



Sustainability Trends in Key Overseas Markets: Market Drivers and Implications to Increase Value for New Zealand Exports

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Tim Driver

July 2010
Research Report No. 319



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July 2010

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Executive Summary

This report examines trends in consumer concerns regarding sustainability in key overseas markets for New Zealand. These trends are affecting and will continue to affect what consumers buy and the premiums they will pay. The implications of these for New Zealand are explored in this report. The report also extends to other issues that may have potential to impact on our exports.

The changing international policy environment, especially within developed countries, reflects the breadth of sustainability initiatives. This includes environmental regulation and schemes affecting many products. This also includes targets for reduction in CO₂ emissions with the EU targeting a 20 per cent reduction.

Of particular concern to New Zealand is the development of agri-environmental policies. In the EU the introduction of the Single Farm Payment increasingly requires farmers to meet social and environmental criteria. In addition, the EU subsidises farmers to meet more stringent environmental standards. The US also has working land conservation programmes which reward farmers who incorporate sustainable practices in production.

However, much of the move towards sustainability in markets is being driven by the private sector and retailers. This is seen with the development of GLOBALGAP - a compliance regime developed by retailers which now incorporates around 80,000 producers in over 80 countries. Also, many retailers have developed their own schemes to attract market share. These include the Red Tractor Scheme, major international retailers acting as “gatekeepers” for sustainable goods, retailer ‘sustainability promotion’ schemes (such as Tesco’s Fresh & Easy, Marks & Spencer’s Eco-Plan A), and other schemes.

Similarly, consumer attitudes and behaviours are changing, particularly within premium segments. Many consumers are reacting to the associated environmental and social impacts of the products they are purchasing, and seeking out products that promote sustainable practices in production and consumption. This can be seen with the rise of the Slow Food movement and the LOHAS (“Lifestyles of Health and Sustainability”) movement, which includes consumers within USA, UK, China, France, Japan, and many others. Related to these trends is the growth in ethical food and fair trade. These markets have continued to grow during the recession, although, as they tend to focus on developing countries’ exports, this is of less relevance to New Zealand, but does stress the importance of social issues as well as environmental concerns.

The issues which, and have the potential to, influence markets include those relating to climate change, such as carbon footprinting and /or reduction in carbon emissions. Tesco has taken the lead in the application of carbon footprinting, and this has been taken up in many countries. However, the actual calculations and use of footprints has been slow due to the difficulty of measurement, and some retailers have moved away from following this policy, deciding to reduce their own footprints. New Zealand has to be aware of this requirement for some markets, and also the issues around carbon measurement ensuring that international standards apply and no certification agency obtains market power.

Another growing issue is around water quality and quantity. There is the potential for the introduction of “water footprinting” schemes to show consumers the associated water used to produce an item with water footprint calculators available. This has potential to affect New Zealand as, firstly, meat has a relatively high water footprint to other products, but also New

Zealand, with its relative abundance of water, has a high water usage to other countries which do not, such as parts of Australia. Of more relevance to New Zealand is water quality. The rapid change in land use in New Zealand has led to increase in nitrates discharged and, whilst this has been from a much lower base than other countries, does have the potential to reduce the perception of New Zealand as clean and green.

Many countries overseas have policies towards protecting biodiversity and wildlife on farms. This reflects the multi-functionality of land use in some countries. In New Zealand, due to its large conservation areas, there has not been the same imperative or priority to protecting biodiversity and wildlife on farms. However, more and more overseas market access schemes for premium segments of the market are requiring this. This is reinforced by subsidies for wildlife and biodiversity protection and enhancement.

Animal welfare is stated by some as the most important concern of consumers in some markets at present. There is a growth in concern from intensive farming systems which does not affect New Zealand as much as other countries. However, concerns still exist, such as tail docking of lambs; castration without anaesthetic; abortion of cows, and winter shearing of sheep.

Concern about the environment has also led to demand for lower meat and dairy consumption. This is due to the relatively high level of emissions from livestock, among other issues such as water use and efficiency of calorie production. Thus various schemes are in place internationally encouraging lower meat consumption, as well as major government procurement agencies reducing meat purchasing.

A growing trend is the campaign to eat local food, arising out of environmental concerns, as well as concerns about the recession, with the aim to support local communities. The issues for New Zealand are that local foods are not necessarily better for the environment (such as shown by Food Miles), and also not an option for feeding large populations but just niche markets. Thus, there has been an increase in farmers' markets (marketplaces in which farmers sell their products directly to the public), community-supported agriculture (community-based procurement of food products from a communally owned/operated farm), food box schemes (in which sellers take produce from the farmer and deliver these directly to the consumer). For New Zealand, the challenge is to effectively market its food based upon the social and community values in New Zealand.

There is growing demand for products which provide health benefits aside from basic nutrition, generally known as functional or fortified foods. This is especially true of Asian and ageing markets, both of which are growing.

Many of the issues above relate to, or rise from, developed markets. However, there is growing evidence that the developing markets especially in countries such as China are also requiring similar attributes. Asian markets tend to pay premiums for natural attributes which as a characteristic is very similar to sustainability in European markets. Moreover, the growth of the supermarket sector in countries such as China and the movement of western chains such as Wal-Mart and Tesco into these markets mean that the procurement policies are likely to meet international standards.

Chapter 1

Introduction

This report examines trends in consumer concerns regarding sustainability in key overseas markets for New Zealand. These trends are affecting and will continue to affect what consumers buy and the premiums they will pay. The implications of these for New Zealand are explored in this report. The report also extends to other issues that may have potential to impact on our exports.

Sustainable development itself is a politically defined term, which was defined by the Bruntland Commission as development that ‘...seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future’ (WCED 1987, p. 43). Since 1987 sustainability has increased in importance in government legislation, corporate policy and consumer attitudes. There is an economic theory around the definition of sustainability in the academic literature¹ which has generally been taken up into government legislation and corporate standards.

In general there has been rising concern about the sustainability of current lifestyles and consumption. There are three ways humans interact with the environment. Firstly, we interact through resource use such as fossil fuel consumption and this has led to concerns about resource depletion and need to increase our reliance on renewable resources. Secondly, there is the use of the environment as a sink for wastes and its absorptive capacity leading to concerns about pollution such as greenhouse gases. Finally, there is the use of the environment for amenity and aesthetic qualities (both use and non-use) with, for example, concerns about loss of landscape.

For consumers, however, sustainability can have very varied meanings and be interpreted in different ways. This report will focus on the ways that consumer concerns are affecting and manifesting itself in consumer behaviour in overseas markets and how this is likely to affect NZ exports. The report will focus on the high-value premium market segments which currently are discernable in the developed markets; however it will also include emerging markets and their trends where appropriate. Initially the report will review some of the regulatory changes and the context in which they will affect consumer behaviour; then the paper will focus on the current and future changes in behaviour.

The focus and drive for sustainability can be seen from a number of angles. In some cases, the market is leading this drive with retailers vying for high-value premium market share and thus increasing and specialising their market assurance schemes. Behind this are various groups of NGOs, both business and non-profit organisations, which provide standards, labels and organisational support for producers and retailers. Further, governments are tending to follow in this area with regulation and mandatory labelling being behind voluntary or market assurance schemes. However, there are areas where government intervention is much more proactive and this is in sectors where there is a history of government intervention, such as in agriculture or in areas where they have more traditionally been interventionist, such as health with nutritional labelling. This report will explore these issues.

¹ Economic sustainability has been defined as ‘non-declining per-capita human well-being (utility) over time’ by Solow (1986). Hartwick interpreted sustainability as non-declining consumption over time (Hartwick 1977). The combination of these requires ‘a non-declining capital stock over time’ (Solow, 1986, and Repetto, 1986) where capital stock is understood in its broadest terms to include human capital, social capital, cultural capital, human-made capital and natural capital.

Chapter 2

The Changing International Environment

2.1 Introduction

As stated above, governments, especially in developed countries, have adopted sustainability or sustainable development as a general high-level goal of policy. This permeates many levels of government. Many companies have also adopted sustainable criteria for their operation. This includes general factors such as concern for the environment, social responsibility and recycling.

2.2 Agricultural and environmental policy

Agriculture is New Zealand's main export, and it is in this sector that some of the greatest changes in demands for environmental attributes of production and processing are being seen. These are both consumer- and retailer-driven, but also from government support to this sector. This section will discuss in brief the development of environmental considerations in agriculture and how subsidies are increasing for agri-environmental policies.

Historically, market access was the biggest impediment to NZ exports and this still exists. However, changes in key policies overseas have meant increasing relaxation of trade-restricting policies. Policy focus overseas has now shifted towards environmental protection and enhancements with associated subsidies. This has the potential to impact on NZ exporters as these may become requirements for New Zealand to access these markets.

This can be seen most clearly in the EU Common Agricultural Policy (CAP) which for decades paid its farmers a minimum price for products. The EC was founded by the Treaty of Rome in 1957, with Article 39 concerned with the development of a common market and policy for agriculture which was seen as essential for the formation of the EC. It is not surprising that this policy followed the previous practice of continental Europe, restricting imports in order to raise domestic prices.

The basic system of support in the CAP was, and to some extent still is, based upon the fixing of institutional prices. These institutional prices were, in the case of most commodities, set well above world market prices. This led to increases in production within the Community, aided by increases in productivity through technological change. Thus self-sufficiency increased and the EU became a major exporter of temperate zone products, disrupting world markets further, especially for traditional food exporters like NZ.

The CAP policy led to environmental damage on farm land in Europe and a resulting concern by the general population about environmental degradation. This led to initiatives to restore or save habitats, as early as 1981 in the UK. The first EU-wide regulation which permitted governments to introduce environmental incentive schemes was introduced in 1985 and extended in 1987 with part EU funding. These allowed for Environmentally Sensitive Areas (ESAs) where farmers get subsidies for farming in an environmentally friendly manner. They currently cover over 25 per cent of the EU agricultural area. Despite the introduction of ESAs, concern continued to grow about the environmental damage that the CAP encouraged and also the contradiction in policy that meant on the one hand farmers were being subsidised to intensify and cause environmental damage while on the other hand they were subsidised to reduce that damage.

In the Agenda 2000 reform the EU changed the objectives of the CAP and broadened the policy to a rural environmental management policy. This included that the policy had to ensure that environmental issues are taken into account. In 2003 the most radical change was made with the introduction of the Single Farm Payment (SFP). This was a huge positive change in policy from market-based support (which historically has caused, and continues to cause, hardship for New Zealand producers) towards direct payments to farmers based on social and environmental criteria. The budget for this is 75 billion Euros per year, which is comparable to New Zealand's annual national income. Additional incentives such as the ESA continue as well as other additional subsidies such as payments to farmers who join food quality certification schemes and consumer information campaigns. The SFP scheme is currently set to continue until 2012 and will certainly continue after this (EU Regulation 1257/99).

There is currently a review of the CAP, the 'CAP Health Check'. The proposals include a stronger environmental focus in the new proposed CAP. The key aim is to make agricultural production more market driven and so reduce financial support to farmers with trade distorting interventions. Farmers must also protect wild birds and conserve natural habitats of wild flora and fauna. They must also take measures to protect groundwater and soil pollution, in particular against nitrates from agricultural sources. Indeed comments have been made that the Common Agricultural Policy is becoming more of a Common Environmental Policy and the latest proposals include an extra two billion Euros intended to be allocated to specific schemes which address the new challenges facing the rural environment; that is, climate change, bioenergy, biodiversity and water management (Agra Europe 2008).

In 2009, a European Commission conference in Athens outlined an eight-point plan known as "The Message from Athens" to increase concerns towards natural protection, and to further define the EU biodiversity policy. Attendees including leading scientists, politicians, economists and academics outlined an eight-point plan, containing ideas that would increase awareness of the full spectrum of nature protection, including protection of biodiversity in Europe and globally, a call for a better understanding of why bio-protection matters, and where bio-protection currently sits in Europe, as well as the establishment of a "fully functioning network" of protected areas in Europe and integration and funding towards bio-protection and its relation to Climate Change issues (European Commission, 2009). The general consensus of the conference outlined that humanity's relation to nature is the basis of all human economic and social well-being, and the importance of protecting bio-diversity should be considered "a universal political priority" (European Commission, 2009). These changes are not limited to the EU, and the US has also updated their policies.

The US Farm Bill (2008) also has extensive proposals for conservation of land. The new Conservation Stewardship Program aims to reward producers for good stewardship and resource management as well as incentivising new conservation initiatives. The programme intends to cover 115 million acres by 2017. In addition there is increased support for working land conservation. The Environmental Quality Incentives Program is to grow by US\$3.4 billion up to 2017.

In addition to the US Farm Bill, in 2009 the United States Department of Agriculture (U.S.D.A.) launched the "Know Your Farmer, Know Your Food" campaign, also known as the KYF Initiative. As stated on the KYF Initiative website: "This is a USDA-wide effort to create new economic opportunities by better connecting consumers with local producers". The initiative also encourages the public to engage in a better understanding of the origins of their food, and to better comprehend to connection between food production and consumption, and the associated processes and environmental risks (Hardesty, 2010). Their

website provides key resources to consumers interested in promoting these concepts, including a farmers' market search engine enabling users to find a local farmers market, and downloadable resources, such as loan applications for local food programs and nutritional and other information to help inform users on their purchasing behaviours (USDA, 2010). Under the KYF Initiative link on the USDA homepage, the USDA Organic Label is heavily promoted as an alternative option for concerned consumers (USDA, 2010). The KYF Initiative will provide regional farmers with a total of US\$4.8 million for the development and proliferation of regional food systems, compared to the US\$35 billion guaranteed to large agricultural producers as outlined in the 2008 US Farm Bill (Estabrook, 2010).

The changes in agricultural policy towards environment protection and enhancement described above have the potential to affect NZ in a number of ways. There is the potential of these countries to introduce restrictions on trade in products not produced under the same conditions, although under current WTO rules this would be difficult. The real threat comes in the link between the change in policy and the growth in market assurance schemes. These market assurance schemes are driven by retailers and suppliers and cover the whole of the supply chain. They are growing in importance and indeed are a requirement to enter some key supply chains. There is also currently high emphasis on the reduction of carbon emissions within many facets of international policy.

The UK Government has recently released their plan for reduction of carbon emissions before the year 2030, entitled Food 2030. Goals include the promotion of consumption of healthy, sustainable food, as well as food production practices that: use global natural resources sustainably, enable the continuing provision of the benefits and services a healthy natural environment provides, promote high standards of animal health and welfare, protect food safety, make a significant contribution to rural communities, and allow the UK to show global leadership on food sustainability. The report calls for the UK food industry to reduce carbon emissions by 20 per cent (in alignment with other UK policy), reduce water usage by 10-15 per cent, and generally reduce waste products by the year 2030. Also outlined within the report are plans to improve food security by establishing strong UK agriculture and food sectors and international trade links with the EU and global partners, with the final goal of establishing a low carbon food system in which resources are used efficiently; any waste is reused, recycled or used for energy generation. The report also outlines potential actions to ensure that this goal is achievable and conceptually accurate (HM Government, 2010).

A similar report was produced by the UK government agency, Department of Environment, Food and Rural Affairs (D.E.F.R.A.), in 2006 entitled Food Industry Sustainability Strategy. The report outlines a broad-spectrum action plan for improving sustainable practices across the UK Supply Chain, with an emphasis on a holistic "whole system" approach in prioritised areas. Within this, the food industry is petitioned as a key sector within the UK to improve sustainable practices, as the industry accounts for about 14 per cent of UK energy consumption by UK businesses and seven million tonnes of carbon emissions per year. The Food Industry Sustainability Strategy thus encourages producers to: deliver new products and services with lower environmental impacts across their lifecycles, contribute to sustainable development by voluntarily improving practices, adopt widely energy best practice, reduce carbon emissions by 20 per cent by 2010, increase current levels of engagement with the Government best practices programmes (i.e., Envirowise and the Waste Reductions Action Programme), reduce water use by between 10 and 15 per cent by 2020, and improve vehicle fleet utilisation and efficiency. Also included in the report are initiatives to improve general public health and nutrition, as well as the encouragement of ethical products (i.e., fair trade, animal welfare), addressing issues of shortfall within required industry skills, and the

implementation of better regulation to ensure that environmental or sustainable practices are carried out within the food sector (DEFRA, 2006).

Other governmental or semi-governmental agencies are also encouraging nations to adopt “greener” practices. The Organisation for Economic Cooperation and Development (OECD) regularly produce Environmental Performance Reviews of nations to assess their impact on the environment, with particular reference to their economic performance. Recently the OECD carried out an Environmental Performance Review of Greece in which there was given a list of 44 recommendations to “go green”. This would be achieved with the introduction of new, and improvement of old, green taxes, a move which the OECD argues would increase Greek revenues and help strengthen public finances (AgraEurope, 2010).

The recent Copenhagen Climate Conference of 2009 had generated hopes within global leaders of industry to outline clear and concise guidelines for combating climate change. The outcomes of the conference included a commitment to reducing global temperature by two degrees (Celsius), as well as many other important provisions, including US\$30 billion in “new and additional” resources to assist developing countries to reduce their carbon emissions. However, contrary to expectations, the conference did not conclude with developed countries committing to legally-binding emissions reductions, as well as a lack of conclusive information in terms of a long-term goal to reduce global emissions or approximate peak times of global emissions (Pew Centre on Global Climate Change, 2009).

The UK Food Industry expressed disappointment at the outcome of the 2009 Copenhagen Climate Change conference. The UK Food & Drink Federation’s Director of Sustainability indicated that manufacturers were disappointed with the lack of concise information or a framework for practices and technology that could be implemented to reduce Greenhouse gas emissions (Just-Food.com, 2009).

The changing focus of the agricultural policy expenditure to aid farmers to meet environmental and social criteria does mean that this will aid farmers in the EU and the US to meet growing requirements of market assurance schemes from retailers which stress sustainability attributes of products.

2.3 Retailer policy

The importance of these policies and schemes can also be seen by the growth in EurepGAP (now GlobalGAP). In 1997, European retailers established EurepGAP by reacting to growing concerns of consumers regarding product safety, environmental and labour standards and deciding to harmonise their own often very different standards. GAP is an acronym for Good Agriculture Practices. It is a common standard for farm management practice, aiming to bring conformity to different retailers' supplier standards, which had been creating problems for farmers. Supply-chain quality control standards for Good Agricultural Practice (GAP) address environmental impacts of farm operations' worker health and safety, and animal welfare. GLOBALGAP is a private sector body that sets voluntary international standards for the certification of agricultural products. For developing countries GLOBALGAP is the most important private standards framework, particularly since January 2005 when European retailers made the certification under GLOBALGAP standards mandatory for its suppliers, including small-scale farmers in developing countries. It is now the world's most widely-implemented farm certification scheme. In 2007 GlobalGAP was formed as the single GAP scheme in the world. It is currently accrediting the various GAP schemes to ensure they meet the global standards. GlobalGAP certification is carried out by more than 100 certification bodies in more than 80 countries and is in the process of accepting country specific versions.

It has approved KenyaGAP, ChinaGAP and JGAP from Japan as well as the meat production in Uruguay. In May 2010 ThaiGAP was officially certified as being equivalent to the GlobalGAP standard. The GlobalGAP schemes include requirements or recommendations for environment and hygiene, environmental management including wildlife policy, groundwater, staff facilities, training, and health and safety for farmers. Whilst not all of these are “must dos” at present but only recommended, the subsidisation of EU and US farmers to meet these requirements will enable them to become “must dos” sooner. The latest update of the scheme is included in Version Three and carbon is absent from the standards at the moment. In September 2009 the consultation period for Version Four started in which water use appears to be the newest addition to the compliance criteria (GLOBAL G.A.P., 2009; Saunders, 2008).

Therefore the growth in market assurance schemes is important with most major retailers belonging to some schemes not just for agricultural production, but all products, and also across the whole of the supply chain. Many retailers, whilst belonging or using schemes such as GlobalGAP, also belong to others as well or have their own more stringent schemes. Waitrose (which accounts for 3.7 per cent of UK supermarket sales), for example, joined a scheme called Leaf Marque and has pledged that by 2010 all produce will be produced to the high sustainability standards under this scheme. These include minimising the use of pesticides, encouraging natural predators, retaining ‘green corridors’ to protect wildlife, conserving water and energy, and maintaining soil vitality through crop rotation. Leaf Marque was established in 1991 to promote integrated farm management as part of a European wide movement - the ‘European Initiative for Sustainable Agriculture’ (EISA). Similar projects operate in Germany, France, Italy, Sweden and Luxembourg.

Tesco has developed Nature Choice, an integrated farm management scheme introduced in 1992, which sets environmental standards and specifies shape, size, taste, variety and shelf life requirements of food. All of the 12,000 growers (domestically or internationally) from whom Tesco source product are registered with Nature Choice and all suppliers comply with the standards. This is a major factor given Tesco is the fourth biggest retailer worldwide with 30.7 per cent of UK supermarket share, shown in Table 2.1. This is compared to ASDA and Sainsburys; with 17.3 per cent and 15.9 per cent of the market, respectively. In contrast, the very cheap supermarkets in the UK have small market shares with Netto at 0.8 per cent, ALDI at 3 per cent and Lidl 2.3 per cent. This shows the dominance of the higher value end of the market in the UK. These data show the relative unimportance of the low price market share in the UK stressing the fact that the majority of UK consumers do not consider price as key variable when choosing supermarket.

Marks & Spencer has invested US\$400 million in establishing their Eco-Plan A campaign, in which they seek out more sustainable protocol for waste management and reduction and attempting to reduce their carbon emissions. The French retailer Carrefour is involved in promoting their “Locavore” campaign, encouraging consumption of local foods to reduce Food Miles of stocked products, as well as carbon counting. UK retailer Tesco has invested US\$1 billion in their Green Pledge, in which they intend to promote “a mainstream revolution in green consumption”. US giant Wal-Mart has also attempted to improve their chain efficiencies through their Good Steward campaign (ZESPRI, 2007). The importance of supermarkets as gatekeepers is highly significant, as it means that retailers will not be able to stock products that do not meet high sustainability standards, i.e., high Food Miles.

Table 2.1: Great Britain consumer spend

	12 weeks to 02 November 2008	Percentage Share of Total Grocers	12 Weeks to 01 November 2009	Percentage Share of Total Grocers	% Change
Tesco	6,228,468	30.6	6,521,371	30.7	4.7
Asda	3,443,222	16.9	3,669,899	17.3	6.6
Sainsbury's	3,197,227	15.7	3,374,885	15.9	5.6
Waitrose	758,215	3.7	851,587	4.0	12.3
Aldi	611,668	3.0	647,133	3.0	5.8
Lidl	471,626	2.3	497,606	2.3	5.5
Netto	161,104	0.8	163,020	0.8	1.2

Source: Garner (2009)

Note: Includes all expenditure through main store tills and excludes petrol and instore concession

An example of regulation includes the fact that all food processors in the EU must now comply with the Integrated Pollution Prevention and Control (IPPC) Directive, which aims to ensure reduction in industrial waste output and emissions affecting water, air, soil and climate change. The IPPC is based on a permit system that takes into account the whole environmental performance of a plant and the permits are managed by member states. To get the permit, processors must adhere to a set of standards of best available techniques (BATs). The BATs are based on information from experts, industry and environmental organisations, and are coordinated by the European IPPC Bureau of the Institute for Prospective Technology Studies at the EU Joint Research Centre. The result of this is the BAT reference document, which outlines processing techniques and technology that may be used by processing plants to guide how to reduce the pollutants resulting from their operation. The permits do not prescribe the use of any specific techniques or technology, and takes into account geographical and environmental conditions. The directive was previously compulsory for new plant installations and those undergoing substantial changes, but now applies to all processors. The directive forces companies to reduce the environmental impact of their operation.

Since 2003 the EU has been implementing its Integrated Product Policy (IPP) that seeks to minimize environmental degradation caused by product manufacturing, use and/or disposal. The objective is to look at all phases of a product's life-cycle and taking action where it is most effective. The tools to achieve the objectives include economic instruments, substance bans, voluntary agreements, environmental labeling and product design guidelines (European Commission, 2005).

Also involved within the IPP are two systems known as the International Reference Life Cycle Data System (ILCD) and the European Reference Life Cycle Database (ELCD). These are systems put in place to monitor the life-cycle of a product and evaluate the sustainability of a product. Within the minutes of the most recent IPP meeting, 12 June 2009, key notes taken included the recommendation to further promote these systems through implementing and monitoring requirements of EU and MS policies, and to provide a plan for the next 5-10

years for further development and maintenance of the ILCD/ELCD (European Commission, 2009).

The identification of products with a high environmental impact (an action called EIPRO) was finalized at the end of 2007, followed by the second phase known as IMPRO, which identified the life-cycle impacts of products such as automobiles, meat products and housing. Food and drink, private transportation and housing are together responsible for 70-80 per cent of environmental impacts. The EU is identifying possible ways in which the life-cycle environmental impacts can be reduced. A set of measures are foreseen, such as state aid, environmental management system, Eco-design, labeling and product declarations (Eco-label and Energy labeling), greening public procurement, green technology and legislation. The Eco-label includes several categories of products such as cleaning products, appliances (TV, computers), tourism, etc (European Commission, 2006). At the moment agricultural products are not included, although they may be included in the future. The IPP is an example of the upcoming trend towards improved environmental actions and correspondent labeling being driven from by government.

Chapter 3

Trends in Overseas Markets

3.1 Introduction

Over the last couple of decades there have been changes in consumer attitudes particularly in premium segments of the market. Consumers have demanded more credence attributes² for their products be it food or other. These have included environmental, social and ethical attributes and as consumers' income grows, these are set to continue further. Even with the recent global recession, evidence has shown that demand for credence attributes has not decreased.

This takes into account the various possibilities that consumers have for obtaining information about the quality and other attributes of products. In particular, for credence attributes of products. An example of this is labels that promote dolphin-friendly tuna; with this, consumers can identify (with the aid of a visually-clear label) whether the tuna they are purchasing promotes the welfare of dolphins within the procurement process, whereby they would not be aware of this otherwise. In particular, environmental information on a label are credence attributes of a product such organic food, low carbon footprint items but also information on technology that was used to produce the good such as genetically modified organism or irradiated food. (Karl & Orwat, 2000).

A common method to reduce information asymmetry between consumer and producer is to conduct external audits. Products then are checked against determined criteria and when they meet these standards the producer can display the logo of the awarding third-party institution. This may contribute to improve acceptance, credibility and comprehensibility of information about certain attributes of products.

3.2 The LOHAS market

The LOHAS market is growing substantially. The abbreviation stands for “Lifestyles of Health and Sustainability”, this terms was first coined in 1999 by Conscious Media, founders of the LOHAS Journal in the USA. Approximately 19 per cent of the adult population of the United States (approximately 41 million) claims to embrace LOHAS principles. This market is said to be worth in excess of US\$50 billion annually (Moxie Design Group, 2008). In Taiwan, one in three people claim to support LOHAS ideals (NZTE, 2008a), with this trend spreading rapidly across Asia, including Japan where 70 per cent of consumers recognise the term (ACRS, 2009). Additionally, around 26 per cent of the Australian adult population align themselves with the LOHAS market. Similar percentages have been recorded in other countries, including Belgium, China, France, Germany, Italy, Netherlands, Portugal, Spain, and the United Kingdom. In 2000, the book *The Cultural Creatives: How 50 Million People are Changing the World* documented that 25 per cent of American consumers were associated with the term “cultural creative”, meaning that these people felt that the concepts of health, sustainability and social justice were paramount to the way they lived their lives (Ray, P.H., Anderson, S.R., 2000).

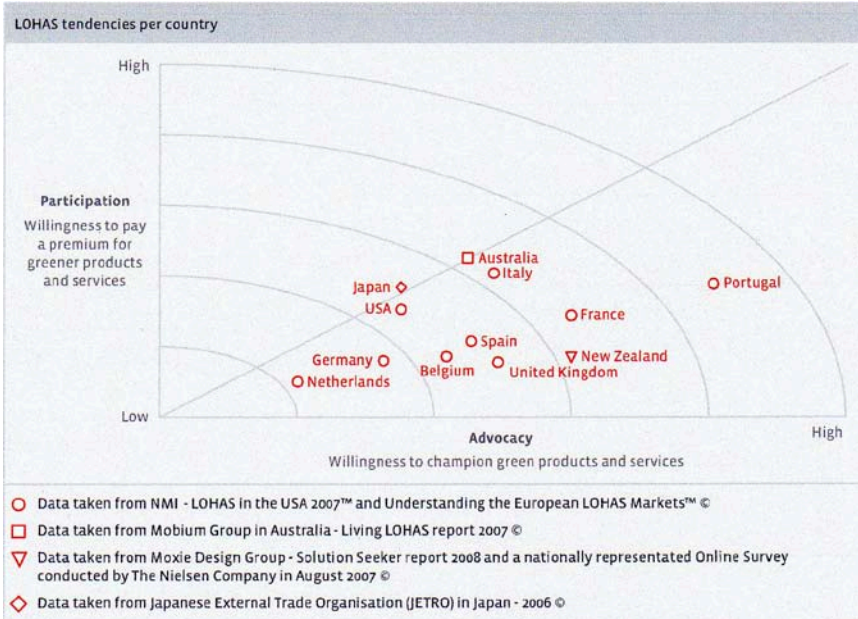
² Credence attributes are those which are not easily detectable from the product itself and include intrinsic such as low pesticide use and extrinsic attributes such as those which relate to how the product is produced and its effect on the environment and social issues.

The LOHAS movement is essentially an outgrowth of the Slow Food Movement, established in Rome in 1986 as a protest movement against the establishment of a McDonald's outlet near the Spanish Steps. The Slow Food organisation now has over 100,000 members celebrating traditional food and sustainable consumption in over 40 countries (Petrini et al., 2003). The movement's objectives include sustainability and health education, as well as protest against unnatural farming and research, and promotion of organic and locally-sourced food (Slow Food, 2010). There is clearly considerable interest in identifying the size and growth of this consumer market. The nature of consumer attitudes and the impact that has on consumption decisions is notoriously difficult to determine but there is growing acceptance of the existence of the LOHAS group as it defines an emerging and growing segment of consumers who are concerned about the manner in which they live and the impact of their purchase decisions on themselves and their families.

A study prepared by the Moxie Design Group for the New Zealand Trade and Enterprise in 2008 looks at the growth and opportunities in these markets and their potential for New Zealand businesses. It was argued that these consumers seek out goods and services that are focussed on health, the environment, social justice, personal development and sustainable living. They are more likely to research a product or service prior to purchase and will seek information on a wide range of criteria that will confirm their identities and views of the world. It is expected that these consumers would have strong loyalty to products that they have selected and would communicate those views to other consumers. Not surprisingly, they tend to be well educated and have probably higher than average incomes. The Moxie Design Group in New Zealand have identified and measured a segment of New Zealand consumers that they define as "solution seekers". This group of consumers meet the criteria that is frequently used to define LOHAS groups in other studies in other countries (Moxie Design Group, 2008).

The comparative analysis presented in the NZTE report (see Figure 3.1) suggests that the LOHAS market ranges between about 15 – 25 per cent of the consumers in most of the countries reviewed. The means of measuring these differences is not always the same, and the sub-categories may be defined in different ways. It is important that these groups appear to differ in the manner in which they express their views about sustainability.

Figure 3.1: LOHAS tendency per country



Source: (Moxie Design Group, 2008).

3.3 Consumer concerns

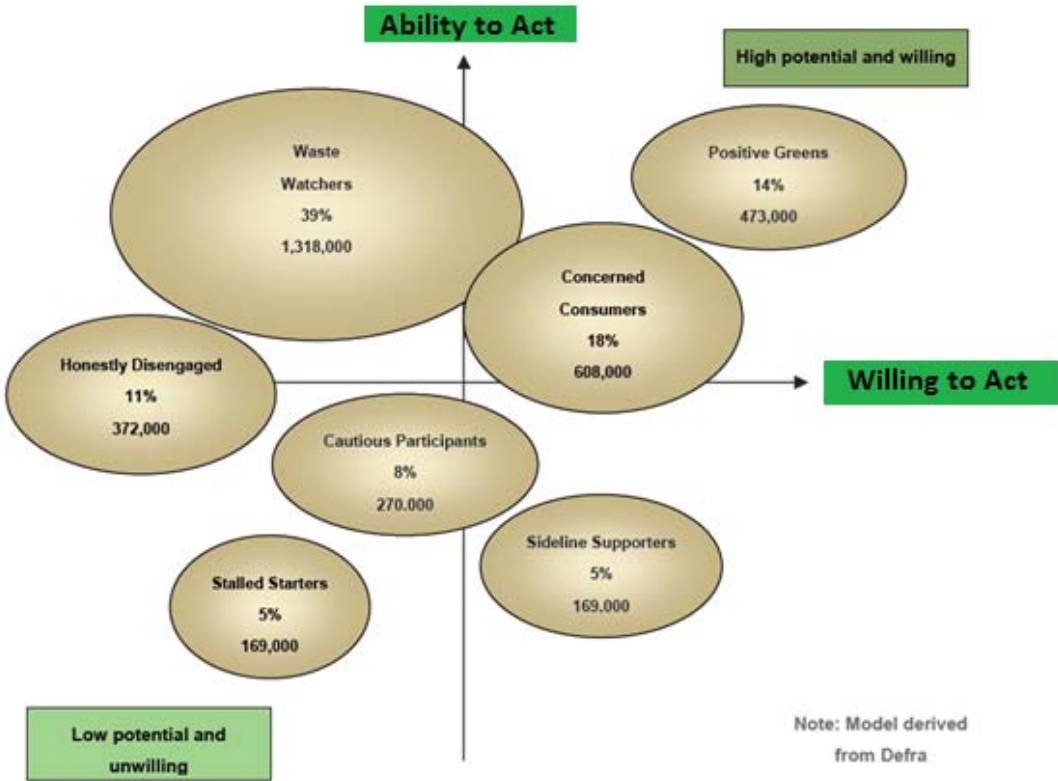
A variety of consumer concerns such as pollution and the use of non-renewable resources have crystallised around the issue of climate change and a general move towards reduction in carbon emissions. This is underpinned by New Zealand and international government policy and targets. The UK has taken the lead in this area with the Climate Change Bill aiming to reduce total emissions in the UK by 60 per cent from 1990 to 2050 and has established a committee to aid achieving this. The EU proposes a reduction of emissions in the EU by 20 per cent by 2020 and by between 60 and 80 per cent by 2050. Due to widespread political involvement across the European Union, the EU has proposed a new carbon emissions reduction target of 30 per cent by 2020, although this target has not yet been confirmed (EUObserver, 2010). Lately there has been some concern that the UK may miss the carbon emissions targets set by the Climate Change Bill as the target deadline fast approaches (Adam, 2010). However, the UK Government has recently announced the formation of a new action plan to offset carbon emissions called the Carbon Reduction Delivery and Adaptation Plan. Under this new directive, the UK must reduce its carbon emissions by 34 per cent by 2020, which differs strongly from its 1999/2000 target of 20 per cent (BusinessGreen, 2010). The US has agreed to reduce emission intensity (that is the ratio of emissions to output) by 18 per cent by 2012 and individual states have introduced their own level targets. California, for example, is aiming to reduce emissions to 1990 levels by 2020 and 80 per cent by 2050 and the NEG-ECP (Eastern US and Canada) to reduce emissions by 10 per cent by 2010. Japan also has announced a 50 per cent reduction in emissions by 2050.

Consumer concern over climate change is widespread, and a growing market sector. A 2007 survey, with 14,220 participants across 22 countries, showed that around 68 percent of consumers were concerned about climate change. Within this, over two-thirds of participants claimed to have actively engaged in consumption behaviour that could be seen to be effective in promoting environmental wellness. However, while these consumers considered the above, between five and ten per cent were willing to accept trade-offs, i.e., lower quality product, or a higher price, for environmentally sustainable goods. Willingness to pay a premium for products with sustainable or environmental-friendly attributes also scored low within this survey, while ethical foods, i.e., fair trade, local food, etc, scored high. Japan, however, showed high levels of concern, with around 30 per cent of Japanese consumers purchasing products made by companies actively involved in environmental actions (Synovate, 2007).

The importance and role of sustainability for consumers and carbon footprint labelling was investigated in some recent studies. A survey undertaken in 2008 by the Research New Zealand for the Ministry of the Environment measured the perceptions of New Zealanders towards sustainability issues and has identified groups of consumers and their willingness and potential to take action about sustainability. Results showed that general public's levels of perceived knowledge of environmental issues were mixed. While 55 per cent of respondents believed they knew a fair amount to a lot about *climate change* and another 58 per cent about *global warming* (58 per cent), levels of knowledge about *carbon footprint* (40 per cent), *carbon dioxide emissions* (46 per cent) and *carbon offsetting* (18 per cent) were significantly lower. (Research New Zealand, 2008). The study developed seven consumer segments (see Figure 3.2) which were derived from a Model developed by DEFRA (see Department for Environment Food and Rural Affairs, 2008). Consumers were categorized by their ability and willingness to care for the environment and their perceived knowledge about certain sustainability issues. In the matrix, the consumer segment with the highest perceived knowledge about *climate change* (69 per cent), *global warming* (70 per cent), and the term *carbon footprint* (53 per cent) were categorised as the Positive Greens. This represented 14 per cent of New Zealand's population. Consumers in this segment reported of being

particularly environmentally friendly and that they do quite a few things that are environmentally friendly. This is in contrast with the segment of ‘honestly disengaged’ which represented 11 per cent of New Zealand’s population. Consumers in this group were the least likely group to care for the environment. The largest segments were the Waste Watchers which represented 39 per cent of the population. With regards to their behaviour Waste Watchers are similar to Positive Greens: 57 percent of Waste Watchers feel that they do quite a few things that are environmentally friendly, and 24 percent claim to do mostly environmentally friendly things.

Figure 3.2: Sustainability consumer segments



Source: Research New Zealand, (Research New Zealand, 2008).

With regards to consumers’ attitudes towards climate change the Australian Department of Primary Industries reviewed several studies from different countries as support for strategy development for Australia. The review showed that the consumer segment concerned with climate change which influences their purchasing behaviour is still very small. The price is still the main claim that is of interest for consumers rather than climate change. The review also demonstrated that consumers are not very well informed about carbon footprinting and carbon labelling (Creese & Marks, 2009).

3.4 Sustainability

Those consumers attracted to carbon labelled products present an opportunity for retailers to realise a new market opportunity but carbon footprinting does not always lead to carbon labelling. Research has shown that carbon labelling may confuse consumers. This is why there is a strong business case for carbon footprinting, while the case for carbon labelling is less compelling. Therefore, the drivers behind carbon footprinting and labelling can be different (Department of Primary Industries, 2009).

3.4.1 Carbon footprinting

The concern about climate change has been seen also through changes in markets and development of labelling schemes. The Carbon Trust in 2006 introduced a label called the Carbon Reduction Label with the proviso that products bearing the label have to reduce emissions associated with producing the product by 20 per cent over two years following certification otherwise they risk to lose the right of use the label. The method used to calculate the carbon is PAS 2050. In January 2007 Tesco started as part of a trial of the Carbon Label company to include four types of products. These categories comprised of potatoes, orange juice, washing detergents, light bulbs and milk products. In the last three years, this has been expanded to more than 100 products from different product categories with plans for more categories in the future. Tesco aims to reduce the carbon impact of its products in its supply chain by 30 per cent by 2020 (Tesco, 2009). Tesco has stated it is carbon footprinting 70,000 of its products and this has been followed by other major supermarket chains. Marks & Spencer has invested US\$400 million in establishing their Eco-Plan A campaign, in which they are attempting to reduce their carbon emissions. Plan A addresses five sustainability issues one of which is 'climate change'. The objectives target the reduction of consumer carbon footprint by mobilising key suppliers to reduce their carbon emissions by 2012 and work in collaboration with the Carbon Trust to identify the most carbon offsetting products in the supply chain. The company itself aims to reduce the operational carbon emissions by 35 per cent with and make operations carbon neutral by 2012.

French retailer group, Groupe Casino, has recently implemented France's first sustainability labelling scheme, which, as well as a front-of-pack label indicating the total amount of carbon emissions associated with the marked product, includes measures to improve production and transport practices, and reduce total carbon emissions (Groupe Casino, 2008). Elsewhere in the world, Japan has introduced a Carbon Offset labelling scheme, with retailers voluntarily attaching these labels to their products. The Japanese carbon label includes an image of a lead weight with the letters "CO₂" in the centre, with the attached carbon "weight" of the product in bold letters above (METI, 2009). Carbon labelling is also being explored in Canada and in Australia. All of these schemes are under development and in their infancy. The UK retail and NGO sectors has taken the leadership in this area and has schemes further developed than other countries. Other countries are catching up fast and the need for carbon footprinting is growing. In Sweden, a climate certification standard is being developed. In Switzerland, products are being labelled 'Climatop' if their production emits less CO₂ than similar products. In France one retailer is planning to apply a carbon label to 3,000 of its food items (and another is already labelling all its home-brand products. In Thailand, a labelling scheme is being developed. All of these schemes are under development and in their infancy.

The practice of carbon-labelling consumer goods, while relatively new, is likely to grow in importance. In 2009, there were roughly 15 carbon labels documented. A summary of these are provided in Table 3.1, which also shows the methodology used, the country they apply in, and, where known, the products covered. Issues of transparency mean that not all these details were available for all the labels. This may well reflect the early stages of development the labels are currently in. Japan's pursuit of carbon footprinting and carbon labelling is of particular interest for New Zealand as it is an important export market.

Table 3.1: Carbon labels and characteristics

Labels	Public/Private	Nation of Origin	Accounting Method	Companies	Products
Carbon trust (Tesco's)*	Public ⁺	U.K.	PAS-2050 ³	20	Unknown
Climatop	Private	Switzerland	Unspecified LCA	3	15
Thailand carbon reduction label	Public ⁺	Thailand	PAS-2050	Unknown	23
Carbon connect	Private	Canada	Unspecified LCA	Unknown	Unknown
SGS Carbon neutrality	Private	France.	Unspecified LCA	Unknown	Unknown
Climate conscious	Private	U.S.	Unspecified LCA	Unknown	Unknown
Carbonlabels.org	Private	Canada	Unspecified LCA	Unknown	Unknown
Germany: PCP pilot project	Public ⁺	Germany	Unspecified LCA	8	10
Korea: carbon label	Public ⁺	Korea	Unspecified LCA	Unknown	Unknown
Casino carbon index	Private	France	Bilan Carbone	1	237
E.Leclercs carbon label	Private	France	Unspecified LCA	1	<800
Certified carbon free	Private	U.S.	Unspecified LCA	11	Unknown
Eosta climate neutral	Private	Holland	ISO 14040/14044	Unknown	Unknown
Pilot Californian carbon label	Public ⁺	U.S.	Unspecified LCA	Unknown	Unknown
KRAV Sweden carbon label	Private	Sweden	Unspecified LCA	1	Unknown
Japan carbon label	Public ⁺	Japan	Unspecified LCA	20	Unknown

* The Tesco carbon label, which has been developed in conjunction with the Carbon Trust, is the most ambitious and well-known carbon label currently in existence.

+ This column relates to who initiated the label; rarely are these developed without an element of public/private consultation

³ PAS 2050 is the Publically Available Standard is an independent GHG emissions quantification standard for products and services developed by the UK Department for the Environment, Food and Rural Affairs (DEFRA), The British Standard Institute (BSI), and the Carbon Trust (Defra, 2007).

The process of developing carbon labels has varied with some being initiated by governments, others by government quangos, and some by non-profit organisations, but all have generally involved cross-sector consultation. The Japanese, German and South Korean labels originated from government initiatives, but alongside consultation with business. The Thailand reduction label and the British Carbon Trust reduction label were developed by quangos. The remaining labels are the result of work conducted by non-profit organizations or businesses, many originating from North America. These include the Carbon Fund, Carbon Connect and Climate Conscious labels which are all examples of non-profit organizations developing carbon labels in conjunction with businesses. In Switzerland, the collaboration between Migro's and Climatop is such an example.

Interestingly, these schemes do not generally allow for offsetting but stress reduction in emissions, so they require producers to reduce their footprint by different amounts over a period, or show they are more carbon friendly than competitors' products. Thus, whilst it is the private sector that has taken the initiative in developing carbon labelling schemes governments are also becoming involved, such as the UK (as discussed above) and also in Japan. There are international standards to aid the development of measuring a carbon footprint and these include the ISO standards, which is based upon the Greenhouse Gas Protocol. These provide the framework for undertaking a carbon footprint and guidance on the scope of footprint. However, there is still considerable discussion around the exact

method over which data are to be included, how data are to be collected and the coefficients to be used. An important factor to note is that, as stated above, the EU is highly likely to subsidise farmers to measure and reduce their carbon footprint using farm-level data. This has implications for NZ exporters in that they will have to footprint without subsidies but also this may mean collecting data at the farm level as opposed to from secondary or modelling sources.

There are extremely important implications for NZ exporters in these new policies. In particular schemes in the UK, Australia and Japan would mean that in supplying those markets producers would have to measure the carbon footprint of their products and reduce this. Moreover, given the growth and importance of international procurement chains, standards developed in any important importing country generally become necessary to supply other markets as well.

These carbon-labelling schemes stress reduction in footprints but there are also other industry initiatives in the UK reducing the carbon footprint. The Milk Road map aims to have a reduction in emission from dairy of between 20 and 30 per cent by 2020 from 1990 levels (Dairy Supply Chain Forum, 2009). That report also states that methane emissions from dairy have fallen 13.4 per cent from 1990 and carbon emission by 23 per cent since 2000. UK milk producers have met packaging criteria; with 85 per cent of milk packaging containing the required minimum of ten per cent recycled material. Dairy UK Director General, Jim Begg, has stated that “Producers have clearly prioritised the environmental agenda, and are well on their way to meeting or beating their 2010 targets” (FoodBev.com, 2010). This is significant for NZ’s dairy sector, which is one of our most important emitters and emissions from this sector has been growing. Thus the need for footprinting and reduction in this sector will become more important.

As a consequence of the policy initiatives above, carbon footprinting and reductions in emissions are set to become important for our markets and likely to be introduced in the next few years. Thus, to maintain these standards and reduce carbon footprints, radical changes will be required in production of all our products over the next 15 to 20 years. The development of new technologies to help achieve this will be vitally important.

3.5 Water

Consumer attitudes to water cover three topics, each considered in turn within the next section: Water scarcity; water quality; water footprinting.

3.5.1 Water scarcity

Issues around water scarcity are growing, fuelled partly by climate change. Water quantity is becoming an issue for both policy and market-access schemes. Major retailers in the UK are stating in their policy that water quantity in production should be reduced and saving on water is becoming a real issue. There is also potential for the amount of water to produce a product being measured and used as an environmental target with some commentators stating that Water Miles may become the next issue after Food Miles. Thus the Sustainable Development Commission, an independent advisory body reporting directly to the UK Prime Minister, has recommended water footprinting - measuring embedded water - in all products (Sustainable Development Commission 2008).

This recommendation means that it is likely that water footprinting will become standard in key markets over the next decade. Recognising this, the New Zealand Ministry of Agriculture

and Fisheries (MAF) have given grants to a total of NZ\$390,000 to fund community water-storage systems. As water scarcity is likely to be a major issue within farm management, the fund is intended to support community irrigation and water storage schemes. This funding is due to be disbursed up to 2011-2012 (Irrigation New Zealand, 2008).

3.5.2 Water quality

There is a growing concern in the EU about the effect of nitrate pollution on both the water supply and on terrestrial biodiversity. There is a current EU study entitled “The Biodiversity of European Grasslands – the Impact of Atmospheric Nitrogen Deposition” which examines impacts of nitrate pollution. Results from this study were published in the journal *Science* showing the impact of nitrogen on species diversity with species diversity declining as a linear function of inorganic nitrogen deposition (Stevens et al, 2004). The report concludes that the excessive use of nitrogen has led to species losses of up to 25 per cent in the UK on land.

Member states in the EU are required to designate all areas (including lakes, groundwater and surface water) where nitrate concentrations exceed or are expected to exceed the nitrate limit of 50mg/l or where there is evidence of eutrophication. In the UK, the Nitrate Vulnerable Zone (NVZ) covers 70 areas of around 600,000 hectares in total. To be eligible for the Single Farm Payment farmers in the NVZ must undertake an environmental action plan. The rising concern about the impact of nitrate pollution can be seen with recent proposals from the Department of the Environment Food and Rural Affairs (DEFRA) to expand the current area of NVZs in the UK from 55 per cent to 70 per cent of the farmed area at an estimated cost of 48 million pounds per year (*Agra Europe*, 2273, August 2007).

Concerns about nitrate pollution are of interest to New Zealand due to the increased use of nitrogen fertiliser over the last decade. This has led to an increase in nitrogen pollution that needs to be managed. Fonterra has introduced water practices that show sustainability attributes. After the Dairy and Clean Streams Accord was passed in New Zealand in 2003, Fonterra have made progress towards protecting waterways and reducing water usage. Practices include excluding all stock from waterways, bridging or culverting all regular stock crossings, eliminating all non-compliant effluent discharge, applying nutrients to the land via verified nutrient management plans, with wetlands protection high on the agenda. In terms of their water usage, Fonterra has stated that by June 2016, 80 per cent of extracted water will be self-managed to meet “good practice” benchmarks for water usage (Fonterra, 2010).

3.5.3 Water footprinting

A current concern of international water trade is the issue of water footprinting, or “virtual water”. These terms are used to describe the relationships between water trade (in terms of human consumption and its implications) and water scarcity. Water footprinting pertains to the amount of water used in production and consumption, while virtual water determines the movement of water through international trade. There is a growing awareness of these concepts throughout international production and trade, but this awareness has potential to increase significantly in the near future.

Water footprinting allows us to apportion the amount of water that is required in certain processes. The amount of water used in the food production process can be measured, and as certain products require more or less water, this may have potential future opportunities for consumer choices. One 30g slice of bread requires 40 litres of water to produce, with one hamburger requiring 2400 litres within the supply chain process to produce (Hoekstra et al,

2007). Other items, such as a glass of milk, apple juice or orange juice require around 200 litres of water to produce (Hoekstra et al, 2007).

According to a report issued by the UN's World Water Assessment Programme, population growth of the last 50 years has caused water withdrawal to triple, suggesting higher global demand. Globalisation and increased irrigation are significant contributing factors in this. As the world human population is expected to increase from six to nine billion between 2000 and 2050, water usage is expected to increase significantly, although there is still uncertainty on potential future usage. One of such, and possibly the largest, is the effects of climate change on global water supply, but countries have sought already to revise their long-term plans at a national level. The Mediterranean Action Plan, for example, is examining potential future effects of climate change on water footprinting, and "...exploring possible futures for agriculture-based economies that are most vulnerable to anticipated climate change effects" (United Nations, 2009).

An increased supply of water is currently needed by around 70 million people per year, especially within developing countries (MoRST, 2009). An OECD report, published in 2010, outlines the issues surrounding global water usage. Their report, "Sustainable Management of Water Resources in Agriculture", outlines the growing need for water, especially within developing countries, and calls for policy makers to "recognise the complexity and diversity of water resource management in agriculture and the wide range of issues at stake". As well as this, OECD outlines recommendations to countries in terms of what must be done to ensure sustainable water supplies into the future (OECD, 2010).

The New Zealand irrigation industry has established an Irrigation Code of Practice and Irrigation Design Standards, the aims of which include a 20 per cent decrease of water used for irrigation, establishment of training courses, and improved irrigation practices to promote efficiency in irrigation (Royal Society of New Zealand, 2009).

3.6 Biodiversity and wildlife

Over the last few decades there has been growing concern in the EU about the impact of agriculture on terrestrial biodiversity and wildlife. Clearly in a European context there is relatively little land, especially in the UK, that is not multifunctional. Thus biodiversity and wildlife are important issues on farmed land. As is well documented, CAP policies have led to much of this concern, as a result of their encouragement of the intensification of land use. In response, the EU since 1987 has subsidised agri-environmental schemes to reduce this impact and enhance not just biodiversity and wildlife but also landscape features. Some 22 billion euro is spent on this and member states have the option to top up payments. The policies under these schemes are locally targeted but some overall ones apply, such as restrictions on stocking rates. The more specific policies include cutting forage in a bird friendly manner to allow nesting birds to escape from the field; reductions in fertiliser use; later cutting dates for forage; encouragement of mixed species on grassland; and farms required to have wildlife management plans. The impact on New Zealand exports, as noted above, is likely through the market assurance schemes required to access high-value market segments. Already wildlife management plans and biodiversity are part of GlobalGAP criteria and many of the supermarket schemes include aspects of biodiversity and wild life protection. The Nature's Choice label of Tesco, for example, includes wildlife and landscape conservation and enhancement plans. Some sectors in New Zealand are well aware of this and have adopted these plans. This is especially true in the kiwifruit sector; dairy and sheep meat are not so well prepared.

The Assured Food Standards (AFS) is another scheme that encompasses the enhancement of biodiversity and wildlife in an agricultural context. The scheme was launched in the UK in 2000. The industry-driven scheme includes nationally agreed standards from different sectors to assess independently good agricultural practice. The scheme was developed and managed by the Assured Food Standards (AFS) organisation. The product categories cover a whole range of food products that can be found in the supermarket environment. Products that met the established criteria of the scheme can display the Red Tractor logo on their product label. AFS (2008) argues that the Red Tractor logo allows consumers to decide on food products that have been assessed and produce under good agriculture practice. The organisation claims that the scheme also provides criteria to evaluate animal welfare and environmental issues. The scheme established standards for certain types of farming (pig, beef and lamb, chicken, turkey, dairy, combinable crops) as well as for fresh fruit, vegetable and salad growing. In addition, the scheme established an industry code of farm feeding. AFS (2008) assures that the standards for animal farming encompass animal health and welfare as well as farm procedures and safety. AFS wants to ensure that safety and hygiene is maintained throughout the supply chain. AFS (2008) argues that the standards determine full traceability of final products back to the farm of origin. The combinable crop standards require crop protection and food safety. The requirements determine that combinable crops are harvested and grown safely and stored and transported in clean storage and vehicles to ensure that the final product is free of contamination. AFS (2008) argues that the standards for fresh fruit, vegetable and salad growing encompass good horticultural practice, including pesticide reduction to protect food quality and the environment. Similarly, the standards include food safety and traceability requirements to ensure that products are free from contamination and that they can be traced back to the field of production. The industry code of farm feeding was developed by AFS in conjunction with UK Food Standards Agency and an advisory committee on animal feedstuffs. The developed code is a guide for farmers that provide guidance for animal grazing. In addition, the code presents different methods on contamination prevention of pasture with manure, on prevention of farm chemicals entering watercourses as well as methods on safe and hygienic storage (Assured Food Standards, 2008).

The World Wildlife Foundation (WWF) has been a cornerstone for biodiversity and wildlife protection in past years. Their international website, in an effort to encourage biodiversity protection and general sustainability, contains a guide to reducing your impact on biodiversity and the environment, complete with tips to reduce your personal global footprint (WWF, 2010).

3.7 Animal welfare

As well as concern over agriculture's effect on bio-diversity and wildlife attributes, many consumers are now showing great concern over the welfare of animals used in products. This is based on the conditions in which an animal is kept, its access to food, water and sunlight, and many other attributes.

In the United States, the rights of farm animals are currently protected by a recent bill - the Farm Animal Stewardship Purchasing Act, proposed at the 110th Congress, which requires animal producers supplying federal programs to comply with moderate animal welfare regulations. The terms of the act state that animals should be provided adequate space, daily access to adequate food and water and veterinary care. However, this Act only applies to suppliers to Federal programs, and does not provide a blanket law for all farm animals with the United States (Govtrack.us, 2006).

The EU has also adopted an action plan to improve animal welfare that is to be implemented over five years, 2006 to 2010. In this plan, the rules governing animal welfare will be updated and extended to ensure the EU standards remain among the highest in the world. This includes an option for an EU label relating to animal welfare especially to promote products produced to certain standards. United Kingdom retailers include animal welfare in their list of requirements from suppliers. The fact that major UK retailers have banned or are banning battery hens and eggs from battery hens shows the seriousness of this move (given the difference in cost of production of battery eggs compared to free range eggs). The Co-op, Waitrose, Sainsbury's and Marks & Spencer have therefore banned the sale of these products. Marks & Spencer has been a major player in their approach to animal welfare, being awarded the Compassionate Supermarket award in 2008 in recognition of their animal welfare policies (M&S, 2008).

The RSPCA UK has launched a new scheme in 2010 called the Freedom Food Assurance Scheme, the conceit of which is to allow retailers to adopt sounder practices in relation to the welfare of animals used in the animal products they stock. A strong notion of this scheme is the assessment of welfare of chickens used to produce chicken-based products, including meat and eggs (RSPCA, 2010). Several supermarkets within the UK has signed up to this programme, including Sainsbury's, Tesco, Morrisons, and the Co-op. Sainsbury's is currently leading as the highest stockist of Freedom Food-branded goods, with around 12 tonnes sold between March 2009 and March 2010 (Kantar World Panel, 2010).

In April 2010, the Tubney Charitable Trust proposed a £2.7 million grant for a new project intended to improve farm animal welfare condition in the UK. This five-year research project will be conducted by the University of Bristol's Department of Clinical Veterinary Science in association with RSPCA and the Soil Association, and will focus on measuring the outcomes of farm animals' welfare under certain conditions. The goals of this project include promoting welfare assurance within the RSPCA Freedom Food and Soil Association certification schemes, and to forward the promotion of outcome-based animal welfare standards within UK and EU farm assurance schemes (WorldPoultry, 2010).

Animal welfare is a strong determinant of choices among certain consumer groups. A nationwide survey conducted in the USA in 2007 showed that animal welfare concerns only slightly influenced their purchasing behaviour. The importance of animal welfare within purchasing decisions, as declared by survey participants, ranked significantly lower than other concerns, such as human poverty, the US healthcare system and food safety, which were around 5 times more important for consumers. The financial well-being of producing farmers was often noted as being of higher significance to consumers in determining their purchasing behaviour (Lusk et al., 2007). Similarly, in a US-based survey, when participants were asked "What would you like to know from farmers about food production that you currently do not know", 68 per cent said that they would like to know what farmers are doing to ensure animal care. A survey carried out in the Araucania region of Chile showed that around 60 per cent of participants were aware of potentially inhumane livestock management practices, but only 32.1 per cent of respondents had changed their meat consumption due to this (Schnettler et al., 2008).

Surveys conducted in the European Union have confirmed that most people are highly concerned about the welfare of animals processed in animal products, and that this will influence their purchasing decisions quite considerably (Passatino et al., 2008). A similar study by Mintel confirms that around 40 per cent of UK consumers rate animal welfare as their biggest concern in terms of food choice (Mintel, 2010).

Kit-Kat producer Nestle has recently faced widespread protest directed at the company's relationship with Indonesian palm oil manufacturer Sinar Mas. Activist groups, such as Greenpeace, claim that Sinar Mas utilise production practices which are harmful to the habitats of orang-utans of Indonesia, and damaging to the general environmental bio-diversity of Indonesia rainforests. Greenpeace had previously targeted manufacturers Unilever and Kraft Foods for sourcing palm oil from Sinar Mas (Just-foods.com, 2010). Fonterra has also been the focus of protest movements over the use of palm kernel from Indonesian and Malaysian rainforests as feed for dairy cows. However, both Fonterra and Prime Minister John Key have ignored such protest, as the palm kernel only comprises around one per cent of the total ingredients used in Fonterra cattle feed (TVNZ, 2009).

NZ producers have already had to change behaviours relating to animal welfare such as no longer docking the tails of cows. There are currently calls for banning tail docking of lambs, which would have implications for farm management, as well as banning winter shearing of sheep. These are generally to meet market access requirements. Tail docking of lambs is currently illegal in the UK if the lamb is over the age of one week old. There is also the wider issue that animal welfare concerns differ across countries and perceptions of consumers in markets overseas to practices in NZ may have potential to adversely affect our exports.

While very few animal welfare policies exist within New Zealand at present, the National Government has recently passed a new animal cruelty bill, which ensures hefty fines of up to NZ\$100,000 for an individual and NZ\$500,000 for a business for the wilful mistreatment of an animal. Within this new policy, there will also be possible prosecution for those who abuse animals, with prison sentences of between three and five years for sentenced abusers (NZHerald.co.nz, 2010).

Therefore, concerns over animal welfare have been growing in our main premium markets. This is set to continue and be more stringent as subsidies in countries like the EU enable their farmers to meet higher standards. NZ generally is not very sensitive to the concerns that our markets have and thus it is a risk to our exports that if any perceived or real practices were presented in the media such as shorn sheep in the snow or dead stock, this could have an immediate impact on sales.

Chapter 4

Current and Potential Changes in Market Drivers

4.1 Introduction

Increasing attention and concerns about climate change have led to a number of other potential issues that may affect New Zealand exports. These include reductions in consumption of meat and dairy products, calls for increased seasonal consumption, and a rise in local foods markets as discussed below. Included in this chapter are other issues affecting consumer behaviour such as nutrition and ethical food.

4.2 Meat and dairy consumption

An issue growing in importance is a trend to reduce meat and dairy consumption due to an awareness of the high carbon footprint of these products. The FAO report puts livestock related greenhouse gases as high as 18 per cent of the world's total (Steinfeld et al, 2006). Another study (Garnett, 2007) argues that UK consumption of meat and dairy account for eight per cent of UK total emissions and European studies show they account for half of the food greenhouse gas burden. Consequently, there has been a rise in the attention being given to low carbon diets. A recent report by DEFRA on sustainable consumption, for example, talks about low environmental impact diets and reduced meat consumption. They recommend intervening with supermarkets to promote quality dairy and meat consumption over quantity, although the exact form of this intervention has yet to be seen. They also state that behavioural changes should be levered by encouraging more fruit and vegetable consumption to reduce consumption of meat (Owen et al, 2007).

Studies that have sought to measure impacts of low carbon diets have reached conflicting conclusions. Some research has shown that adopting a vegetarian diet would result in only a small reduction (5.9 per cent) in the food and drink ecological footprint (Collins and Fairchild, 2007). Other research, however, has suggested that a healthy vegetarian diet could reduce the carbon footprint by 23 per cent compared with meat based diet (Frey and Barrett, 2006). Weber and Matthews (2008) argue that substituting red meat and dairy consumption for white meat, eggs or vegetables one day a week achieves more greenhouse gas reductions than buying locally sourced food. This may be a small change but could have important implications for New Zealand. The other factor to be explored is of course whether a change in diets would require alternative uses for the pastoral land, and where the supply of replacement food and materials would be sourced. These alternatives would themselves have carbon footprints that need to be analysed. (Garnett, 2007).

In response to this, several third-party entities have recommended changes in consumer behaviour to reduce meat and dairy consumption. Sir Paul McCartney (ex-The Beatles) is currently involved in promoting "Meat-Free Mondays", which encourages the general public to allow themselves one day per week in which they will not consume meat products. Similarly, the city of Ghent, Belgium now promotes a "meat-free" day, encouraging citizens to refrain from meat consumption for at least one day per week. The World Wildlife Foundation also promotes a reduction in meat consumption, urging that meat products should have a label attached suggesting that meat should be consumed between one and three times per week maximum.

4.3 Low carbon diets

“Low Carbon” diets are also a key development within sustainable diets. Subscribers to low carbon diets choose foods which have low Greenhouse gas (GHG) emissions in their production and transportation, with an overall intention to reduce their own carbon footprints. Behaviours also associated with low-carbon diets include a reduction in the purchasing of products with high amounts of processing and packaging, and a careful approach to food waste management. The low-carbon diet is not only restricted to food consumption, but also extends to other areas, most prominently transportation, but also self-sufficiency and other behaviours that reduce Greenhouse gas emissions.

The US Department of Energy has estimated that, on average, a US citizen’s choices in consumption produce an estimated 20 tonnes of carbon emissions annually, which differs from the average international rating of 4 tonnes per year. Thus, this initiative is currently growing substantially amongst concerned consumers in the United States (Time Magazine Online, 2010).

4.4 Buy seasonal

There are increasing calls to eat more seasonal produce, which goes against the long-term push of consumers demanding fresh products all year round. “Eating seasonal” has been suggested as a way to reduce greenhouse gas emissions as year-round consumption is associated with the need to import products from countries which can produce the food out of the domestic production season. DEFRA have identified switching to more seasonal and local food as one of five key behaviour goals, and they recommend considering intervening with supermarkets to encourage them to prioritise stocking and promotion of seasonal and local produce.

Seasonal consumption is clearly a threat to New Zealand exports particularly in the high-value market segments, since New Zealand producers supply off-season to the EU market. However, as the original Food Miles report shows (Saunders et al., 2006), even when supplying *in* the United Kingdom season, New Zealand sourced apples have a similar carbon footprint. Moreover, the implications of this policy on diet, nutrition and also the availability of in season produce have not been investigated.

4.5 Choice editing

Another trend that is growing is ‘choice editing’ where the supermarket acts as the ‘gate keeper’ and does not stock certain products which may not meet certain standards. Government departments are becoming involved in this trend with, for example, DEFRA interviewing with supermarkets regarding the type of products they supply. In a strategy report DEFRA (2006) suggests that a framework for an environmental behaviours strategy should include government and business’ intervention of product ranges in supermarkets by choice editing. DEFRA (2006) argues that this would lead consumers to more environmental behaviour supported by retailers that conduct choice editing for certain products (Department for Environment Food and Rural Affairs, 2006). Tim Lang, Professor of Food Policy in the UK and an important person for the UK food industry supports the strategy proposed by DEFRA. He argues that retailers should take more responsibility by facilitating consumer’s food choices with stocking only products that met certain standards. Lang states the trust that retailers have from consumers would allow them to choice-edit. He also mentions that some retailers in the UK have already adopted the choice editing method. For example, Marks &

Spencer (major UK retailer) started to choice edit products that meet certain sustainable standards within a sustainability initiative that was established in 2007. In contrast, other retailers such as Tesco argue that they allow consumers choices. For example, rather than removing incandescent light bulbs from the shelves, Tesco has offered a subsidised environmentally friendly light bulb, thereby increasing consumer choices. Lang suggests that choice editing is undertaken by a Board of elected representatives that are strictly controlled because critics questioned the credibility of retailers to choice-edit (Hickman, 2007; Lang, 2008).

4.6 Alternative food networks

There has also been a rise in alternative food networks. These include farmers' markets, community gardens, community supported agriculture (CSA) and food box schemes (that is where a bundle of products are delivered to consumers from local suppliers or organic suppliers). These arise for a variety of reasons but the main drivers are social and community embeddedness. They are argued to lead to greater sustainable consumption due to benefits to local communities, economies and environments. They are also cited as improving local social and cultural capital. Other factors are raised in their support such as rural regeneration, cutting Food Miles and reductions in carbon emissions. Cutting Food Miles is cited as major reason for purchasing local stressing the fact that the social and environmental costs of transportation are externalities (Seyfang, 2008).

The consumer perceptions of the advantages of buying from alternative sources in the US were found to be mainly supporting a local business (54 per cent who bought box schemes and 51 per cent buying at a farmers market). Better quality produce was thought to be more important by those in a box scheme at 42 per cent compared to 21 per cent from farmers markets. However, reducing Food Miles was thought as advantage by 22 per cent from both box scheme members and farmer market participants (Seyfang, 2008). Other studies have found quality, freshness, local farmer support and community interaction (Feagan et al., 2008) and another highlighted interaction between consumers and producers as important (Kirwan, 2004).

In the case of farmers market the first in the UK was in 1998 and by 2006 this had risen to 550 locations with 9500 markets per year (National Farmers Retail and Markets Association, 2006). These seem set to grow and whilst will certainly not replace the mass market may well affect high value premium segments of the market.

CSA occurs wherein the local population invests in farm or crop before harvest and guarantees income for farmers. In return investors share in harvest such as food box, which is frequently vegetables but also dairy, eggs and meat. In some schemes there are social events and even community help on the farm at various times of the year. In the US there were in 2007 over 1200 schemes whereas in the UK there were only 30 in 2006 (Cox et al., 2008). The size of this market is difficult to estimate. It is not mainstream, but it is growing and could impact upon our high-value market segments.

4.7 Buy local

Related to the above trends is a growing trend in movements encouraging consumers to buy local produce. This is promoted for a number of reasons such as freshness, taste, community cohesion and quality, as well as to support local farmers. This is being taken up by retailers in the UK with many including in their policies the aim to increase local sources of food. This

includes Tesco establishing local source buying offices to increase local food and ASDA (a lower price retailer) aiming to increase local food hubs and to increase the number of British farmers supplying it with food from 2,500 to 3,500.

In Australia, over 63 per cent of older consumers (aged 45 and over) have claimed that they knowingly seek to purchase local foods, whereas fewer than half of the younger population do not. In Germany, interest in local foods is increasing, with more than 40 per cent of German consumers claiming that they prefer to purchase regional produce, however this is not reflected in actual purchasing behaviour (NZTE, 2009).

A report by DEFRA further encourages this with recommendations to intervene with supermarkets to encourage them to prioritise stocking and promotion of local produce, and to provide further support for local outlets and markets for farm produce. This implies active government intervention and financial support to promote local foods. Local sourcing has also been identified as a priority for the public sector (Owen et al, 2007).

The US has also policy initiatives to encourage buying local food. The US Farm Bill has as a priority for the Business and Industry Loan Guarantee Program the aggregation and wholesaling of locally grown produce. Marketing of locally grown produce is also supported through the Value Added Product Market Development Grant Program.

The popularity of local foods has increased significantly over the last 15 years. Between 1994 and 2009 there was a 201 per cent increase in the number of operating farmers' markets in the US, most of which sold local products. In addition to this growth in popularity, US state-based agricultural promotion and marketing programmes have also increased. In 2000, less than half of the states within the US had established state agricultural marketing programmes; in 2010, all states have their own state-mandated agricultural promotion schemes, with effective labels delineating "local" products from other products (Onken et al., 2010).

Many US agricultural companies are adopting "local food" practices as a means of sales and marketing. Thousand Hills Cattle Company, stressing the health benefits and sustainable production methods utilised in producing local food, market grass-fed beef products from 40 farms in Minnesota and the surrounding states. They also have around 60 local stores that stock their produce, and offer tours of their production and processing facilities to interested consumers. Some retailers also use third-parties to distribute and promote local produce. Red Tomato is a non-profit organisation that markets locally-grown tomato products in the Northeast of the US for around 35 farms. They attempt to combine farm identity preservation with a strong overall brand identity, and have had some success in their intermediary work with both consumers and farmers in creating a sense of connection between the two (King et al., 2010).

In addition, Country of Origin Labelling (COOL) requirements based on the US statute went into effect on September 30, 2008, and the final rule is effective since March 16, 2009. Country of origin information, through signs, labels, etc., is required regarding certain fresh meat products, e.g. steaks, ground beef, and pork chops, as well as certain fresh chicken products that are sold in retail stores. Meat and chicken products sold in restaurants, as well as processed products, are exempt from the law. Under this the retailer has to label meat from overseas and this will include NZ manufacturing beef even if mixed with US beef.

Related to the growing trend in movements encouraging consumers to buy local produce, this is promoted for a number of reasons such as freshness, taste, community cohesion and quality, as well as to support local farmers. This is being taken up by retailers in the UK with many including in their policies the aim to increase local sources of food. This includes Tesco

establishing local source buying offices to increase local food and ASDA (a lower price retailer) aiming to increase local food hubs and to increase the number of British farmers supplying it with food from 2,500 to 3,500 (Saunders, et al., 2006).

The validity of Food Miles as an indicator of the food industry's environmental impact has been frequently questioned. A 2010 Canadian study by Montreal Economic Institute declared that the proposed environmental benefits of buying local food do not stack up against the negative environmental effects of food production. The report also cites a DEFRA report (DEFRA, 2005), which showed that around 83 per cent of food-related greenhouse gases are generated in food production, with only 11 per cent of food-related greenhouse gases being produced as a result of food transportation (New Zealand Trade & Enterprise, 2010; Montreal Economic Institute, 2010).

4.8 Nutritional food

The nutrition in food is also of concern and, whilst not directly linked to sustainability, the way a product is produced, such as the use of pesticides, is often seen as affecting both nutrition and the environment. A report published by the Hartman Group shows that US consumers are increasingly reading nutrition fact labels and it is estimated that 50 per cent of consumers read nutritional labels. However, consumers often find it confusing to read these labels and express frustration to locate the nutrient information because there are so many other types of information presented on products such as expiry date, country of origin statements and product narratives. A new labelling symbol similar to the traffic light system has been considered by FDA³ but the industry feels that a single symbol summarising all nutritional characteristics is too simplistic and may be misleading.

An example for a misleading label was developed by main U.S. food manufactures in 2008. The Smart Choices program introduced a front-of pack format for nutritional information for food products. It aims to provide consumers a healthier food choice at a glance and to promote healthy eating through product labelling. It is a voluntary scheme that is administered by the American Society for Nutrition (ASN) and NSF International, an international non-profit and non-government organisation that conducts standards development, product certification, education, and risk-management for public health and safety. Within the Smart choices Program food products are assessed against nutritional standards such as saturated fat and salt but it also claims for nutrients that improve a healthy diet such as calcium and fibre. Products that meet the criteria carry the Smart Choices logo on the front of the product package. The product also displays information about number of calories per serving and number of servings per container. This programme was developed to support consumer's decision – making for a healthier diet and in consequence to improve the health status of the Americans. Smart Choices (2009) claims that the award of the Smart Choices symbol is an incentive for food manufacturers. It implies that manufacturers gain recognition among consumers and furthermore, it is supposed to motivate producers to formulate healthier food products (Best, 2008; Smart Choices Program, 8 August 2009).

The FDA (2009) stated that the development of the scheme did not include governmental participation. Although, the FDA and Food Safety Inspection Service (FSIS) observed the development process and provided data on nutrition labelling and consumer impact research undertaken by the government agency (Food & Drug Administration, 2009). The Smart Choices Program is an industry-wide initiative. After the first products were labelled in 2008, concerns about the labelling format increased. Investigations from the FDA in conjunction

³ Federal Drug Administration in the United States

with other institutions led to the request for removal of the logo from the food products. The FDA (2009) raised concerns about misleading information on certain food products. There was evidence that food products that are high in fat and sugar (e.g., mayonnaise and ice cream) were claimed to be a healthy choice. In October 2009 the food manufacturers that participated in the Smart Choices Program labelling scheme have agreed to drop the logo from their food products. The FDA will intensify their scientific research on the criteria the Smart Choices Program are based on. Due to this ineffectiveness of industry driven labelling in the U.S., the FDA plans to develop standardised criteria for front-on-pack nutrition formats of shelf-labelling. (Cooper, 2009; Just-food, 2009). Furthermore, they will investigate to which formats consumer apply most in terms of a healthier food choices (Richwine, 2009).

This is in contrast to the development of a signpost label by the UK government. The UK Food Standards Authority (FSA) decided in 2004 to develop a front-of-pack signpost labelling scheme to support consumer's decision-making for food products. FSA's motivation was derived from research studies that report on difficulties in consumer understanding of nutrition information, the need to lead consumers to healthier food choices by looking at numbers of disease related to obesity numbers and also by consumer's dissatisfaction with processed food (Food Standards Agency, 2007).

The front-of-pack 'traffic light' labelling format consists of four elements:

- 1) Display of separate information on fat, saturated fat, sugars and salt
- 2) Presentation of the information on the amount of each nutrient in grams per portion
- 3) Use of red, amber and green to indicate whether there is a high, medium or low amount of each nutrient
- 4) Use of nutritional criteria in line with the UK legislation on nutrition labelling

In addition, the format allows the display of information on calories and percentage Guideline Daily Amounts (GDAs) (Food Standards Agency, 2009b).

In 2007/2008 the traffic light labelling scheme was adopted by some of the UK's main manufacturers such as Sainsbury, ASDAs (Wal-Mart-owned), Waitrose, the Co-op and Marks & Spencer. At the same time in 2007, several other main food manufactures and supermarkets in the UK such as Tesco and Somerfield and Morrison launched another scheme to promote nutritional value on food labels. They criticized the FSA recommended scheme in order of the traffic light code. They argue that consumers would not choose food products that indicate red colours for one nutritional value. These retailers display nutrition value as percentages of Guideline Daily Amounts on a panel on the food label. Members of this campaign argue that the display of % GDAs is easier to understand for consumers (BBC News, 2007a, 2007b).

Currently, there are several front-of-pack signpost nutritional formats in use in the UK. Some retailers use the FSA recommended approach by displaying traffic light colour codes (with one also providing information on the percentage of GDA). Other retailers claim information on the percentage of GDA without any traffic light colour coding on the product labels. The FSA is concerned that the coexistence of different nutrition labels may cause confusion among consumers. Therefore, the FSA commissioned an independent evaluation of existing nutrition formats in 2008. The different labelling schemes were evaluated by an independent project management panel. The results of the study were issued in 2009 and showed that consumers are most likely to understand nutrition values when a combination of per cent

GDA percentages with traffic light colours and the text 'high', 'medium' and 'low' displays nutrition facts. The format that displays nutrition values with traffic light colours used with text is also well understood by consumers.

Although they were ranked high with regards to comprehensibility of nutritional values, both the traffic light panel and GDAs were also criticised. Critics argue the traffic light format as simplistic and for certain product groups inapplicable. For example, some dairy products get awarded a red light for saturated fat, although the product contains beneficial ingredients for consumer's diet. On the other hand, %GDAs have been argued to require numeracy skills to understand the numerical nutrition values. In addition, findings of the latest FSA (2009) study demonstrated that particularly elderly people (over 65) and consumers with lower education were less likely to understand the front-of-pack labels displaying the % GDA (Food Standards Agency, 2009a).

Results of the recent FSA (2009) study validate the Agency's assumption that different front-of package panels create confusion among consumers. The study demonstrates that the coexistence of several nutritional information formats on the front of product packages generate difficulties among some consumers with regards to the comprehension of the labels. Furthermore, the FSA (2009) argues that the formats' colour code causes confusion among some consumers as different information of different labels is displayed in different colours. For example, some consumers do not realise that the colours of the traffic light nutrition panel has a meaning. On the other hand, some consumers think that the pale/neutral colours in the display of %GDAs are supposed to have meaning. Some respondents of the survey assumed that 'cool' colours are positive. In addition to the colour confusion, some consumers argue that a missing common parameter across nutrition formats (weight of nutrients in grams) made them unable to use the information to choose and compare food products. The FSA (2009) concludes that there is a request for consistency among the consumers (Food Standards Agency, 2009a).

The European Commission has put forward a proposal that would require food manufacturers to display nutritional information on the front-of-pack, including energy, fat, saturated fat and carbohydrates with specific references to sugar and salt content. Nutritional labelling is also on the agenda in the United States.

New Zealand is well placed, compared with many of our potential competitors, to meet such schemes given our relatively high levels of education and science system, experience in providing this kind of information and well developed bureaucracies. However, exporters in New Zealand must be aware of these developments overseas and provide the relevant information. Often for the smaller exporters the compliance costs of doing so can inhibit their ability to target high value markets.

Thus there is a demand for food labelling but there is a conflict between this being credible and easy to understand and yet providing enough information for choices to be made. This is an area where government regulation is most likely to occur as this is an area where government intervention has historically been.

4.9 Aging population

The aging population demographic currently makes up around one fifth of food and beverage consumers internationally, with this figure set to grow. This demographic represented US\$741 million worth of US sales in 2006. Concerned consumers within this segment have shown a general interest in health and functional foods, with a willingness to change diets if

personal circumstances allow. This has high implications for the functional foods market, as this is set to grow by 56 per cent between the years 2008 and 2011.

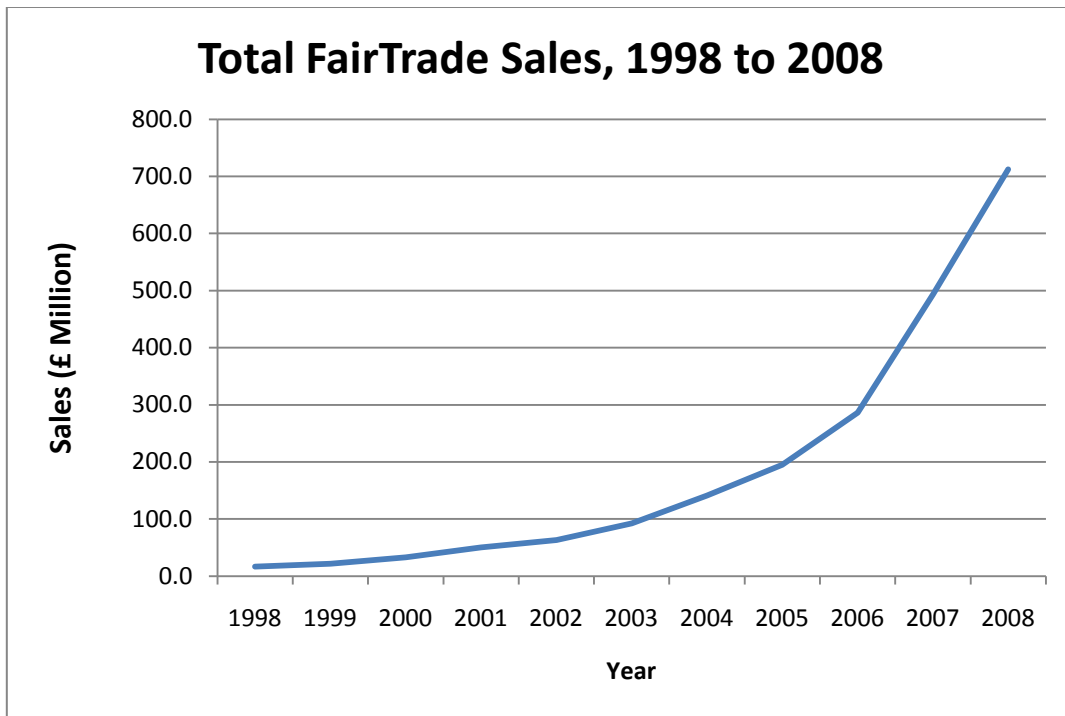
4.10 Ethical production

Ethical consumption has grown considerably. Under this heading is included organic produce. Also fair trade is included here, which first appeared in Europe in the 1980s for coffee, but has now expanded considerably to other products. The 'fair trade' label is certified by the Fair Trade Labelling Organisations International and requires that farmers receive a higher price for their product. Fair trade products represent one of the few segments whose sales have risen throughout the global recession, which indicates that this is a highly successful market segment in terms of consumer choice.

Ethical requirements in production of food include social responsibility, and are a growing requirement by retailers, as shown in Figure 4.1. Many such as Wal-Mart have ethical standards such as no use of child labour, non-excessive labour hours and other health and safety provisions. In general NZ has at least equal, if not better, standards in its treatment of labour and labour laws. However, there are areas of vulnerability particularly around migrant workers in the horticultural sector and employment condition. According to a 2010 report, up to 69 per cent of US consumers would pay more for products that they felt were 'ethical', giving these brands higher respect and loyalty. In addition, 60 per cent believed that ethical foods were healthier, with a further 58 per cent believing that ethical food is generally safer to eat (Context Marketing, 2010).

The latest TNS CAPI Omnibus findings (2008) showed that 70 per cent of the UK population recognises the Fair-Trade label, (a label associated with ethical trading and production,) with 64 per cent of the population linking this label to a "better deal" for producers in the developing world. Many major food producers and retailers are increasingly showing interest in Fair-Trade ideals. Large-scaled multi-national food corporations such as Tate & Lyle and Cadbury have implemented policies to protect international food workers' rights, and provide ethically sustainable goods to their customers (The Promar Digest, Jan 2010).

Figure 4.1: Total FairTrade sales, 1998 – 2008



Source: The FairTrade Foundation, 2008.

Food waste is also an issue in terms of general sustainability practices internationally. Currently around 30 per cent of food produced in the UK is wasted, (60 per cent of which is edible,) with a staggering 40-50 per cent of food wasted in the US. This has massive implications for the implementation of sustainable practices in policy and consumer behaviour, as wasted food may be used for other purposes, and to reduce the need for surplus production of new food.

Chapter 5

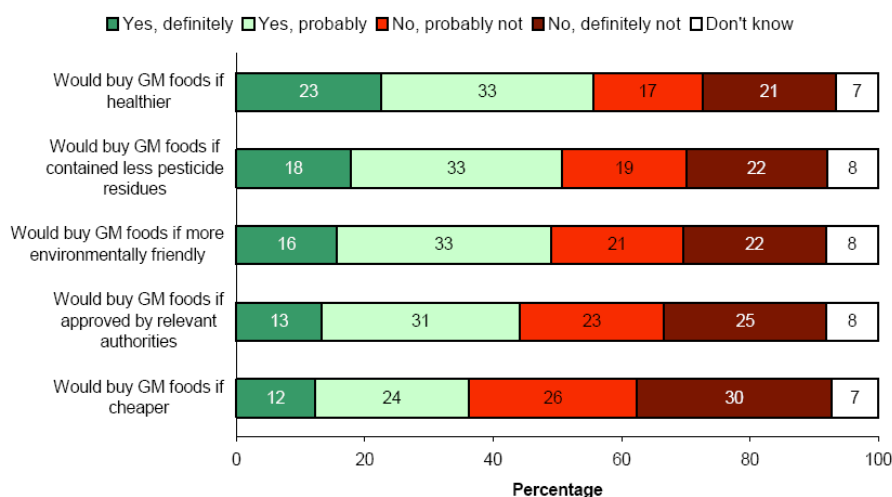
Emerging Concerns and Trends

5.1 New technologies

Nanotechnology in food production and processing and genetically modified foods are new technologies. Clearly the reaction of markets to genetically modified foods has included segments of consumers rejecting this technology. In the future the development of genetically modified food which has positive consumer attributes may change attitudes to GM technology. In the case of nano-technology this caution is also operating with reviews of how nanotechnology is being used in food and food packaging. This has benefits such as anti-bacterial packaging but concerns still exist around its safety (Miller and Senjen 2008).

A broad range of studies have been conducted focussing on consumers attitudes towards genetically -modified food products and other food processing technologies. Gaskell, et al. (2006) investigated the Europeans' perceptions towards biotechnology. The survey was based on responses from approximately 1,000 individuals from each of the 25 EU Member States. Results showed that GM food is predominantly perceived negatively, most consumers do not see any clear benefits associated with genetically engineered crops as the public is clearly concerned about potential risks to human health and the environment, as shown in Figure 5.1. Whereas the European public is most positive about nanotechnology, followed by pharmacogenetics, and then gene therapy, the study showed low level of support for GM food. Even in Spain, where tens of thousands of hectares have been planted with GM crops, the support is only seven per cent above the European average of 27 per cent. It seems that the risk attached to gene therapy is tolerable, whereas for GM food it is unacceptable. There are mixed opinions on the acceptability of buying GM food. The most persuasive reasons relate to health, the reduction of pesticide residues and environmental impacts (Gaskell et al., 2006).

Figure 5.1: Reasons for buying or not buying GM foods



Source: (Gaskell et al., 2006)

This is in line with Noussair et al. (2008) who investigated consumer attitudes towards genetically modified food in France. In a representative sample they found that upon learning that a product contains GM ingredients, 22 per cent of the participants refuse to purchase of the product entirely, and 60 per cent lower their bid by at least by five per cent. Thus, the “contains GMO’s” label causes a decrease in consumer’s willingness to pay for the product. Whereas 35 per cent of the respondents totally boycott the product made from GM ingredients, the remaining 65 per cent were willing to purchase the product if it was sufficiently inexpensive (Noussair, Robin, & Ruffieux, 2008).

5.2 Functional and fortified foods

There is also growing demand for foods which provide health benefits beyond basic nutrition. This is an important market in Japan with its own regulatory process recognising these foods and 400 new foods being launched each year. There is also interest from other developed countries especially as populations age. Already a number of products such as cholesterol reducing margarine have appeared. These foods are generally based on “natural” products or ingredients and thus do not raise the suspicion that new technologies do. In fact these products frequently emphasise their ‘naturalness’ and sustainability credentials, that is the minimum use of inputs and are often organic.

The value of the market for foods with perceived superlative health values is difficult to state. Euromonitor⁴ estimated the 2005 total world values of sales of naturally healthy, high-fibre foods at US\$25 billion (Euromonitor, 2006). Other research found estimated sales of functional and fortified foods in the United States in 2006 at US\$35.86 billion (Sloan, 2006). Low-GI foods are also a growing sector of the functional foods market.

The global functional food market is expected to reach a value of at least US\$90.5 billion by 2013. In addition, the global functional food industry is projected to grow 56 per cent between 2008 and 2011. The US functional foods market is currently the largest in the world, representing between 35 to 50 per cent of global sales (Price Waterhouse Coopers, 2009). Other research found estimated sales of functional and fortified foods in the United States in 2009 at \$37.4 billion, a 2.9 per cent increase over the previous year. Functional food sales in the US also outpaced overall food industry growth, at a rate of 1.6 per cent (Sloan, 2010).

A large portion of global functional foods sales are attributed to Japan’s growing functional food market, as the Asia-Pacific represents the second largest market. As food has an important role in Japanese culture for curing illness and treating general health concerns, the functional foods market has been growing in Japan at a fast rate. The market value of functional foods in 2007 was valued at US\$6.7 billion, up slightly from US\$6 billion in 2005. Datamonitor has predicted that this market will grow 5.9 per cent from 2007-2012, at a value of US\$16.4 billion in 2007 to US\$21.8 billion in 2012 (NZTE, 2008).

The functional foods market is also growing steadily in the developing world. In China, global functional food sales were approximately US\$6 billion in 2004, which is expected to double by 2010. Recently, Brazil raised functional foods sales past approximately US\$5 billion in 2009, comprising the largest portion of Brazil’s health and wellness market. India is currently listed as one of the top ten countries for functional foods consumption, as food-based health is an important cultural characteristic. In Russia, the value of the functional

⁴ Euromonitor gives international market intelligence on industries, countries and consumers. They have more than 30 years of experience publishing market reports, business reference books, online information systems and bespoke consulting projects.

foods market was approximately US\$75 million in 2004, with an annual growth rate of 20 per cent (ARD, 2004).

Increased demand for functional and fortified foods has potential to become an extremely important segment of the market for NZ. Clearly research is needed to help develop these products and assess their benefits. There are examples of these already being exported from NZ such as manuka honey products.

5.3 Emerging markets

The above discussion has focussed on the main markets NZ currently services such as the EU, the US and other developed country markets such as Japan. However there is growing evidence of high-value premium markets in the emerging markets of Asia, Latin America and central and Eastern Europe. It is estimated that there are currently a billion middle-class consumers in these markets and this is set to grow. These regions have the highest predicted growth rate in incomes per head. Also they have the greatest predicted increases in consumption of meat and dairy products. In the case of beef the growth rate in consumption is predicted to be nearly four per cent in China per year from 2008 to 2017 and 2.7 per cent in India compared to falling growth rates in Japan and Australasia and static growth in Europe. Sheepmeat follows a similar trend with predicted growth to be over three per cent in China and Brazil and over five per cent in Russia. Butter consumption is predicted to increase by over three per cent in Brazil, China and India and nearly three per cent in Russia from 2008 and 2017. In China, a three per cent rise per year from 2008 to 2017 is predicted for whole milk powder and eight per cent for skim milk powder. This compares to static or declining growth rates in these commodities in Europe, Japan and Australasia. However the OECD and FAO report does state that by 2017 whilst consumption and imports from developing countries will have increased this will be met from other developing countries and the share of OECD countries in the trade will have fallen.

The main change in these markets is the switch from small retail outlets to the supermarket outlets. In China, for example, there were no supermarket sales at start of 1990 and in 2006 this had grown to \$100 billion (Readon, 2007). This rise is due to rising incomes, increased urbanisation, women's entry into workforce and increased access to transport and refrigeration. The growth in supermarkets has been from Western European and US multinational retailers such as Tesco, Wal-Mart and Carrefour especially in countries like China. These chains are likely to take the same requirements for their corporate responsibility for sustainability to these markets as in others especially as global and regional procurement grows. The rise of the supermarket in the UK has been a pronounced one, and has seen the number of small retailers drop greatly – from around 500,000 small retailers throughout the UK in 1945 to just 35,500 in 2010. This is a worrying statistic for small retailers, as the four major UK supermarkets; Tesco, Asda, Sainsbury's and Morrisons; have a massive 75 per cent share in the £80 billion grocery sector in the UK (Supermarket.co.uk, 2010).

The Asian food market stands to represent a potentially major area for New Zealand exports. As Asian countries develop further, there are now approximately 1 billion middle-class people across Asia, Latin America and Eastern Europe, which may allow for new consumer segments in these regions. Also, supermarkets and large retailers across Asia are booming, especially within China. Prior to 1990, China had no supermarkets or large retailers, compared with around 60,000 currently. This may represent a potentially lucrative market for New Zealand exports due to its size and retailer development.

Changes in consumer behaviour are important for New Zealand exports, because the above-mentioned markets are important to New Zealand. In particular, schemes in the UK, and other EU countries would mean that in supplying those markets, producers would have to measure their carbon footprint and reduce it where possible. This may have wider implications if supermarkets develop in other countries, such as Tesco's and demand similar procurement policies for these markets as for the EU.

Chapter 6

Conclusion

This report examines trends in consumer concerns regarding sustainability in key overseas markets for New Zealand. These trends are affecting and will continue to affect what consumers buy and the premiums they will pay. The implications of these for New Zealand were explored in this report. The report also extends to other issues that may have potential to impact on our exports.

The changing international policy environment, especially within developed countries, reflects the breadth of sustainability initiatives. As agriculture is New Zealand's main export, it is essential for us to meet environmental benchmarks in order to gain market access. Examples of this include the Single Farm Payment, (introduced in 2003 within the EU Common Agricultural Policy,) a system which subsidises farmers who include social and environmental criteria in their products. Similarly, the 2008 US Farm Bill includes a reward system for farmers who incorporate sustainable practices in production. Reflecting retailer policy towards sustainability, market assurance schemes such as EurepGAP, established by retailers in 1997 to address consumer concerns regarding environmental and social issues, now sets a common standard for farm management practice, introducing a voluntary labelling system to better inform consumers of the impact of their purchasing behaviour. Other retailer policies reflect this initiative, particularly within developed countries such as the USA, UK and France.

Consumer attitudes and behaviours are changing, particularly within premium segments. Many consumers are reacting to the associated environmental and social impacts of the products they are purchasing, and seeking out products that promote sustainable practices in production and consumption. An example of a growing market segment includes the LOHAS ("Lifestyles of Health and Sustainability"), which now includes relatively high percentages of consumers within the USA, UK, China, France, Japan, Taiwan and Australia.

There have been many systems put in place to meet retailer gatekeepers and consumer demands for sustainable goods, such as carbon footprint labelling schemes, in which producers and retailers label goods with the relative amount of carbon emissions related with the product. Such schemes are now being picked up by governments internationally, with schemes being adopted in the UK, USA, France, Japan and Switzerland, among others.

A growing issue is water quality and quantity which has the potential to affect New Zealand given the recent rise in nitrogen use and nitrate pollution, Water usage is a concern in some market consumer segments, and there is a future possibility of water footprint labelling schemes and/or the measurement of embedded or virtual water in products.

Concern over intensification of agriculture overseas and the subsequent loss in wildlife and biodiversity has led to concern and led to policy development as discussed above but also retailers positioning market segments with wildlife and biodiversity schemes. Animal welfare is a very highly rated concern for consumers, with surveys in the EU and UK confirming that animal welfare remains consumers' top concern regarding their purchasing behaviour. This is growing in importance and the banning of battery hens is part of the movement towards increasing regulation around animal welfare.

A growing trend in sustainable living is the concept of reducing meat and dairy consumption due to the high carbon footprint of such products, with concepts such as low carbon diets

receiving attention. This has the potential to seriously affect New Zealand exports and further work could be explored with the impact of these changes on nutrition and the sourcing of alternative sources of fibre and protein.

The impact of the recession has not been to reduce the importance of sustainability in key market segments but has led to the increase in demand for local food. The local foods movement promotes the purchasing of food sourced from locally-based producers. This is to support local communities but also some argue to reduce individual carbon footprints. As a result, alternative food networks, including community-supported agriculture, farmers' markets and food box schemes are slowly generating higher interest as a means of reducing the environmental impact of individual consumption. The Food Miles report among other showed this was a false premise but New Zealand has to be aware of this factor and still argue that locally-grown food is not necessarily better for the environment. In addition, New Zealand could also stress the importance of the community within the country and the fact that New Zealand purchases food supports this. The seasonal food concept is also receiving increased attention, promoting the idea of only eating fruit and vegetables that are in-season locally to reduce the environmental degradation associated with shipping of foreign produce, again the Food Miles report showed that this is not always the case and also stress the negative nutritional impacts of just eating seasonal food.

Although not strictly related to sustainability, one trend in the global food market that should be noted is the recent interest in the nutritional value of food. According to a recent report, it is estimated that around 50 per cent of US consumers now read nutrition labels on food products, reflecting a renewed interest in individual nutrition. As a result, there are now several front-of-pack labelling schemes in place, such as the 'traffic light' system in the UK, and direct percentages of fat, sugar, etc in the USA, to directly reveal a product's nutritional value to consumers. Ethical production is perhaps one of the most important new developments in international trends, and one of the few market segments to raise sales over the recent global recession, with labels such as Fairtrade in the driving seat. In a 2010 report, up to 69 per cent of US consumers stated that they would pay a premium for such products.

There are also emerging concerns within some consumer segments relating to other attributes of products. New technologies, such as nanotechnology and genetically-modified foods represent a large part of this. There has been a broad range of studies to determine consumer attitudes and behaviours to this which have revealed that large consumer segments will not purchase products which have genetically-modified properties or ingredients, or will not pay premiums for such products. There is, however, growing demand for products which provide health benefits beyond basic nutrition, such as functional or fortified foods. The value of this market is difficult to determine, although some studies have projected that the value of the functional foods market to reach US\$90.5 billion by the year 2013. This market is particularly popular within regions of Asia, including China, in which the value of this market was estimated to be around US\$6 billion in 2004. In addition to this, emerging markets such as those of developing countries like China, Brazil or India, represent high interest to New Zealand as potential export markets. In China, for example, supermarket sales have increased from 0 to US\$100 billion in 2006. As these markets develop, they represent potentially successful markets for New Zealand, as there are now approximately 1 billion middle-class consumers across Asia, Latin America and Eastern Europe. However, it should be remembered that whilst these markets should be developed the middle class in these markets are still on relatively low incomes compared to other markets. Consumers in these developing markets are interested in how food is produced and stress attributes such as 'naturalness'. This is similar in concept to the attribute of sustainability.

New Zealand therefore has a number of key opportunities in overseas markets to effectively position its exports and enhance the value for these. This is across all premium market segments in both the traditional and emerging markets. New Zealand is in an important position to obtain market advantage with our relatively low intensive production systems and positive perception in markets. Traditionally New Zealand has excellent reputation for delivering quality and safe food which are still the most important attributes. However, of growing importance are the methods by which food is produced and concern for communities and environmental factors. Thus positioning and marketing our products on this basis, and developing industry structures that can ensure these demands are met and that the benefits and signals flow down to producers, is important.

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