endorsement.

Target market

There is little indication that a specific demographic group is more likely to purchase environmentally assured food and fibre products. The target market is likely to be diffuse, consisting of people with leanings towards particular environmental issues, those with knowledge of production process, those that are concerned about food safety, and those who already buy ‘environment-friendly’ and/or organic products. These consumers are likely to fall into a number of socio-economic groups.

Targeting those who are already predisposed to ‘environment-friendly’ products, both in their purchasing behaviour and personal beliefs, will provide the easiest point of entry into the market. For example, those currently buying organic meat also show a willingness to purchase ‘environment-friendly’ meat. However, this group is likely to be the most demanding in terms of the validity and credibility of the environmental assurance scheme. There are also small market segments in most countries, accounting for 5 to 15 per cent of consumers, who are already actively purchasing ‘green’ household products. In many cases equivalent ‘environment-friendly’ foods, particularly those
carrying a trusted eco-label, are not available, but these ‘green’ consumers would be predisposed to ‘environment-friendly’ food and fibre if it were. Getting it right with these groups can provide a catalyst to the wider market. It is recommended to start with those who have leanings towards purchasing ‘environment-friendly’/organic products and grow the market from that base.

**Communication**

Careful consideration must be given to the way information is communicated to consumers, as it is important to generate awareness of the scheme with clear and credible messages. The research found that consumers are sceptical about labelling, particularly claims of ‘Australian-owned/made’, the ‘Heart Tick’, and self-declared environmental claims. For environmentally assured products to be accepted, the communication must emphasise what the scheme means and how it operates, the environmental and personal benefits of the scheme, and why the organisations responsible for developing and regulating the scheme should be trusted. Consumers must have a clear understanding of the production practices associated with an industry sector, the potential environmental and human impacts associated with these, and how product claims are regulated and verified.

While there is no one individual environmental issue that consumers associate with the production of livestock, issues such as salinity, soil erosion and use of chemicals have been mentioned. Consumers are currently purchasing ‘environment-friendly’ products that have benefits they can visualise, for example, fruit free of chemical sprays. It is likely that the environmental issues of rangelands meat and wool production are less easy to visualise and therefore the impact of these issues will require careful communication if the scheme is to appeal to a broad audience. Consumers should be able to visualise the link between what the graziers are doing and the product they are purchasing and, importantly, be able to appreciate the benefits.

The challenge lies in bringing all of this together into one clear message for consumers. The use of editorial and infotainment sources will be helpful as will point-of-purchase information and in-store promotions.

**Product differentiation**

Environmental assurance provides one means of differentiating a product, either through a national eco-label that signifies high overall environmental performance, or through a single high profile issue such as saving dolphins. However, there is little consumer awareness of what exactly ‘environment-friendly’ or ecologically sustainable means in relation to food and fibre products, as they usually have very little understanding of production practices and their implications. This is why high-profile environmental issues provide simple but powerful marketing messages.

Most Australian consumers equate ‘environment-friendly’ with organic, while organic is understood as meaning chemical-free. The first challenge is to ensure that consumers have a clear understanding of the difference between ‘environment-friendly’ and organic products, while at the same time ensuring that ‘environment-friendly’ is associated with personal health and wellbeing. A major strength of environmental assurance is its capacity to verify high levels of environmental performance, which could be used to distinguish it from organic certification. Environmental performance is not formally addressed by organic certification, and is regarded as a weakness of this standard.

In differentiating a product through environmental issues, attention also needs to be given to other criteria that will influence the buying decision. Environmental assurance needs to be linked to features such as quality, food safety and animal welfare to ensure that a wide range of consumer requirements are met.

**Key product benefits**

‘Environment-friendly’ food and fibre must have clear and credible benefits. To begin with, the environmental benefits should be a high-profile issue of concern to consumers, a government- and
stakeholder-endorsed label signifying a high level of overall environmental performance, or some combination of these. The product should also have direct health benefits associated with ‘natural’ production practices that do not involve chemical residues, genetic modification, hormones and antibiotics, as well as indirect health benefits that arise from clean water and air, and a lack of greenhouse gases or ozone-depleting chemicals. These products should be good for people and good for the environment. Products must also be perceived as value-for-money, with benefits in the form of eating qualities such as taste, nutrition, and appearance, as well as being readily available, easily distinguishable, and convenient to use.

**Product price**
The most critical issue for consumer adoption of ‘environment-friendly’ products will be price or, more importantly, value. Value takes into account the retail price and the quality and attributes of the product. Consumers expect that they will have to pay a price premium for products that meet the requirements of an environmental assurance scheme. The research indicated that 18 per cent of consumers would be prepared to pay a 10 per cent premium for meat produced with concern for the environment. In this regard, for a product to generate sufficient trial, the price premium should be no more than 10 per cent compared to regular prices. The lower the price premium, the more new users will be attracted into the market. Even those who currently buy such products are unlikely to accept a price premium greater than 10 per cent.

The reasons for products produced in accordance with environmental assurance being more expensive need to be identified and communicated to consumers. In this way consumers can be made aware of the additional costs of achieving and providing assurances on sustainable production, and the additional benefits associated with these products. At the point of purchase, consumers should be thinking: ‘This is about the same price as I normally pay but I know it’s better for me and for the environment.’

6.2.1 **Recommendations for marketing strategies**

1. Market-oriented environmental assurance in agriculture should be developed in response to consumer demand and requirements for ‘environment-friendly’ food and fibre, rather than the expectations of the whole community (eg government, research organisations, environmental and other community groups).

2. Opportunities exist in niche markets for ‘environment-friendly’ food and fibre, particularly in Europe and Australia, and environmental assurance should be used as a means of differentiating branded products in these markets, with the aim of adding value to traditional food and fibre products.

3. In all cases the environmental credentials of a product should be marketed in conjunction with consumer priorities for safe and quality food and fibre, and particularly attributes that consumers associate with their health and personal wellbeing.

4. Environmental assurance should provide credible regulation and verification of claims of ‘environment-friendly’ production or products, with third-party certification in accordance with national standards being the model most trusted by consumers.

5. The target market segment should consist of consumers who already have a leaning towards ‘environment-friendly’ products, being those who regularly buy organic food and who consider environmental issues during purchase decisions. A high proportion of consumers have a latent propensity to purchase ‘environment-friendly’ products, and this could be mobilised by success with the small market segment that currently purchases organic and ‘green’ products.
6. Communication of the environmental assurance scheme to consumers is vital. This must emphasise stakeholder support for the scheme, environmental and personal benefits, how it operates, and that the organisations responsible for regulating it are reliable. Consumers need to be able to visualise production practices associated with food and fibre and appreciate the superiority of labelled products.

7. ‘Environment-friendly’ food and fibre must have clear and credible benefits. At the point of purchase, consumers should be thinking: ‘This is about the same price as I normally pay but I know it’s better for me and for the environment.’

8. Price premiums are expected for products with assured environmental credentials. However these should be no more than 10 per cent, as only a very small proportion of consumers will tolerate higher prices.

9. In terms of further research, there is merit in more closely identifying potential target markets and determining their core requirements for ‘environment-friendly’ food and fibre. It will then be necessary to test communication strategies and concepts with these market segments.
## Appendices

### Appendix 1. Persons and organisations included in market research

### Australian consumers

- **Focus Group Research** - 20 consumers (Brisbane)
- **Consumer Survey** - 605 Australian households (main grocery buyer)

### International wool and meat supply-chain sectors

- one beef importer in the United Kingdom
- one major supermarket chain in the UK
- United Kingdom government agency responsible for food safety and labelling
- Linking Environment and Farming (LEAF) in the United Kingdom
- Belgium lamb importer
- four Japanese cooperatives
- eight Japanese meat importers
- two Japanese restaurant chains
- two Japanese supermarket chains
- one Japanese delicatessen and a food service hotel
- four leading US beef and lamb importers

### Australian wool and meat supply-chain sectors

- ten Australian meat processors/wholesalers
- four Australian meat retailers, including two major supermarket chains
- thirteen wool supply-chain companies, including brokers, scourers, top-makers, spinners, weavers, knitters, manufacturers and retailers
## Appendix 2. UK consumers and the environment

### Table 1. A classification of UK consumers (from NCC 1997).

<table>
<thead>
<tr>
<th>Purchasing</th>
<th>Affluent Greens (19%)</th>
<th>Recyclers (19%)</th>
<th>Careful Spenders (19%)</th>
<th>Young Greens (17%)</th>
<th>Sceptics (26%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoided pesticides</td>
<td>61</td>
<td>37</td>
<td>36</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>Used water-based paint</td>
<td>33</td>
<td>15</td>
<td>30</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Bought ‘green’ products</td>
<td>59</td>
<td>3</td>
<td>11</td>
<td>27</td>
<td>-</td>
</tr>
<tr>
<td>Used low-energy bulbs</td>
<td>22</td>
<td>20</td>
<td>22</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Selected products for ‘green’ packaging</td>
<td>46</td>
<td>1</td>
<td>7</td>
<td>21</td>
<td>-</td>
</tr>
<tr>
<td>Bought organic food</td>
<td>22</td>
<td>6</td>
<td>11</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Bought phosphate-free washing powder/liquid</td>
<td>21</td>
<td>5</td>
<td>5</td>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>

| Recycling                         |                       |                 |                        |                   |                |
| Saved newspapers                  | 68                    | 91              | 22                     | 38                | 13             |
| Took bottle to bank               | 62                    | 84              | 5                      | 21                | 5              |
| Kept cans for recycling           | 32                    | 45              | 3                      | 13                | 2              |
| Made compost out of kitchen waste | 28                    | 17              | 9                      | 5                 | 3              |

| Consumption                       |                       |                 |                        |                   |                |
| Kept down use of electricity/gas  | 39                    | 49              | 69                     | 59                | 12             |
| Cut down use of water             | 35                    | 36              | 57                     | 41                | 3              |
| Cut down on car use              | 22                    | 28              | 53                     | 2                 | 3              |

### Overview of green consumer profiles

The Recyclers constitute 19 per cent of the population, and are defined as follows:
- They are keen recyclers of glass, bottles, metal cans, etc.
- Their other environmental behaviour is contradictory – they generally do not cut down on consumption of utilities and water.
- They avoid purchasing ‘environment-friendly’ products – are large consumers of goods and services although could not be described as ‘green’ shoppers.
- The majority are over 35 (70 per cent), 29 per cent are over 55, and over half tend to be on higher incomes (59 per cent).

Affluent Greens are dedicated buyers of ‘environment-friendly’ products and account for 19 per cent of the population. They are defined as follows:
- They are aged between 25 and 50 and tend to be female.
- They have the largest consumption of overall goods and services as well as ‘green’ products.
- They agree that most ‘environment-friendly’ products are more expensive but are prepared to pay for them.
- 59 per cent regularly buy green products, while 40 per cent have bought them a few times.
- They disagree with the common perception of other groups that ‘environment-friendly’ products do not work as well.
- The main barriers to their increased ‘green’ consumption are not enough ‘environment-friendly’ products available and not enough information distinguishing between ‘environment-friendly’ and non-‘environment-friendly’ products.
- 22 per cent regularly eat organic produce and 58 per cent bought it a ‘few’ times.

Young Greens are the smallest group (17 per cent). They are defined as follows:
- They are predominantly young people on low incomes (almost 60 per cent earn less than $10,000/year) – either students or unemployed.
• 47 per cent always try and buy green products.
• Like the Affluent Greens they tend to ‘trust environmental claims’ and believe these products are ‘better for the environment’.
• They believe that environmental purchasing will make a difference.

Careful Spenders constitute 19 per cent of the population. They are defined as follows:
• They tend to be cautious with their money and are not ‘particularly well-off’.
• They do not buy ‘environment-friendly’ products that do not have an associated economic benefit.
• They believe ‘green’ products are more expensive and do not believe a lot of the claims.

Sceptics make up 26 per cent of the population. They tend to:
• Doubt that they can have an influence on the environment
• Be low-income earners or unemployed
• Make no regular purchasing of ‘environment-friendly’ products
• Have very little environmental behaviour and believe ‘environment-friendly’ labels are ‘marketing garbage’.
References


Smith, A. (2000). Queenslanders’ Attitudes Towards Everyday Food Items; Rural Industry Business Services Group, Department of Primary Industries, Queensland.

