

Food & Beverage Sector Survey

Environmental Practices and Export-Related Requirements:

Current Practice and Needs

Cerasela Stancu

Landcare Research
Private Bag 92170, Auckland
New Zealand

Ann Smith

Landcare Research
PO Box 40, Lincoln 7640
New Zealand

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Reviewed by:

Approved for release by:

Eva Collins
Waikato Management School
University of Waikato

Penny Nelson
Science Leader
Sustainability & Society

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Summary

Project and Client

Over 340 food & beverage producers and exporters were invited to participate in a survey that explored their current level of environmental management practices, the environmental requirements businesses face in overseas markets, and the environmental management support they might need.

Methods

The 104 respondents represent a response rate of more than 30% from 10 categories across the sector, with a fairly even distribution of company size.

Main Findings

- The assumption that the food & beverage sector does not have an impact on the environment is broadly spread among producers and exporters. This may be explained by the lack of systematic assessment of the environmental impacts of food production and manufacturing from cradle to grave at company and/or sector level.
- Climate change and water management are not perceived as important issues facing the sector. Despite the high profile of climate change internationally, and despite the fact that, after airlines, the food & beverage sector has the highest intangible value at risk, climate change and emissions are of low concern for the New Zealand food & beverage sector, with only 13% listing it as a key issue. More than half of those concerned about climate change belong to the wine sector, even though other crops are at risk from climate change in New Zealand.
- Although about 74% of respondents have implemented at least one practical environmental measure, 38% of New Zealand producers and exporters have not joined any recognised New Zealand or overseas standard, supply chain code of practice, or eco-labelling scheme. The potential of the sector to demonstrate their environmental credentials is therefore poor, despite the fact that many have implemented some type of environmental measure.
- Only one-third of businesses have procedures to ensure compliance with overseas environmental requirements. Concern about overseas environmental requirements decreases slightly with the business size, small businesses (1 to 9 staff) being more concerned about compliance with regulations in export markets. Businesses that have direct contact with the export market have a better awareness of environmental requirements and tend to implement a wider range of measures to mitigate their environmental impacts.
- A relatively high proportion of businesses (43%) have taken environmental action simply because of their business ethos and staff interest, as well as genuine concern for the environment. Interestingly, almost all those businesses that improved their environmental performance because of their beliefs are different businesses than those concerned with compliance issues.
- There is no consensus in the sector about the existence and/or integrity of a 'clean green' brand and the values it represents. Some respondents feared that many producers are 'free-riding' the brand and suggested that clear criteria and certification processes should

be developed. Some respondents suggested the development of a joint brand between NZTE and Tourism NZ bringing together '100% Pure NZ' with 'clean green' New Zealand into a single, internationally recognised standard.

- The sector relies heavily on customer information and personal research to improve its environmental practices. It also looks inward (inside New Zealand) when seeking advice on environmental practices, which is not sufficient when competing in overseas markets. At the same time, existing resources that could assist with increasing operational and resource efficiency of businesses (e.g. Energy Efficiency and Conservation Authority, waste management companies, Ministry for the Environment) remain untapped.
- The mechanisms through which intermediaries in the export chain screen and promote the environmental practices (above and beyond regulatory compliance) of the producers is unclear – no differentiation seems to be made between producers that demonstrate some kind of environmental practice compared to the rest.
- There is great interest from the sector in receiving information about environmental and sustainability trends in export markets, 70% of respondents indicating that they would like to receive such information. Additionally, 30% of respondents offered to participate in the development of best practice case studies.
- The drive for food safety management practices and traceability seems to override environmental management practices in the food industry. However, the scope of food safety practices does include some direct environmental aspects (i.e. maximum levels of residues), but these are limited and do not entail practices like carbon management or use of LCA.

1. Introduction

Consumers increasingly demand food products that meet stringent environmental requirements (Hoffmann & Rotherham 2006). Such requirements can be broadly grouped into product or process measures that aim to avoid or mitigate impacts on human health and safety (and on species or ecosystems) that may result from the process of food production and consumption (including refrigeration and transport to the markets). To protect consumers, governments have put in place complex food health and safety regulations (Hoffmann & Rotherham 2006). Large food manufacturers and retailers have also introduced stringent environmental requirements to their supply chain, using a holistic ‘farm to fork’ approach. While such requirements are not mandatory, they often become de facto criteria for market access if many importers and retailers require them. Current trends have demonstrated the increasing importance of voluntary environmental requirements in the marketplace, especially when such requirements are adopted by global supply chains. As a sector with a high level of consolidation, food & beverage is particularly sensitive to such developments.

Over 340 food and beverage producers and exporters were invited to participate in a survey that explored their current level of environmental management practices, the environmental requirements businesses face in overseas markets, and the environmental management support they might need.

2. Background

2.1 Food & beverage sector in New Zealand

The New Zealand food & beverage sector plays a key role in the country’s economy, generating about 10% of GDP and export sales of over \$15 billion in 2005. The sector also directly employs 74 000 people, which represents 4.29% of New Zealand’s total workforce (Statistics New Zealand 2006).

According to Statistics New Zealand (2004), the food & beverage sector is New Zealand’s fifth largest user of energy and generator of emissions, accounting for about 5% of the country’s total energy demand (29.71 PJ) and 4.9% of total carbon emissions (1.7 million tCO₂-e). There is no country-wide information on water use and waste generation from the food & beverage sector. For the year ending September 2006, 1.06% of total food & beverage export volumes (or 3.36% of total export value) was air freighted (Statistics New Zealand).

New Zealand exporters already use a number of environmentally related certified brands,

some because it is required by overseas retailers, e.g. Marine Stewardship Council (MSC)¹ or EurepGAP², or because of the opportunity to enter a market niche as in the case of organic production (labels like BioGro³ or OrganicFarmNZ⁴). There are also exporters who take on the brands because they think it will help, but they are not being strategic, i.e. they have not decided what their final goal is (image benefit, market share, cost reduction, company ethos etc). Whatever their practice is, the disconnection from final consumer is an additional challenge for this sector, which has to maintain and strengthen its export success at a time of consolidation in food markets and of increasingly higher consumer expectations for sound food safety standards closely intertwined with environmental and social requirements.

The recently published *Smart Food, Cool Beverage* report (Food and Beverage Task Force 2006) reviews some of the challenges the sector is facing and attempts to provide a framework for action to secure the future of the sector. The report suggests the need for sub-sector strategies that, it is hoped, will see sustainability issues addressed in detail. This has not been the case so far.

Building the capacity of producers and exporters to anticipate and respond to future environmental requirements is an important step to enhance their competitiveness and protect their market share. The drive for energy efficiency and low-carbon products in Europe and elsewhere has started placing a new type of restriction on New Zealand exports, which are not yet positioned to deal with this. Yet, pioneer examples do exist. Grove Mill vineyard in Marlborough is the first New Zealand company to be certified as carbon neutral by reducing and mitigating any unavoidable emissions. As result, their supplier in the UK has placed additional orders and also started showcasing the New Zealand wine for its zero-carbon credential.

In order to develop environmental support tools for exporters that will help them be more strategic in the adoption of environmental credentials, we undertook a survey of food and beverage producers and exporters to learn more about their current level of environmental management knowledge and practice, the environmental requirements businesses face in overseas markets, and the environmental management support they might need.

2.2 Survey of food & beverage producers and exporters

The survey is part of a broader Landcare Research initiative to improve the awareness and understanding of New Zealand producers about the links between environmental impacts and business practices. The survey focused on food and beverage due to the importance of this sector in New Zealand's economy through its export earnings. Further, food & beverage is a

¹ Marine Stewardship Council (www.msc.org) is an international environmental standard for sustainable and well-managed fisheries.

² EurepGAP (www.eurepgap.org) is a pre-farm-gate standard that certifies good agricultural practices of growers. New Zealand has an approved scheme (NZ GAP) for fruits, flowers and vegetables (www.newzealandgap.co.nz).

³ BioGro (www.bio-gro.co.nz) is a NZ organic certification standard that is IFOAM-compatible. BioGro certification is recognised in Europe, US and Japan.

⁴ OrganicFarm NZ (www.organicfarm.org.nz) is a low-cost organic certification system largely intended for small New Zealand producers supplying the domestic market.

sector facing rapidly changing environmental requirements that can potentially become barriers to market access.

The survey has targeted companies involved in all export activities in the food & beverage sector, from producers and manufacturers through to exporters.

3. Objectives

The goals of the survey were to:

- determine current environmental management practices in the food & beverage sector and the level of awareness about their impact on the environment
- review the environmental hurdles New Zealand producers and exporters currently face in overseas markets
- identify the sector's perception about the challenges in embracing good environmental practices
- obtain views about what actions could help build capacity and improve exporters' environmental performance
- explore the sector's views on the 'clean green' New Zealand brand and identify measures that could strengthen it.

4. Methods

The survey was conducted during August 2006 by Landcare Research, with support from New Zealand Trade and Enterprise. The businesses targeted included all organisations listed in the NZTE Exporter Database as well as members of several industry associations whose contacts were publicly available.

Altogether, 340 businesses from all areas of the food & beverage sector (meat, dairy, fruit and vegetables, beverage) were approached, including industry associations, export-import and marketing companies. The survey, which included a deadline for submission, was sent electronically by email with follow-up phone calls to help interested businesses complete the form. The deadline for returning the survey was extended twice to allow more businesses to respond. To guide businesses, many of the survey questions included optional answers as well as an 'other' category. When necessary, some of the respondents were contacted again to clarify answers or comments returned on the form. Phone calls reminders and assistance has helped to increase significantly the initial rate of response.

One hundred and four responses were received; a response rate of about 30%, which is considered high, given that the food & beverage sector is frequently approached with survey requests and suffers from so-called 'survey fatigue'. (One of the respondents to the survey from Auckland mentioned that he/she had received four survey requests at the same time!) Furthermore, the survey was rather complex, it required some specific knowledge, and it took

an informed person about 20 minutes to fill in, which in itself can be an obstacle as businesses are always time-constrained.

The survey was divided into three parts:

- General information about the company – specific area of activity, employees, turnover, export markets, and modes of shipping the product to these markets.
- Environmental profile – set of questions to determine the current environmental practices and credentials.
- Sustainability-needs profile – looking at the sector’s perception of future challenges and obstacles in adopting environmental practices to meet market requirements, and what could be done to assist them.

The questions were reviewed by the Advisory Group for the Sustainable Trade Initiative of Landcare Research and NZTE. MFAT and MAF were also consulted in the formulation of the questions. The survey was piloted with a beverage company and some amendments were introduced in order to improve the survey design and to ensure that the questions could be understood.

4.1 Limitations of the survey

Due to the fact that this survey is the first of its nature for the New Zealand food & beverage industry, a full range of actors in the food & beverage export chain were targeted. Some of the respondents to the survey included industry associations, who generally play an advocacy role for the sector within New Zealand and do not engage directly in production and export activities. Consequently, many of these associations were not able to answer questions related to actual environmental practices and/or export requirements. There were also industry groups that declined to fill in the survey altogether, as they either felt that their members were better positioned to answer the survey or that their mandate did not include leadership on environmental matters.

Some of the import-export companies also felt that specific questions about environmental practices could only be answered directly by producers. In addition, some of the questions were subject to interpretation by respondents, sometimes leading to distortions of their real meaning. It should also be noted that because of the complexity of the survey, the knowledge of the person filling it in was very important for ensuring the accuracy of the response.

Given the resources available, the survey was not conducted with the intention to collect a statistically valid sample and no inferences are drawn from the responses received to the 300+ businesses approached. The findings accurately represent the opinions of 104 organisations in the food and beverage sector, but there is no statistically valid way of judging whether the 70% that did not respond to the survey had similar opinions. However, it would be expected that those in the export sector with an interest in environmental matters would be more likely to have responded. If this is the case, that interest might be overstated, as the opinions expressed are from the better informed members of the sector.

To put the results of this survey into perspective, they have been compared where possible with the results of a 2005 survey of environmental practices of small and medium-sized enterprises in the UK (NetRegs 2005) as well as with the 2003 survey of sustainable practices of New Zealand businesses (Lawrence & Collins 2004).

Lastly, the fact that the survey targeted producers, manufacturers, export companies and industry bodies alike has ensured reliable data in some areas (i.e. challenges for the sector as a whole, perspectives on the ‘clean green’ New Zealand brand) but may have limited reliability in some areas that could not be addressed by all businesses (i.e. uptake of standards and codes of practice, eco-labelling certifications).

4.2 Responses by business activity

Of the 104 respondents, 60 indicated one specific area of activity; the rest were involved in two to five areas (Fig. 1). For example, wine producers are involved in export activities and they also market their products.

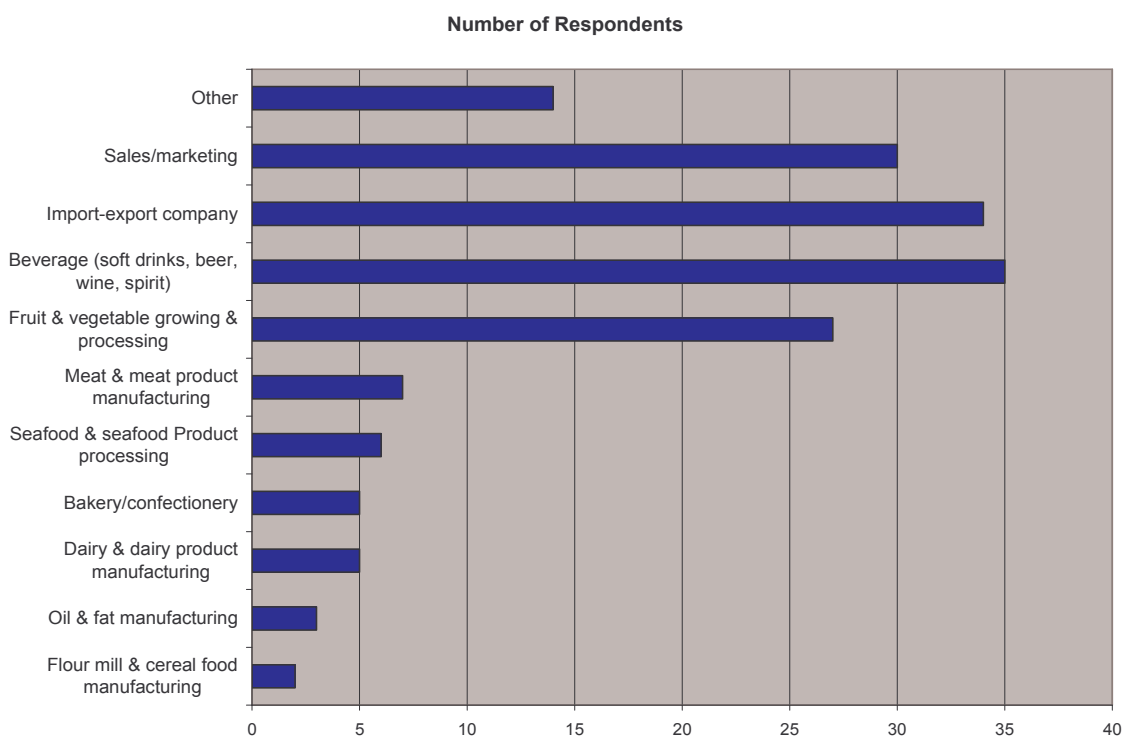


Fig. 1 Responses by business activity.

Responses by business activity involved breakdowns within the various categories. For example, 52% of the respondents represented two business activities: beverage (34%) and fruit and vegetable growing and processing (26%); 20% of the beverage companies are fruit growers as well; 18% represented meat and meat product manufacturing (7%), seafood and seafood product processing (6%), and dairy and dairy product manufacturing (5%); approximately 10% of respondents came from oil and fat manufacturing, flour mill and cereal food manufacturing, and bakery/confectionery; 13%, representing industry associations (producers or exporters), holdings and companies dealing with product development, chose the ‘Other’ category.

4.3 Responses by business size (number of employees and annual turnover)

Nearly half (49%) of all respondents had a turnover income of more than \$5,000,000 per

year, and over 22% of respondents are companies with 50 employees or more (see Table 1). The distribution of respondents is fairly well spread across various business sizes. Around 60% of respondents are based in the North Island and 40% in the South Island.

Table 1 Distribution of respondents by company size (\$000's annual turnover)

No. staff	<150	150–500	500–1000	1000–2000	2000–3000	3000–4000	4000–5000	>5000	%
1–5	5	4	8	4	2	1	0	6	29
6–9			1	4	4	2	1	6	18
10–19				4	4	3	1	4	17
20–49						1	1	12	14
50–99								8	9
100–499					1			10	11
> 500								2	2
%	5	4	9	12	11	7	3	49	

Note: Three respondents did not specify the number of staff or annual turnover. A further two did not provide information about their annual turnover.

5. Main Findings

The results below should be examined on the basis that a large proportion of those businesses that participated in the survey represent the more proactive segment of the New Zealand export sector; a broader survey may show less encouraging results.

5.1 Environmental profile: current practices and requirements

Responses indicated that 38% of the businesses involved in this survey had an environmental policy; 11% had dedicated environmental management staff; 17% reported that they had a certified environmental management system (EMS) in place; 66% had activities in place that could be part of an EMS (environmental training, objectives and targets, procurement and compliance); 14% had products with certified environmental credentials (i.e. MSC, organic labels, ISO 14001, or Sustainable Wine Growing New Zealand); and 4% produced an environmental report (Fig. 2).

Environmental awareness and action

Respondents were asked to indicate from a list of 13 items which environmental management practices they had implemented (Fig. 2). On average, only 52% of the businesses questioned have procedures in place to ensure compliance with environmental regulations in New Zealand, dropping to 33% for environmental requirements in overseas markets.

Businesses that do not comply with environmental regulations (here or overseas) risk high fines and, most importantly, they can suffer reputational damage, including a potential challenge to market access. Businesses concerned with compliance issues are of different sizes and come from all sectors of the food & beverage industry. Businesses of up to nine

staff members are less likely to have compliance procedures for New Zealand regulations (46%) compared with those with 10–100 staff (69%). An interesting finding is that concern for overseas environmental requirements decreases with increase in business size.

Encouragingly, over a third of respondents (38%) have an environmental policy, either in the form of a written commitment or as informal environmental principles applied internally. This figure is higher than businesses surveyed in the UK, where around 25% had such a policy, according to the 2005 environmental survey across all SMEs (<249 staff members) (NetRegs 2005). A 2003 survey of sustainability practices of New Zealand businesses (Lawrence & Collins 2004) puts this figure at about 27%, lower than the findings of this survey. It is generally expected that the food & beverage sector would have a better uptake of environmental practices simply because they are a highly scrutinised sector.

Environmental policy is one area where the size of the business clearly makes a difference to the rate of uptake. The survey shows that a business with >100 staff members is 2.5 times more likely to have an environmental policy compared with those businesses with up to nine staff members. Also, two-thirds of those businesses with an environmental policy have also developed environmental awareness and education programmes for their staff.

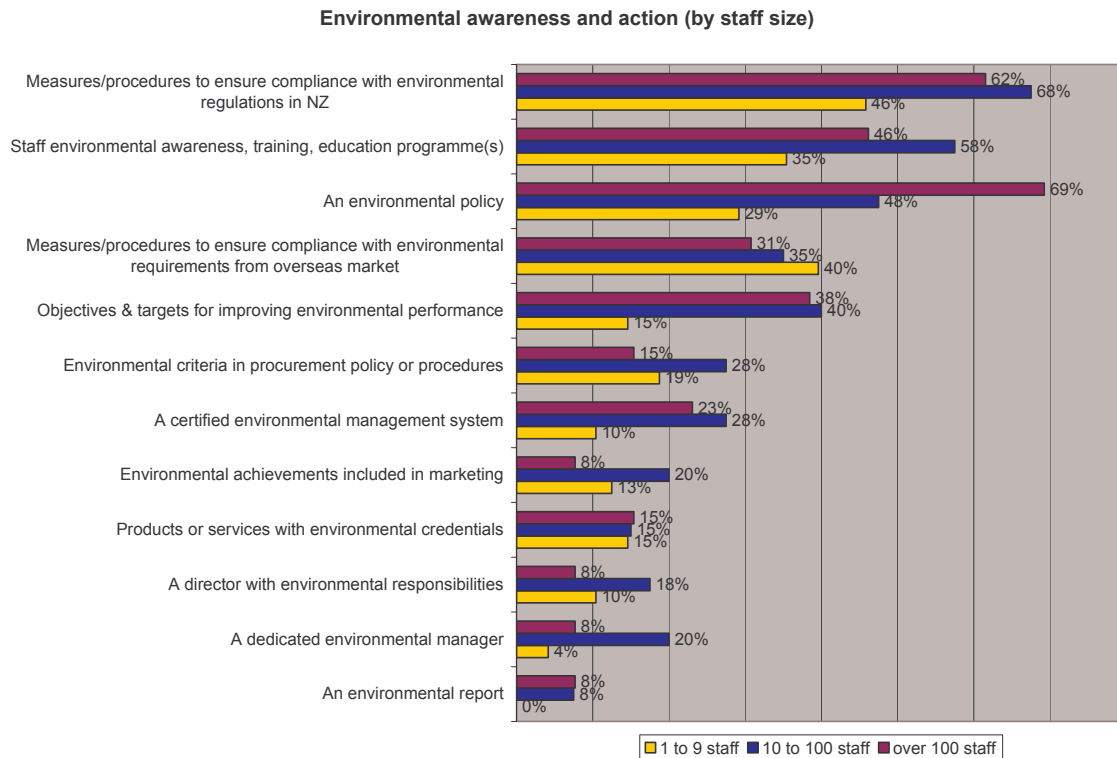


Fig. 2 Environmental awareness and action.

Two areas that the sector does not exploit in building its environmental reputation and competitiveness are disclosure of environmental information and the use of environmental achievements in marketing. None of the respondents with fewer than nine staff members prepare environmental reports (independently or as part of their annual reports), and only 8% (4) of businesses with >10 staff members do so. All those preparing environmental reports

are beverage companies: three winemakers and one brewer.

Only 15% of respondents use environmental achievements in their marketing strategies. These findings are surprising: given that more businesses have reported in this survey that they have some kind of environmental practices. It is not clear why they would not publicise their environmental practices. Possible answers could be that businesses cannot substantiate environmental claims or cannot see the market benefits of doing so.

Understanding of environmental impacts

When asked to rate how severely their activities and products impacted on the environment (i.e. no impact; minor impact; major impact; severe impact; detrimental), over 70% of respondents answered that their impact is minor; only 5% of respondents acknowledged that they have a major impact. Similarly, 49% of respondents judged their environmental practices as good; only 5% rated them as poor and 15% appreciated their practices as excellent. This positive perception by the sector of their own impacts and practices is rather surprising, given the low number of businesses that have environmental compliance procedures in place (see Environmental Awareness and Action above) and the absence of a systematic approach to assess environmental impacts (i.e. life cycle assessment, EMS). Indeed, of those respondents that do have EMSs in place, only three companies (3% of all respondents) have undertaken life cycle assessments of their products, pointing to a potentially serious gap in knowledge of the sector about its own environmental impacts from cradle to grave. Over 10% of all respondents have carried out life cycle analysis with a view to determine product shelf life (expiry date).

Measures to address environmental issues

Respondents were asked to indicate from a list of eight environmental issues which they addressed through their environmental management measures (Fig. 3). In total, 74% of respondents (or 77 businesses) have implemented at least one practical measure to address their environmental impacts (or resource use); a figure higher than in the SME sector in the UK (66%) (NetRegs 2005).

Unsurprisingly for the food sector, waste reduction and minimisation is the most common environmental management measure, with an average of 52% of respondents actively addressing this impact, followed closely by water conservation (44%), and energy efficiency (34%).

A quarter of the 27 businesses that have not implemented any environmental measure have turnovers of more than \$5,000,000; one of them has over 100 employees. Only about a third of companies with >100 staff have measures in place to manage emissions, transport, and fuel use.

Small businesses of up to nine staff members lag far behind the larger businesses in areas such as energy and water conservation, as well as in waste management, but they show stronger initiatives in biodiversity and habitat protection. The survey also shows that some sectors are more active than others – from the six businesses that have implemented the largest number of environmental measures (i.e. 7), three were wine producers, two – seafood producers, and one was a nutritional dairy.

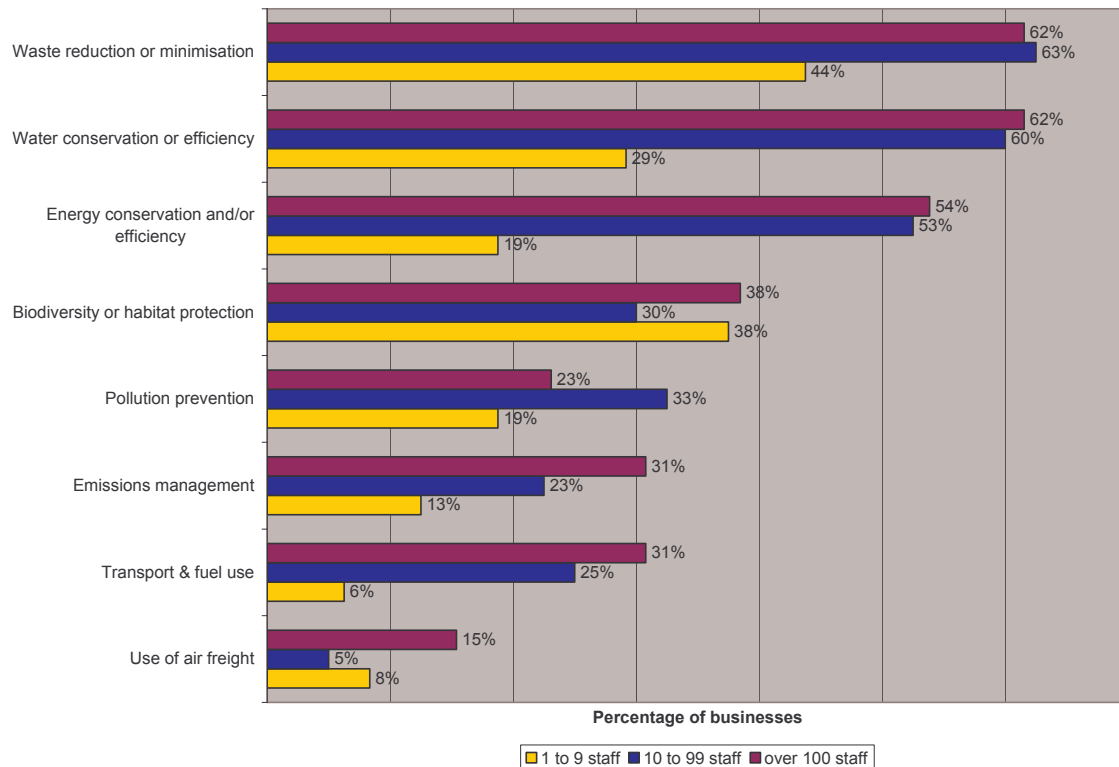


Fig. 3 Issues for which businesses have implemented environmental management measures.

Uptake of environmental management systems

An environmental management system (EMS) is a key mechanism through which businesses can systematically assess their environmental impacts and set targets for continuous improvement. Companies that put in place such systems demonstrate their commitment to environment protection and their readiness to allocate resources, and assign responsibilities for preventing and managing environmental impacts. A certified EMS is commonly used to demonstrate the environmental credentials of a business.

Only 6% (6 businesses) of all respondents have in place a certified EMS (such as ISO 14000 or Enviro-Mark®NZ), even though this figure rose to 17% when asked at a different point in the survey (see Environmental Awareness and Action above). This inconsistency is explained by the misinterpretation of what an EMS is about, as some respondents considered eco-labelling and even risk management programmes as equivalent to an EMS. Coincidentally, the 2005 SME survey in the UK (NetRegs 2005) also found an average rate of EMS uptake of 6%, similar to the results of this survey. However, the 2003 New Zealand survey puts the EMS uptake at 24%, which is closer to the results when the definition for an EMS is not rigorously applied.

Respondents that have an EMS include two wine producers, a seafood company, a dairy producer, a fruit and vegetable producer, and a gelatine manufacturer. With the exception of one of the wine producers, all the above have also implemented a quality management system. Overall, around 19% of respondents have in place a quality management system (such as ISO 9000 or other industry-specific quality management programmes), in line with

the worldwide trend of higher uptake rates for quality systems⁵.

In addition, 21% of respondents reported they had implemented risk management programmes such as the NZ Food Safety Assurance, which covers some environmental management aspects, or sector-specific management programmes like Sustainable Wine Growing New Zealand (SWNZ)⁶ or AvoGreen⁷.

Uptake of codes of practice and eco-labelling

To build their credentials and position their brand with respect to environmental responsibility, businesses can join specific management standards, codes of practice for their sector or supply chain, or eco-labelling schemes that confirm their environmental management practices, and in some cases their environmental performance achievements. In the food sector, such standards or codes of practice have strong safety and traceability functions and are often a prerequisite to market entry.

Overall, 38% of respondents do not have any environmental credentials whatsoever, having joined no New Zealand or overseas standards or codes of practices. This figure may be higher as some organisations simply trade (some) products with environmental features (for instance organic products) but they do not have themselves any environmental credential. Also, food assurance and safety schemes cannot always pass for environmental credentials.

Bakery/confectionary and flour mill/cereal food manufacturing are the sectors with the lowest uptake (none of their respondents have joined any standards or codes of practice), followed by dairy (60% of respondents). In all other sectors, this figure is less than 33% of respondents; meat and meat manufacturing being best placed with only 14% of their respondents responding that they did not belong to a standard or code of practice.

Within New Zealand, the HortNZ Fresh Produce Assured Supplier Programme (currently NZ GAP)⁸ has the highest uptake, with 9% of respondents reporting that they are certified suppliers; followed by Integrated Fruit Production (Trust Mark)⁹ and Zespri¹⁰ (4%); and AvoGreen (3%). Wine growers have their own sector-specific standard, SWNZ, and more

⁵ The ISO survey certification 2005 (<http://www.iso.org/iso/en/iso9000-14000/certification/isosurvey.html>).

⁶ Sustainable Wine Growing New Zealand (www.nzwine.com) is a certification system for vineyards and wineries that demonstrate responsible viticultural and winemaking practices. It provides a framework for continual improvement of operational practices. The intention is that SWNZ will become an environmental management system.

⁷ AvoGreen (www.avocado.co.nz) is an avocado production system based on the principles of Integrated Pest Management. AvoGreen is auditable and helps comply with New Zealand requirements and overseas markets in terms of phytosanitary and food safety issues.

⁸ NZ Good Agricultural Practices (www.nzgap.co.nz) is an auditable standard promoting good agricultural practices (including integrated pest control, integrated crop management, HACCP). NZ GAP is benchmarked against EurepGAP; it provides certification for fruits (including olives), vegetables and flowers.

⁹ Integrated Fruit Production is a production programme managed by Pip Fruit NZ that has a quality assurance and safety focus; its main aim is to reduce agrochemical use in production. It can be used for meeting EurepGAP requirements.

¹⁰ Zespri (www.zespri.com) is also a production/management programme which promotes optimum yields of high-quality fruit with minimum inputs. Current programmes also includes environmental management practices as well as traceability. It enables compliance with EurepGAP.

than half the respondents from the wine sector (or 16% of all respondents) are members of this network. Complying with standards such as NZ GAP does not bring premiums or bigger market share, as they represent minimal requirements in supply-chain management.

While the other standards available in New Zealand do assist producers in improving their (environmental) management practices, it is hard to assess to what extent they help with market competitiveness, as they are not necessarily recognised in the export markets. Irrespective of their involvement in New Zealand-based standards and codes, over a quarter of all respondents questioned (26%) are either EurepGAP certified or comply with individual overseas supply-chain requirements, such as Tesco's Nature Choice¹¹. A further 4% (or 60% of all respondents from the seafood sector) are MSC certified.

Respondents interested in positioning their products based on environmental considerations have joined organic certification schemes. Overall, 20% of all respondents produce or trade products that are organically certified. Of these, more than half are certified to carry organic labels available in various export markets (Australia, France, Germany, Japan, UK).

Drivers for environmental initiatives

Drivers for environmental initiatives vary and businesses tend to be guided by more than one. Over 50% of the businesses that have undertaken environmental initiatives have listed compliance (with New Zealand or overseas regulations) as the main reason for their action. Of these, 46% have over 50 employees, suggesting regulation plays a bigger role in larger businesses. A relatively high proportion of businesses (43%) have taken environmental action simply because of their business ethos and staff interest, as well as genuine concern for environment. Interestingly, almost all those businesses that improved their environmental performance because of their beliefs are different from those businesses concerned with compliance issues.

Supply chain/customer requirement is also an important driver for 31% of respondents, followed by consumer expectations (18%). Other drivers mentioned by respondents include brand value, market reputation, and trends. Only one respondent mentioned cost savings as the reason for their action, suggesting that businesses do not see environmental responsibility as bringing financial benefits or they are not concerned with their resource/operational efficiency.

Requirements in export markets

Respondents were asked to indicate, from a list of nine requirements, which ones they faced in their export markets (Fig. 4). A broad range of requirements was reported, reflecting the variety of markets into which they export, and the expansion of standards boundaries (from farm to fork). About 70–80% of all respondents, irrespective of their size, reported that they have to comply with mandatory standards and certification, starting with being able to meet New Zealand and the importing country's food safety regulations (NZ Food Safety

¹¹ Tesco Nature's Choice (www.tescocorporate.com) is a code of practice for integrated farm management. Suppliers have to meet environmental requirements that include chemical use, pollution prevention, wildlife conservation, and resource use (energy, water).

Authority¹²) as well as export certification requirements, which can vary depending on the product and the destination country.

However, many respondents questioned mentioned mandatory requirements that are supply-chain driven and combine food safety and traceability, environmental issues and even social conditions simultaneously – these standards are often more complex and more stringent than governmental regulations. Examples include EurepGAP, British Retail Consortium¹³, Tesco Nature Choice, Marks & Spencer, Whole Foods. Respondents have also mentioned organic and sector-specific standards such as the MSC for fisheries, which, although a voluntary standard, can be a key condition for supplying certain retailers.

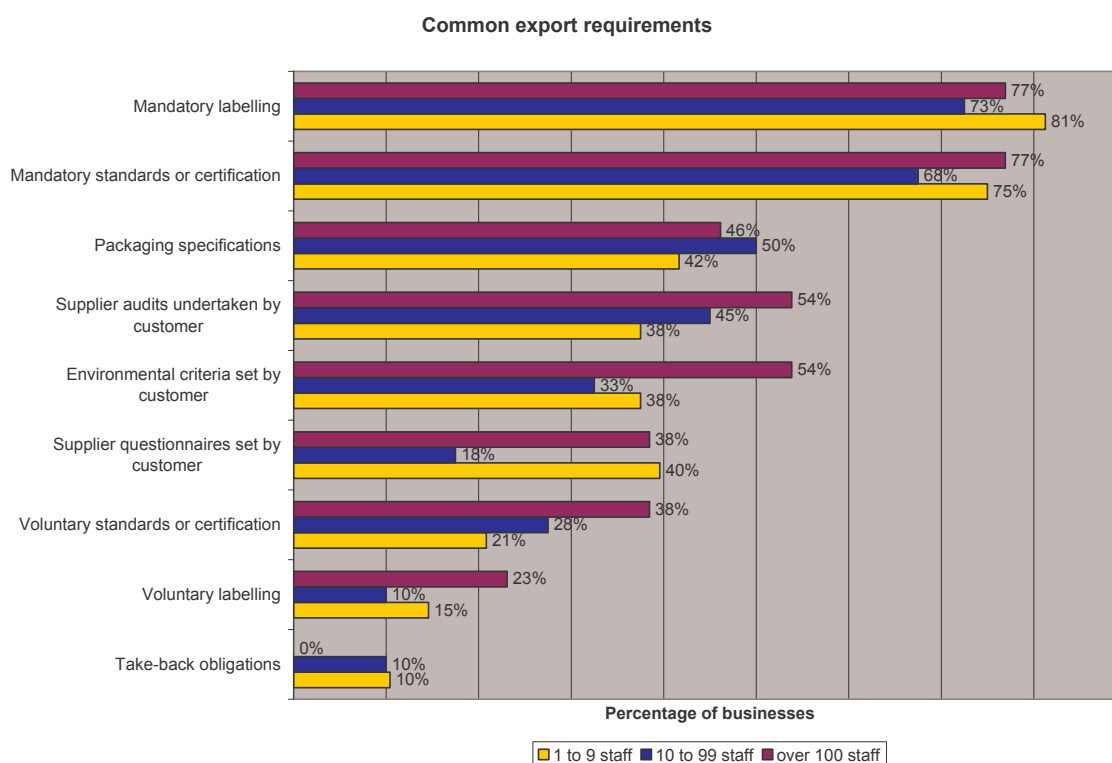


Fig. 4 Common export requirements.

New Zealand producers face requirements related to the content of their products (i.e. GMO-free, hormone-free, minimum residue levels), process or production method (i.e. spraying practices, fertiliser and pesticide management, soil protection), as well as packaging specifications (i.e. biodegradable, recyclable), and even take-back conditions.

In general, there seems to be a fine borderline between mandatory and voluntary

¹² NZ Food Safety Authority (www.nzfsa.govt.nz) is responsible for food safety for New Zealand consumers and meeting importing country requirements for New Zealand exports.

¹³ British Retail Consortium (www.brc.org.uk) is the leading UK trade association representing the whole range of retailers, and has developed a global standard covering food, consumer products, packaging, storage and distribution, non-GM. It covers food safety, quality and legality.

requirements, respondents having referred to them interchangeably in their responses. This could suggest that any non-regulatory requirement (in New Zealand or overseas) that determines access to a certain market may be considered mandatory.

Almost 40% of respondents have to meet some kind of specific environmental criteria, many of them as a result of supply-chain standards, food safety or eco-label standards.

New Zealand producers are also more likely to be audited by customers than to be required to fill in supplier questionnaires; the likelihood of being audited increases with the size of the company.

5.2 Sustainability needs profile: adapting to dynamic challenges

Sector perceptions about key issues facing food and beverage industry

Respondents were asked to select in order of importance from a 20-item list the three issues about which they were most concerned (Fig. 5).

The sector ranked food safety (29% of respondents) as the most important challenge, followed by distance to market (over 15%), and then chemical impacts (over 10%). This ranking remains the same when all three choices are combined (most important, second choice, third choice). Food safety would rank even higher if pesticides residue, counted as a separate issue, was included.

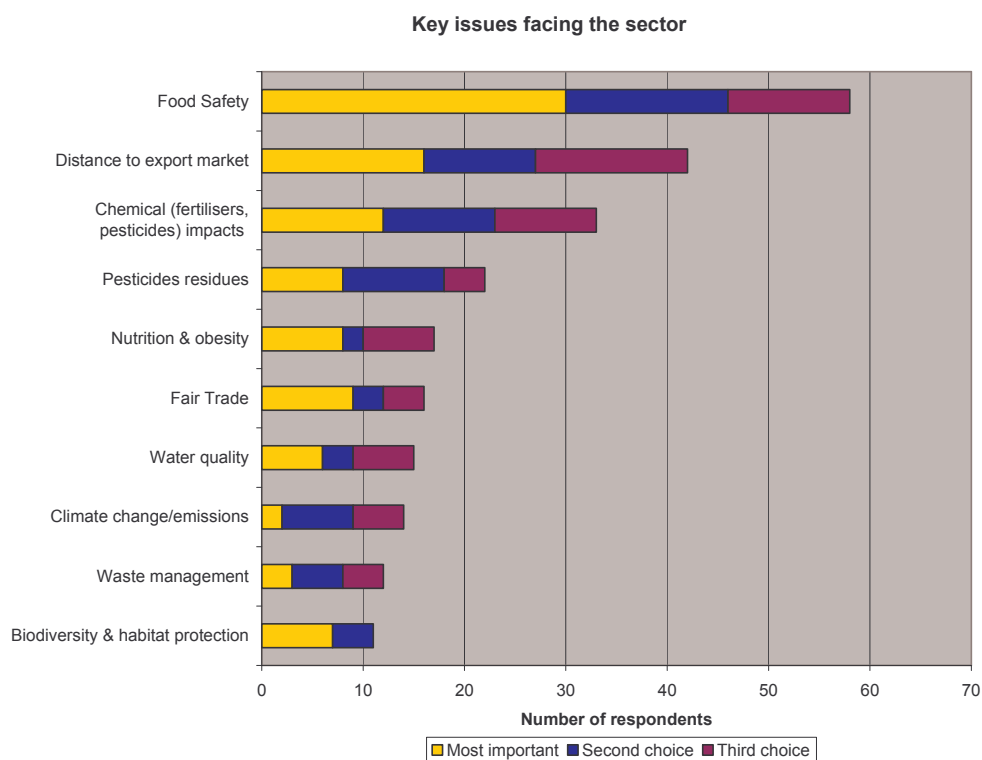


Fig. 5 Key issues facing the food & beverage sector.

In relation to distance to market, respondents listed transportation costs and delivery time as

the current real concerns behind this issue. Most surprising was the overall low concern (13%) about climate change and greenhouse gas emissions. Of the rather limited number of businesses concerned about climate change, more than half come from the wine sector, even though other crops are at risk from climate change in New Zealand. This may change as since this survey was conducted (August 2006), the Government has announced that new climate change measures will be launched that will affect all sectors including food & beverage. In addition, serious droughts like the ones in Australia and the United States this year have highlighted the impacts of climate change on food production and have triggered renewed concern from consumers.

Some businesses have indeed mentioned greenhouse gas emissions as the reason for their concerns about distance to market. A few respondents pointed out that delivery time is often directly linked to environmental impacts (i.e. greenhouse gas emissions), mostly through the increase in refrigeration time or pressure from exporters to airfreight goods to reduce delivery time, thus further increasing their impact. Several businesses expressed their opinion that while transport emissions may not currently be perceived as an issue, they will become a key challenge for New Zealand producers as the drive for emissions reduction increases.

As many of the businesses questioned are not primary producers, soil protection was not selected as an issue, whereas biodiversity and habitat protection was ranked 10th in overall importance.

Fair trade, which ranks 4th in terms of the most important challenge, is seen by respondents as an issue in the context of competition with heavily subsidised products from Europe and United States markets, where New Zealand exporters often face quotas or pay import tariffs. Further to this, some respondents felt that issues such as 'food miles' are unfairly used by producers from overseas markets to mount a non-tariff barrier to New Zealand products.

Seeking advice on environmental and social management practices

Respondents were asked to select from a list of nine their sources of environmental and social responsibility information (Fig. 6). Overall, the preferred source of information for businesses seeking advice on environmental and social practices are customers (62% of respondents), followed by personal research (57%) and industry associations or sector bodies (54%).

Depending on the size of the businesses, there are some preference differences: 75% of small businesses (1–9 employees) preferred customers way ahead of any other source, reflecting the close relationship small businesses have with their customers. On the other hand, government agencies and regulators play a more important role for businesses with >10 staff members, reinforcing the survey finding that, compared with small businesses, they are also more concerned about complying with New Zealand regulations. The most frequently mentioned government bodies were the Ministry of Agriculture and Forestry, NZ Food Safety Authority, and regional/local councils.

The fairly low interest in educational and research organisations is surprising, although membership of industry associations and sector bodies does enable exchange between research organisations and their members. The role of research and science was also discussed in the *Smart Food, Cool Beverage* report (Food and Beverage Task Force 2006), where it was suggested that new mechanisms are needed to enable research to respond better to market trends (thus becoming more relevant to the sector) and, on the other hand, facilitate the access of SMEs to research and innovation outcomes.

The Ministry for the Environment was not mentioned at all and the Energy Efficiency and Conservation Authority was listed only once. None of the respondents mentioned waste companies or utilities as sources of information.

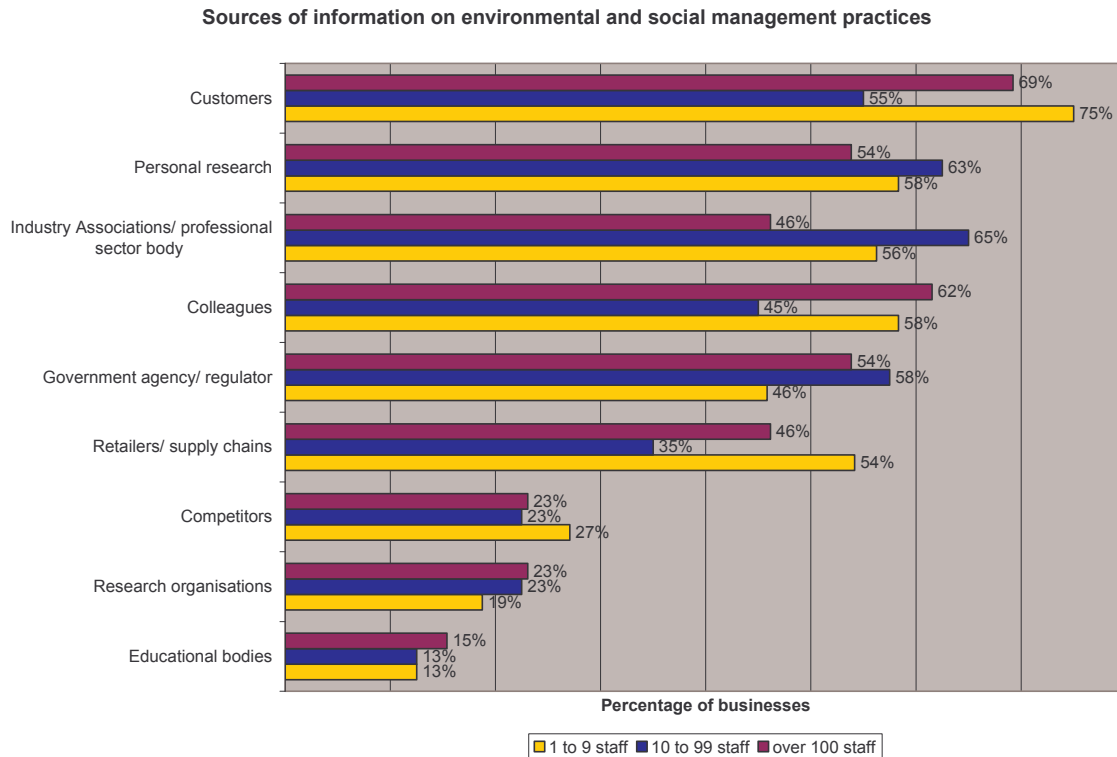


Fig. 6 Sources of information on environmental and social management practices.

No particular source was identified that could provide New Zealand exporters with knowledge about environmental trends and practices in their export markets, beyond regulatory export requirements. This is an important competitive factor for New Zealand products.

Another mechanism through which companies can access information and advice and, at the same time, raise their environmental profile is through membership of environmentally focused business groups or initiatives. Of those surveyed, 8% reported that they are members of the Sustainable Businesses Network (SBN), and 6% have signed up to the New Zealand Packaging Accord (aimed at reducing packaging materials waste through voluntary commitments by companies). Further to this, two respondents are members of the New Zealand Business Council for Sustainable Development (NZBCSD), part of a United Nations initiated global business organisation focused on environment and sustainability issues.

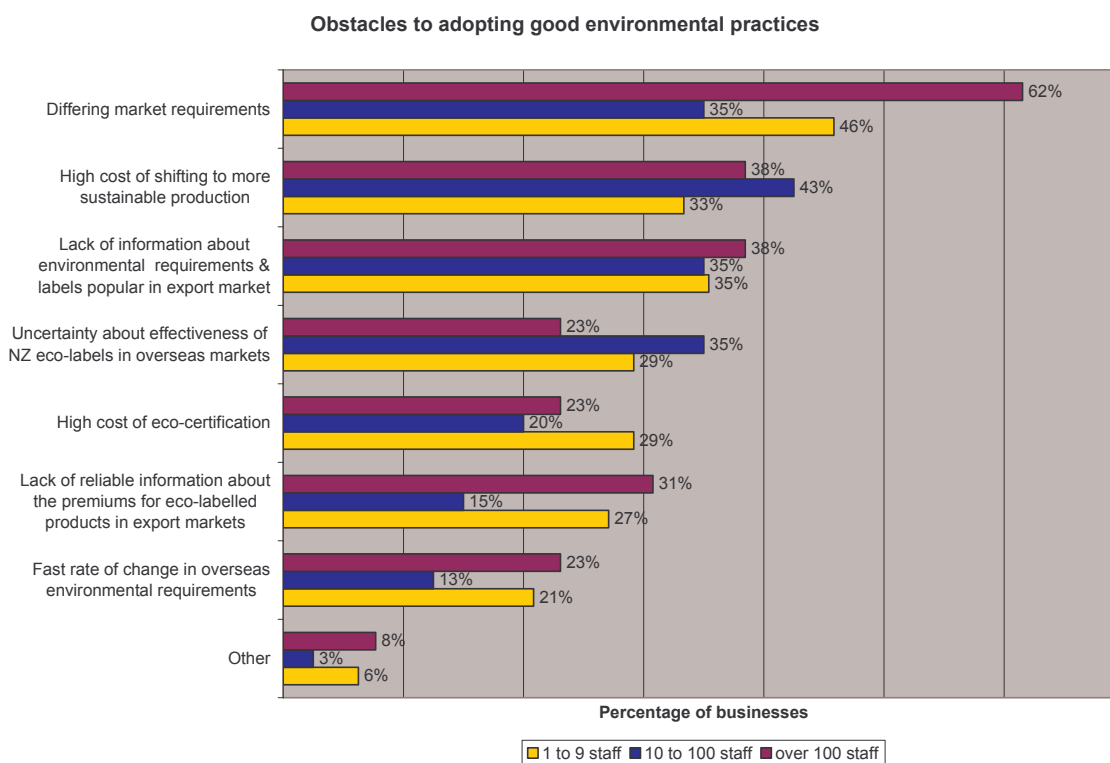
Obstacles to adopting good environmental practices

Respondents were asked to select from a list of seven those obstacles they faced when implementing good environmental practices for which businesses will be acknowledged in their export markets (Fig. 7).

On average, differing market requirements (42%), lack of information about environmental requirements or labels popular in export markets (37%), followed by the high cost of shifting to more sustainable practices (35%) are seen as the main obstacles faced by respondents attempting to improve their environmental performance.

In the case of larger businesses (>100 staff), differing market requirements is the most critical obstacle for 62% of respondents. This reflects the large number of countries into which respondents export and the diverse environmental requirements in different regions of the world. Coping with these requirements takes considerable effort.

The results also highlight the lack of certainty about the effectiveness of New Zealand eco-labels as a serious obstacle for 30% of respondents. Even though more than a third of all respondents carry labels such as the organic AgriQuality¹⁴, BioGro and Demeter or are SWNZ certified, only one respondent was qualified to carry the New Zealand Government-endorsed eco-label Environmental Choice. The issues of standards harmonisation and recognition of New Zealand standards in the overseas markets are important aspects to be addressed, particularly in the case of those New Zealand producers for which market recognition is the guiding principle when choosing environmental standards and eco-labels.



¹⁴ AgriQuality (www.agriquality.co.nz) is a provider of independent auditing, inspection and testing services to the food and agricultural sectors. They are accredited certifiers for EurepGAP, BRC, New Zealand GAP (formerly NZ Fresh Produce Approved Supplier), Tesco Nature's Choice and provide certification for organic production (they have their own standard).

Fig. 7 Obstacles to adopting good environmental practices.

Within specific sectors, the top obstacles vary. Lack of information about environmental requirements and cost of shifting to more sustainable production are ranked as equally important as obstacles by 57% of respondents in the meat industry, while the fruit and vegetable industry regards differing market requirements as the key challenge (44%). In the case of the dairy industry, 60% of respondents believe the fast rate of change in environmental requirements is the overwhelming obstacle.

Factors that would stimulate adoption of sustainable practices

Respondents were asked to select from a list six the factors that would stimulate them to adopt more sustainable practices (Fig. 8). Consistent with Obstacles (see above), overall businesses questioned selected: (1) dissemination of standard-related information from export markets (61%); (2) evidence about new trends in environmental requirements (53%); and (3) supply-chain initiatives, as the key mechanisms that would lead to adoption of more sustainable practices (41%).

An early-warning system to alert businesses about new trends in environmental requirements was seen as an important priority factor. There is scope for both government and environmental support organisations to play a role in the provision of such a service. The least selected measure is export training programmes that address environmental issues; perhaps a reflection of the fact that such programmes generally target new and upcoming exporters, whereas the majority of respondents to this survey are well-established businesses in the export sector. Furthermore, half the respondents to this survey are companies with <10 staff members, for which dedicating time away for training can be a challenge.

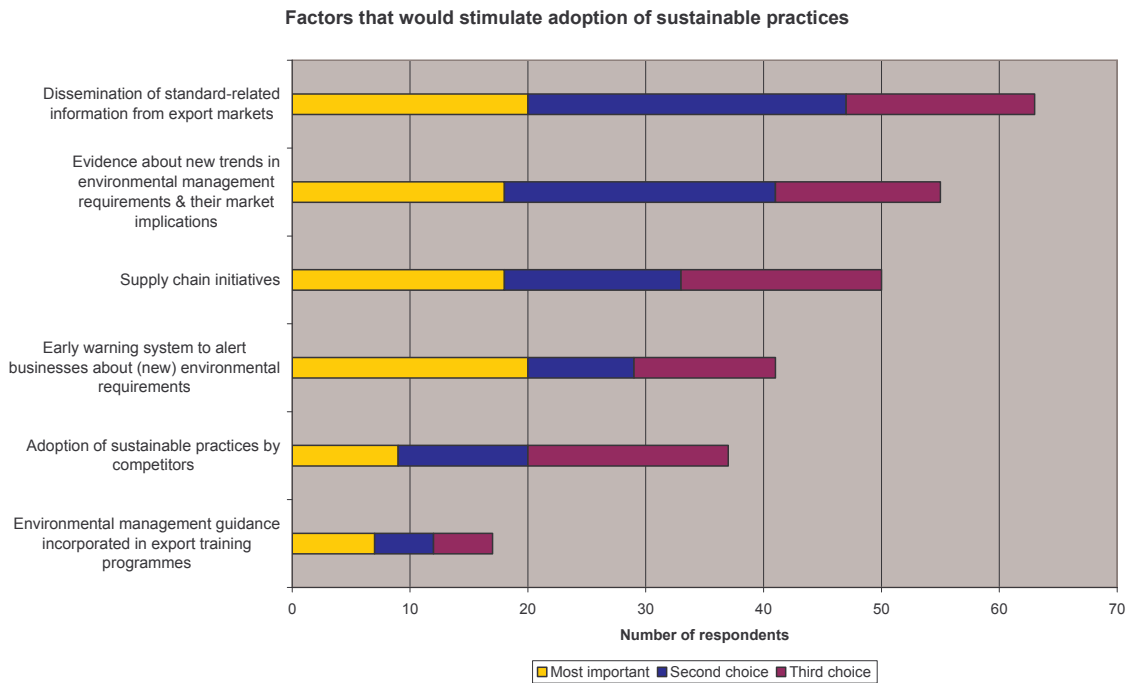


Fig. 8 Factors that would stimulate adoption of sustainable practices below.

Taking a sector-specific perspective, seafood companies were more likely to monitor what their competitors were doing. An overwhelming proportion (83%) reported that they would adopt more sustainable practices if their competitors were to do so. The next most important factor for them is evidence of new trends in environmental requirements (67% of respondents).

In contrast, for the beverage sector changes in practice by competitors is one of the least motivating factors – only 31% of respondents mentioning this. Their top preferences followed the overall findings for the entire food & beverage sector. The meat industry favours the dissemination of standard-related information, followed by supply chain initiatives. For the dairy industry, evidence of new trends in environmental management requirements and dissemination of standards-related information are the two key factors for them (60% of respondents), followed by supply-chain initiatives (40%).

Analysis of the responses received from businesses dealing with import-export activities (which may also comprise producers) indicated that 62% favoured dissemination of standards-related information and 56% chose supply-chain initiatives.

Among the comments received from respondents was a suggestion that legislation was a necessary measure, while another respondent raised the issue of defining sustainable farming practices, which were considered “loose and ill defined”. One respondent suggested the development of best practice standards recognised by the overseas markets and cost-effective to implement, to raise “New Zealand’s credibility in developed markets”; this issue was also raised with respect to the ‘clean green’ New Zealand brand. Delivery of premiums, though mentioned several times, does not seem to be an important factor overall, even though about a fifth of respondents (22%) listed the lack of information about premiums as an obstacle to implementing better environmental practices. Businesses with >100 staff seem to be slightly more interested in premium returns (31%), compared with those businesses with <100 staff (about 20%).

Strengthening the New Zealand ‘clean green’ brand

The topic that triggered the most interesting feedback from respondents was the ‘clean green’ New Zealand brand. Businesses questioned were asked to list the three most important measures needed to maintain and strengthen the ‘clean green’ image of New Zealand products.

Many respondents debated whether there was evidence that New Zealand deserves such a brand, and required “clear definition on what is meant by ‘clean green’”. It was suggested that an assessment of the current situation is needed before developing concrete criteria and tools that businesses can apply to demonstrate their ‘clean green profile’. Several respondents expressed the fear that the brand is not necessarily backed up by the reality of business practices, and examples such as the use of toxic substances, biodiversity loss, and poor water quality are just a few of the issues raised. From a commercial point of view, lack of criteria for a ‘clean green’ brand creates a distorted playing field where producers with good environmental responsibility are penalised, allowing those with poor practices to free-ride on the back of the brand. Furthermore, a clear standard would help differentiate New Zealand products in export markets.

Comments from those respondents who did not question the existence or benefit of such a

brand related to the need for promoting the brand using labelling tools and country-wide platforms to communicate to international consumers. It was suggested that the ‘100% Pure NZ’ and ‘clean green’ New Zealand brands could be combined into one brand and marketed jointly by the sector and the Government.

The most important issues that need to be addressed to retain and strengthen the ‘clean green’ New Zealand brand can be grouped as follows (in approximate order of importance):

- Evidence, definition, criteria, promotion of the ‘clean green’ New Zealand brand
- Reduce chemical use
- Improve waste management and recycling
- GMO-free status for New Zealand maintained
- Water quality addressed
- Strengthened biodiversity and habitat protection (including animal welfare)
- Open discussion about organic versus Biotech-based agricultural sector

6. Discussion

Environmental measures taken by producers are not sufficient for them to make environmental production claims. Producers need to have the evidence to substantiate any claim while simultaneously building their environmental credentials, particularly by adhering to those standards and codes of practice independently verified and recognised by customers. Despite the fact that, as shown above, the food & beverage sector has adopted environmental measures in a variety of areas, the sector does not apply life-cycle thinking to determining supply-chain impacts. The survey shows that only 3% of all respondents have undertaken life-cycle assessments of their products, pointing to a potential serious gap in the knowledge of the sector about its own environmental impacts and greenhouse gas emissions from cradle to grave.

Among other effects, lack of data limits the opportunities for the sector as a whole to adequately address food miles issues from overseas markets and to promptly provide environmental information when required by overseas customers. In theory, both these effects could limit access to overseas markets for New Zealand products. One of the few life-cycle-assessment studies carried out so far shows that New Zealand dairy and lamb production is more energy efficient and has less associated emissions than UK production (Saunders et al. 2006) – even when international transport is considered. More such studies are needed to help build a credible bank of evidence that will enable comparisons between New Zealand products and other similar products with which they compete in export markets.

6.1 Environmental credentials

As the survey results show, the environmental credentials of the New Zealand food & beverage sector are relatively modest – about six in 10 businesses having joined an environmental scheme or code of practice that would enable them to carry an environmental label or easily substantiate environmental claims. Comments from companies hint that they are overwhelmed by the increasingly stringent food safety and traceability requirements and have little resources or initiative left to adopt environmental practices that are not a condition

for market access (i.e. EMS, greenhouse gas emissions management, life-cycle assessments). The ‘clean green’ brand does offer some traction for exporters that have been using it in their marketing strategies, though many respondents have questioned the integrity of the brand and even its existence altogether. It seems that although there are benefits in such a brand, the sector has not found the interest to develop criteria that will help substantiate the brand and face up to scrutiny in global markets.

6.2 Flow of environmental information from and to overseas markets

Both the perceived obstacles, as well as factors that would stimulate adoption of environmental practices, point to the fact that New Zealand producers do not have sufficient and timely information on overseas market developments with respect to environmental requirements (this does not include mandatory requirements!). While this survey did not aim to investigate the availability and flow of environmental information up and down the export supply chain, this is an area that deserves much closer scrutiny in the future. It was a surprise that some import-export companies asked to fill out the survey responded that they were not aware of the environmental practices of their producers. This raises questions about the mechanisms through which intermediaries in the export chain check and promote the environmental practices of their producers. Similarly, it is important to know how information about trends in environmental requirements in the export markets is conveyed back to the producers through supply chains, prior to such trends becoming actual requirements.

The role of environmental information with a view to increasing export competitiveness is all the more important given that the sources of information preferred by the New Zealand producers are immediate, New Zealand-based customers (many New Zealand producers seem to deal with the overseas markets through intermediaries) and local councils – one can argue that these sources have only limited relevance and even more limited knowledge about global markets.

6.3 The challenge of climate change and distance to the market

A surprising finding of the survey is the low concern about climate change on the part of the New Zealand food & beverage sector, particularly with a view to greenhouse gas emissions management and market access. This lack of concern is, however, expected to change, not least because of increased international debate on the need for climate change action, including the now greatly discussed food miles issue that has hit home in the last couple of months. However, what the survey reinforced is the perpetual concern of the food & beverage sector regarding the distance to the market due to increasing costs of transport and fuel prices. This alone makes a compelling business case for New Zealand producers to review their operational practices and improve fuel use, which in turn will lead to reduced greenhouse gas emissions.

Also, the European Commission is exploring for the first time policy measures to reduce greenhouse gas emissions from shipping¹⁵, which are now increasing at the same rate as the

¹⁵ The EU Joint Research Center (<http://www.jrc.ec.europa.eu/>) is undertaking an analysis this year of alternative scenarios for greenhouse gas emissions from the maritime transportation sector (at EU and global scale).

airline industry. There does not seem to be much discussion in New Zealand about this yet, but it is a development that needs to be carefully monitored by the export community.

7. Conclusions

This is the first survey of this nature conducted across the entire food & beverage sector in New Zealand. The results provide a first baseline for the sector and could be used for future benchmarking exercises after consultation to identify suitable environmental performance indicators or some kind of measuring system that would help monitor the progress of the sector towards more sustainable practices.

The need for a review of resource use and environmental impact assessments on a sector-wide or sub-sector-wide (dairy, fruit and vegetables, beverages) basis is an imperative. This would help increase the understanding of individual businesses about the impact of the sector as a whole as well as their individual impacts. The results of this survey, viewed in the context of international trends on environmental requirements, provides a useful basis to identify suitable actions to improve the environmental performance and hence brand reputation of New Zealand food & beverage export products.

8. Acknowledgements

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