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New Zealand food and beverage consumer preferences for product attributes and alternative retailers, and in-market use of digital media and smart technology

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Research Report No. 342
May 2017

Lincoln University
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Suggested citation for this report:

Miller, Sini, Tim Driver, Caroline Saunders, Peter Tait and Paul Rutherford (2017). *New Zealand food and beverage consumer preferences for product attributes and alternative retailers, and in-market use of digital media and smart technology*. Research Report No. 342, Lincoln University: Agribusiness and Economics Research Unit.

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ISSN 1170-7682 (Print)
ISSN 2230-3197 (Online)
ISBN 978-1-877519-48-2 (Print)
ISBN 978-1-877519-49-9 (Online)

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Acknowledgements

The authors would like to thank the following individuals for their generous contributions to this report: John Reid and Bailey Perryman for providing comments throughout the survey development process; AERU staff Meike Guenther and Paul Dalziel for their kind assistance; all cognitive interview and focus group participants; Glen Greer for focus group facilitation; and Bill Kaye-Blake, Bailey Perryman and Angus Brown for providing comments on the initial survey results.

Executive Summary

While most of New Zealand production is exported, a proportion is sold on the domestic market. Moreover, as some producers may be more familiar with the domestic market, it is important to see how this differs to export markets in order to adapt marketing strategies accordingly. It is therefore important to consider the attitudes and preferences of New Zealand consumers, as well as what they might be willing to pay for different qualities (or attributes) in food and beverage products, and how they use technology to gather information about and ultimately purchase food and beverage products. In addition, in examining elements of New Zealand's domestic market, comparisons can be made between domestic consumer preferences and behaviour with those of international markets. This work extended the AERU's previous Maximising Export Returns research programme, which carried out similar surveys in five key international markets relevant to New Zealand's export interests, including China, India, Indonesia, Japan and the United Kingdom.

At present, the available literature on New Zealand consumer preferences has been dominated by considerations regarding product quality, nutritional value and price. With regards to products' credence attributes (i.e. those attributes that cannot be seen or experienced at the point of sale), some literature exists around animal welfare, health-enhancing foods, food safety, production methods, product origin, animal welfare, environmental and other ethical attributes including the role of Māori culture in food and beverage production. However, this is currently limited.

In addition, the New Zealand food and beverage retail market has become more sophisticated over time. While this has been mainly focussed on supermarkets, the development of alternative food markets such as farmers' markets, community-supported agriculture and online shopping networks may be of interest in order to capture maximum value for producers. However, literature examining New Zealand consumer use of alternative markets is sparse and dated.

Furthermore, New Zealand consumers' use of digital media and smart technology has increased in recent years, including frequent use of search engines, online shopping, social media and smartphones. This has led to the introduction and use of technology such as barcodes, QR codes and specialised applications for mobile devices to provide information on products and direct marketing. Therefore, there is a need to track consumer attitudes and preferences towards, and particularly use of, digital media and smart technology in New Zealand.

In order to shorten the current knowledge gaps in these areas, the Agribusiness and Economics Research Unit (AERU) conducted a nationwide survey of 1,400 New Zealand consumers examining preferences and willingness-to-pay for credence attributes and their associated factors, attitudes to and use of alternative retailers, and digital media and smart technology use in relation to food and beverages.

Initially, participants were asked to rate the importance of ten key attributes when shopping for food and beverages, including quality, price, animal health, animal welfare, environmental condition, health enhancing foods, food safety, social responsibility, nutritional value, and Māori culture. Food quality was the highest ranked attribute and considered to be important by 96 per cent of respondents, followed by food safety (considered important by 92 per cent), price (91 per cent) and nutritional value (90 per cent). Following this, animal welfare, environmental condition and health-enhancing foods were considered to be important by 65 per cent of respondents. Country of origin was considered to be important by 59 per cent of respondents, while social responsibility was considered to be important by 54 per cent of

respondents. The role of Māori culture in relation to food and beverages was considered to be the least important attribute (considered important by 10 per cent of respondents).

Following this, participants were asked to rate the importance of a series of underlying factors in relation to the above attributes. Considering food safety, hygiene standards was considered to be the most important factor, followed by freshness and rates of contamination. In relation to environmental condition, water quality was the rated at the most important factor, followed by the protection of coastal and sea-life as well as the protection of endangered plants and animals. For animal health and welfare, New Zealand participants rated free of disease as the most important factor, followed by no cruelty and humane slaughter. For human health-enhancing food and beverages, heart/cholesterol health was rated as the most important, followed by child and baby health. Furthermore, for social responsibility, no child labour was seen as the most important factor, followed by workplace safety and fair wages. Finally, for the role of Māori culture in food and beverage production and supply, care for future generations was rated as the most important factor, followed by authenticity and equity and fairness.

In general, when compared to overseas results, New Zealand participants tended to rate the importance of all attributes and factors lower than their international counterparts. The responses from New Zealand participants closely resembled those of the UK.

In relation to their use of alternative retailers, New Zealand participants tended to spend, on average, the largest proportion of their food and beverage budget, as well as shop more frequently, in supermarkets. The key reasons for this included convenient locations, opening hours and car parking, as well as better prices and higher product availability. This was followed by specialty stores, takeaway food and restaurants. Only a small percentage used alternative sources.

New Zealand participants also had by far the lowest overall use of all types of digital media and smart technology in relation to food and beverage information gathering and purchasing when compared with results of the overseas study.

Therefore, there is a distinct difference between New Zealand consumers and their international counterparts can be seen. Based on the observed differences between New Zealand and the international countries in this study, it can be seen that achieving market access requires a clear understanding of different consumer preferences and attitudes country-by-country. In taking a New Zealand-centric view of international consumers, exporters may underestimate the potential value that could be captured in these markets.

Chapter 1
Introduction

New Zealand (NZ) relies on returns from its agricultural products to maintain gross domestic product (GDP). Therefore, a large proportion of agricultural production is exported to overseas markets. However, this does not discount the importance of domestic market consumers' needs and wants. One important consideration in both export and domestic markets is consumers' attitudes and preferences, as well as what they might be willing to pay for different qualities (or *attributes*) in food and beverage products, and how they use technology to gather information about and ultimately purchase food and beverage products.

A focus on recent consumer research has been on understanding of value placed on credence attributes by consumers. Unlike a product's search and experience attributes, credence attributes are not immediately identifiable to consumers without some communication, such as product labelling or certification (Wirth et al. 2011). Examples of such attributes include food safety, animal welfare and impacts on environmental quality (Miller et al. 2014).

This report presents a New Zealand-based research project, including an assessment of consumer preferences for credence attributes. This project builds on a series of research work by the Agribusiness and Economics Research Unit (AERU) on international markets of interest to New Zealand exporters. Earlier studies (e.g., Saunders et al. 2010, 2013) show, for example, that consumers in the developed (UK) as well as developing countries (China and India) studied value different food attributes in New Zealand products, with food safety often rated as the most important attribute. The more recent Maximising Export Returns (MER) programme extended this research stream to the UK, Japan, China, India and Indonesia, examining consumer preferences and willingness-to-pay (WTP) for attributes in food and beverage products, particularly in the meat, dairy, fruit & vegetable and wine products, as well as digital media and smart technology use (Driver et al. 2015; Guenther et al. 2015; Miller et al. 2014; Saunders et al. 2015a).

The present study extends the MER project to the New Zealand market in order to provide comparable results for consumer preferences between domestic and export markets. This contributes to the currently limited literature which, compared to the international case studies, less research has been conducted into consumer attitudes within New Zealand's domestic food and beverage market. This information can assist New Zealand businesses to attract premiums for their products.

This report is outlined as follows. Chapter 2 presents a market profile of New Zealand, as well as a brief overview of the history of New Zealand's food and beverage retail sector and literature reviews on consumer preferences and use of alternative food markets. Changes in the NZ food and beverage retail sector has been facilitated through the development of self-service food and beverage retail systems, including longer retailer opening hours, improvements in grocery distribution networks and increases in the volume and variety of stocked food and beverage products. More recently this has also included the development of online grocery shopping. While alternative food markets (such as farmers' markets and community-supported agriculture) exist in New Zealand alongside the supermarkets, literature examining consumers' use of these retailer types is currently sparse.

Chapter 3 presents a review of literature relevant to New Zealand consumer preferences for basic and credence product attributes, as well as a review of WTP studies for a range of products relevant to New Zealand producers focusing on Choice Experiment (CE) studies. At present, the CE case studies on consumer preferences for credence attributes in New Zealand is limited (e.g. Jaeger and Rose 2008; Kaye-Blake et al. 2004, 2005). Therefore, for comparison, a brief outline building on the Miller et al. (2014) review of international literature on numerous attribute valuation studies (i.e. CEs exploring WTP) is provided. Chapter 3 finishes with a review of technology use trends and preferences, in short "smart tech". New Zealand consumers' use of digital media and smart technologies has increased in recent years, with most New Zealanders accessing the internet regularly. However, research examining the use of modern communication technologies (such as social media and smartphone use) in relation to food and beverage information gathering and purchase behaviour for New Zealand consumers is also scant. This project therefore aims to increase understanding of New Zealand consumer preferences for food and beverage product attributes as well as how they use technology to gather information about and ultimately purchase food and beverage products.

Chapter 4 outlines the development details for a nationwide survey of New Zealand consumers, including its methodology and materials. In short, this survey repeats the overseas consumer survey (of the MER project) as closely as possible in order to produce comparable results between the domestic and export markets. The key attributes of interest include health enhancing food and beverage, food safety, animal welfare, environmental condition, social responsibility and traditional (Māori) culture. The other part of the survey will build on previous research into consumer technology use, as well as specified supplementary questions to determine consumer preferences for alternative markets (supermarkets, farmers markets, online stores).

Chapter 5 presents the results of this survey. This was a nationwide survey conducted in 2016 with a complete sample size of 1,400 New Zealand respondents. The results of this survey are divided into 6 sections: 1) sample description; 2) importance and authentication of the attributes and their underlying factors; 3) consumer product purchases and dietary requirements; 4) choice experiment (only descriptive results reported here); 5) alternative retailers; and 6) digital media and smart technology use.

Chapter 6 presents the conclusions of the study. This includes key messages and summaries from the results chapter, as well as providing implications and information, for example, to:

a) Producers, to illustrate the potential of more sustainable options and value-added products;
b) Those involved in food and beverage marketing and advertising, as well as food and beverage supply chain managers and exporters;
c) Policymakers, to assist in developing certification schemes to show the potential of the benefits exceeding the costs; and
d) Researchers building their understanding of consumers' attitudes and preferences, as well as the values placed on credence attributes and how they may be communicated in different markets.

Chapter 2
The New Zealand Food Market: An Overview

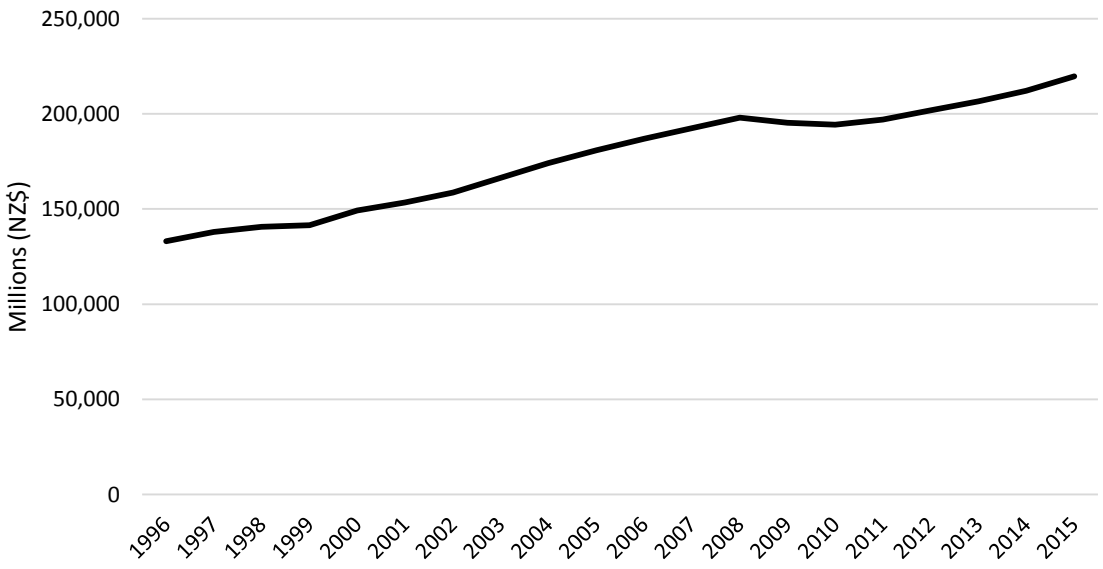
This chapter outlines a brief profile of NZ's food and beverage market, focussing on trade, food retail and alternative food markets. New Zealand is a small open-economy that exports a relatively high proportion of its agricultural production. Driven by the value generated by sales of NZ's agricultural products overseas, the focus of market research has been historically away from New Zealand's domestic consumers and onto those of New Zealand's key export markets, including their overall structure, consumer preferences and means of gaining market access. By developing a better understanding of the New Zealand domestic market and consumer preferences, New Zealand producers may increase revenue from the domestic market, but also by comparing this with international markets to understand the differences between domestic and overseas consumers and what they expect.

2.1 Market profile

New Zealand has a population of 4.35 million, which has increased by approximately 18.24 per cent between 1996 and 2013, with a relatively even age and gender spread (StatsNZ 2015c), with projected growth up to approximately 4.88 million by 2024 (United Nations 2015). New Zealand ethnic groups, including those that identify with more than one ethnic group, include European (74.6 per cent), Māori (15.6 per cent), Asian (12.2 per cent), Pacific (7.8 per cent) and Middle Eastern, Latin American and African peoples (1.2 per cent) (StatsNZ 2015e).

The annual GDP of New Zealand was approximately NZ$219 billion in 2013 (StatsNZ 2016a). As shown in Figure 2.1, between 1996 and 2015, New Zealand's real annual GDP has increased by approximately 65 per cent (from NZ$133.1 billion to NZ$219.7 billion at 2009/10 prices). A significant portion of New Zealand's GDP comes from the value of its exported goods, with the total value of New Zealand's goods exports increased by approximately 16.3 per cent between 2010 and 2014 (year ended December), reaching a total value of NZ$50 billion in 2014 (StatsNZ 2015d).

Figure 2.1. Annual real GDP (P) in New Zealand (NZ$ 2009/10 prices), 1996-2015



Source: StatsNZ 2016a.

New Zealand consumers' average disposable income per person has increased in recent years. Between 1992 and 2015, real gross national disposable income per person increased from NZ$29,069 to NZ$47,694 annually, or roughly 65 per cent (StatsNZ 2015f).

New Zealand is a net exporter of a variety of agricultural products. In the early days of European settlement this was mainly wool products, followed by meat and dairy, while today the dairy industry is the largest primary industry by export revenue (Saunders et al. 2015b). Most domestically-produced agricultural commodities are exported, as illustrated by the percentage of total production exported for selected agricultural commodities shown in Table 2.1 below.

Table 2.1. Percentage of total production exported, selected commodities, 2005-2015

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Butter (pw)	70%	77%	85%	82%	80%	80%	80%	80%	80%	80%	80%
Whole milk powder (pw)	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%
Beef and veal (pw)	87%	85%	82%	82%	84%	82%	81%	82%	86%	87%	89%
Sheepmeat (pw)	83%	84%	86%	87%	97%	98%	92%	84%	100%	99%	97%

2.2 New Zealand food retail history

The retail sector in New Zealand, particularly for food and beverages, has undergone many changes, allowing the consumer higher degrees of choice and convenience.

Walrond (2012) provides a history of New Zealand's food retail environment from the 1800s to today. Throughout the 19th century, New Zealand's food retail sector was dominated by general stores, as well as specialty shops such as butchers, bakers, fishmongers, grocers and greengrocers. Until the early 20th century, consumers gave their food orders to a grocer and waited for the items to be collected and the total cost was determined by the weight and type of the goods. Food shopping was frequent during this period, with some consumers shopping for food items every day (Walrond 2012).

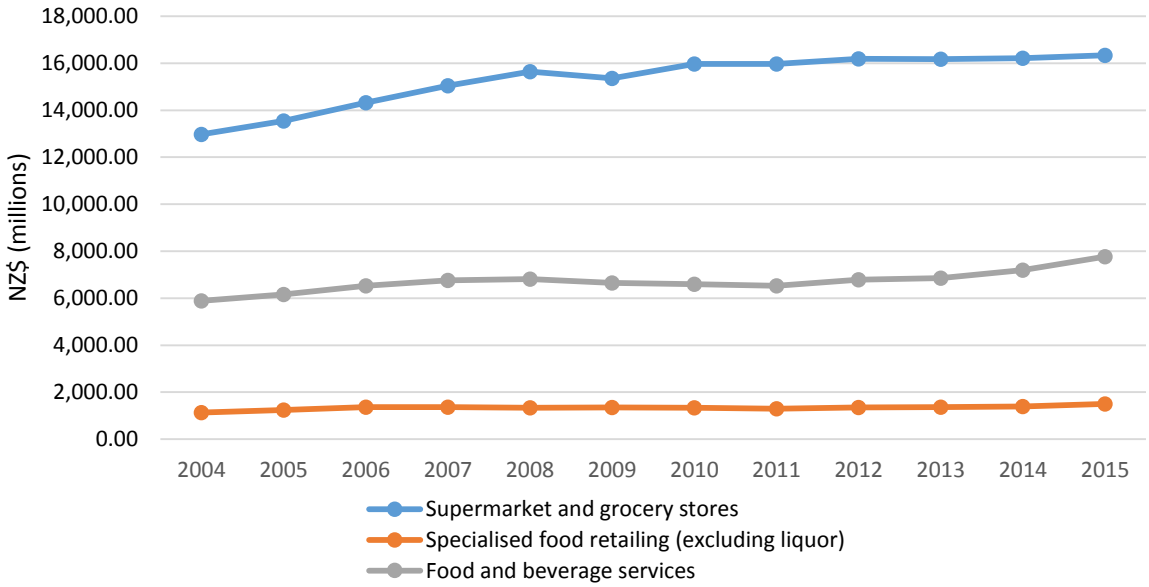
Walrond (2012) continues that New Zealand's first self-service food retail was established in Dunedin in 1927 (called a "groceteria"), wherein consumers picked items themselves rather than relying on grocers to collect items for them. Self-service food retail increased from this time until, in 1953, there were approximately 300 self-service food stores in New Zealand, comprising roughly 10 per cent of the total food retail market. The evolution of New Zealand's food retail in this manner led to the establishment of the first "one-stop" shop for food items (Four Square, Devonport, Auckland) being established in 1957, followed by Foodtown in Ōtāhuhu, Auckland in 1958. The inclusion of customer car-parking as well as an increase in the use of personal automobiles led to an increased share for this type of food retail in New Zealand during this time. Over time, smaller food retail outlets (such as greengrocers) became less common, with supermarkets increasing the range of available products, as well as diversifying product brands (Walrond 2012). This is the current shape of food retail in New Zealand today.

To illustrate this shift, in a survey of 292 Christchurch households in 1977 regarding meat preferences, it was found that the majority of all red meat purchases (42 per cent) were made at a private butcher, with

13 per cent of participants choosing to purchase from chain butchers, 25 per cent choosing to purchase from supermarkets, and 14 per cent using both supermarkets and butchers (Brodie 1977). Similarly, a 1988 study of New Zealand consumers' food purchasing behaviour showed that a larger portion of consumers used milk delivery services rather than purchasing milk products from a supermarket (Sheppard 1988).

The above changes in New Zealand's retail environment are reflected in retail sales shares. Sales volumes for supermarket and grocery stores in New Zealand have increased steadily in recent years, as shown in Figure 2.2. Supermarkets had the highest sales volume between 1997 and 2015, increasing sales volume by approximately 145 per cent over this period, with overall sales of approximately NZ$17.3 billion in 2015. This is followed by food and beverage services, valued at approximately NZ$8.3 billion in 2015, and specialised food retail, valued at approximately NZ$1.5 billion in 2015.

Figure 2.2. Annual New Zealand retail sales (deflated, September 2010 quarter prices, NZ$ million), 2004-2015



Source: StatsNZ 2015a.

2.3 Household expenditure

Statistics New Zealand's Household Economic Survey 2013 outlines average weekly household expenditure on nearly all food item categories has increased in recent years, as shown in Table 2.2. Between 2009/10 and 2012/13, average weekly expenditure on food increased from NZ$177.50 per person to NZ$192.50 per person (8.4 per cent), with food representing 17.3 per cent of total average weekly household expenditure per person in 2012/13. While just over a quarter of New Zealand consumers' total food spend in 2012/13 was on restaurant meals and ready-to-eat food (25.6 per cent), the most commonly purchased food items included other grocery food (13.9 per cent), meat and poultry (12.3 per cent), bread and cereals (10 per cent) and milk, cheese and eggs (7.9 per cent). The largest overall increases in weekly expenditure during this period was seen in vegetables (+15.8 per cent), restaurant meals and ready-to-eat foods (+14.3 per cent), soft drinks, waters and juices (+12.8 per cent) and coffee, tea and other hot drinks (+12.3 per cent) (StatsNZ 2015b). This is also supported by grocery retailer Countdown's statement that between July 2014 and July 2015, the top ten products sold by the

retailer were bananas, tomatoes, broccoli, white bread, carrots, milk, avocado, cucumber, onions and grapes (Migone 2015).

Table 2.2. Share of average weekly household expenditure on food and beverage items by product group, 2009/10 and 2012/13

Product Group	Expenditure (NZ$)		Expenditure (per cent of total food spend)		per cent change (2009/10-2012/13)
	2009/10	2012/13	2009/10	2012/13	
Bread and cereals	19.1	19.3	10.8	10.0	1.2
Coffee, tea and other hot drinks	3.0	3.4	1.7	1.8	12.3
Confectionery, nuts and snacks	11.3	11.9	6.4	6.2	5.0
Fish and seafood	4.2	4.3	2.4	2.2	3.0
Food additives and condiments	4.9	5.3	2.8	2.8	8.9
Fruit	8.8	9.3	5.0	4.8	5.6
Meat and poultry	22.5	23.6	12.7	12.3	4.9
Milk, cheese and eggs	13.9	15.2	7.8	7.9	8.9
Oils and fats	3	2.9	1.7	1.5	-0.2
Other grocery food	25.1	26.7	14.1	13.9	6.1
Restaurant meals and ready-to-eat foods	43.1	49.2	24.3	25.6	14.3
Soft drinks, waters and juices	7.1	8.1	4.0	4.2	12.8
Vegetables	11.5	13.3	6.5	6.9	15.8
Food (total)	**177.5**	**192.5**			**8.4**

Source: StatsNZ 2015b.

In 2009 the Ministry of Health (MoH) assessed the diets of 4,721 New Zealanders. Sixty-six per cent of participants consumed three or more servings of vegetables each day, with the recommended two or more daily servings of fruit (excluding fruit juice) consumed by approximately 55 per cent of male participants and 66 per cent of female participants. Most participants chose whole-grain bread over other varieties (63.3 per cent), with 48.4 per cent choosing reduced-fat or trim milk products and 43.3 per cent choosing standard or whole milk products more frequently. In addition, most participants stated that they had consumed red meat in the past four weeks (94.5 per cent), with 45.4 per cent saying that they do so 3-4 times per week. Most participants stated that they had eaten chicken in the past four weeks (93.4 per cent), with 56.4 per cent stating that they do so at least one or two times per week. Most participants had consumed seafood products in the past four weeks (MoH 2009).

In addition to incomes, retail prices of grocery items have also increased over time. These are detailed in Table 2.3 for selected goods. Between 2009 and 2014, the retail price of milk in New Zealand showed the largest increase (+11.8 per cent), followed by apples (+9.1 per cent) and lamb (+8.7 per cent), with bread exhibiting no change over this period (StatsNZ 2015e).

Table 2.3. Retail price of selected goods in New Zealand, 2009 and 2014

Item	Price (NZ$, 2009)	Price (NZ$, 2014)	%per cent Change (2009-2014)
Bread (white sliced loaf, 600 grams)	1.55	1.55	N/A
Milk (standard, 2 litres)	3.22	3.60	+11.8%
Apples (per kg)	2.31	2.52	+9.1%
Lamb (chops, per kg)	12.78	13.89	+8.7%

Source: StatsNZ 2015e.

Kennedy (2010) provide an analysis of New Zealand retail trading hours, showing that retail trading hours in New Zealand were deregulated in 1990 to allow shops to be open for 24 hours a day, 7 days a week. This was in response to both international trends in retail trading hours and consumer demand. Retail trading hours in New Zealand experienced a shift to supporting the consumer and increasing business for retailers (Kennedy 2010).

Today, grocery retail in New Zealand has focused on providing competitive retail prices, with an emphasis on a more diverse range of high-quality products evident in recent years (Euromonitor 2015). The ethnic diversity of New Zealand consumers as well as the proportion of immigrant communities therein also play a role in the retail food sector. While there are currently many types of retailers (such as specialty and online shops) catering to consumer preferences for ethnic foods, also supermarkets have increased stocks of ethnic food products in recent years. Dressler-Hawke and Mansvelt (2009) found variations in the amounts of ethnic food products stocked in major New Zealand supermarkets, with the most prominent products stocked including food items from China, India and Japan (with less availability of Thai, Vietnamese or Korean products). In addition, the study found a higher proportion of ethnic foods stocked in more premium supermarkets, suggesting that these products are more frequently purchased by New Zealand's more affluent consumers (Dressler-Hawke and Mansvelt 2009).

While New Zealand supermarkets have diversified their stock in recent years (such as the introduction of beer and wine products in the 1990s), most supermarkets have retained their layout and structure in place since the 1970s, catering almost exclusively to weekly grocery shoppers rather than casual shoppers (Parsons and Wilkinson 2014). It was estimated that in 2005 between 20 and 30 per cent of all items in New Zealand supermarkets were imported (Gray 2005). Most fresh meat, dairy and seafood products available in New Zealand supermarkets are of domestic origin, as well as a large portion of fruit and vegetables (Insch and Florek 2009). However, it has also been shown that due to an increased focus on export markets, lamb products of domestic origin available to New Zealand consumers have historically been of lower quality to those reserved for export (Clemens and Babcock 2004).

At present, the range of types of retail outlets in New Zealand is large, with a great variety of standard and specialty retail outlets in operation. For food and beverage products, the main types of retailers in New Zealand in 2011 included supermarket and grocery stores (3,317 outlets), fresh meat/fish/poultry retailing (660 outlets), fruit and vegetable retailing (484 outlets), liquor retailing (941 outlets) and other specialised food retailing (941). Furthermore, the wider New Zealand retail market in 2011 comprised a variety of specialised retail outlets, including clothing, houseware, electrical, media, pharmaceutical, automobile and other retailers (Parsons and Wilkinson 2014).

There are currently two major grocery distributors operating in New Zealand – Foodstuffs and Progressive Enterprises. The former (Foodstuffs) was first established in Auckland in 1922 as a co-operative buying group for grocers, with divisions established in Wellington in 1922, Christchurch in 1928 and Otago in 1948. The group currently operates two major divisions (Foodstuffs North Island Limited and Foodstuffs South Island Limited) and distributes grocery items to supermarkets New World, Pak N Save and Four Square (Foodstuffs 2015). Foodstuffs currently accounts for 42 per cent of value in grocery retail in New Zealand (Euromonitor 2015). Similarly, Progressive Enterprises was established in 1929 with the opening of the first Woolworths store in New Zealand, entering into food retail in 1956 in Auckland. Progressive Enterprises Limited currently distributes grocery items to Countdown, Fresh Choice, Super Value and Woolworths supermarkets (PEL 2015).

In summary, New Zealand's food retail sector has undergone some important developments over the past century. These changes have been driven by changing consumer demands, giving choice and convenience to the consumer over time. Allowing the consumer to select items themselves, followed by the establishment of stores wherein a greater variety of products were available in one location, established the current paradigm of supermarket shopping currently in New Zealand. This ultimately led to a greater diversification of products, including a wider selection of ethnic foods, to be stocked in New Zealand supermarkets. In addition, longer opening hours allowed the consumer to shop at times that were convenient for them.

2.4 Alternative food markets

In considering the structure and value of New Zealand food and beverage retail, it is important to also consider that not all value may be captured by mainstream outlets such as supermarkets. The retail sector of New Zealand is diverse and comprises conventional as well as alternative food markets. Such alternative food markets include farmers' markets, community-supported agriculture, as well as specialty and online shopping markets. Literature examining these in New Zealand are included herein.

An example demonstrating the growth of alternative food systems within New Zealand is the home food and beverage delivery service My Food Bag. The company is currently New Zealand's third-largest food and beverage retailer (behind Foodstuffs and Progressive) with 30,000 customers in 14 cities across Australasia. My Food Bag has delivered approximately 9 million meals across Australasia to date, and is set to reach NZ$100 million in revenue by the end of February 2016. The company offers a subscription service to consumers for home delivery of recipes and the required ingredients equating to a week's worth of food for a single household. There is currently a range of "food bags" available, ranging from enough food for one or two people per week to a large family, including a vegetarian and forthcoming gluten-free option. The service also uses free-range pork and eggs products, as well as locally-sourced ingredients (Ryan 2015).

As seen above, the use of alternative food markets in New Zealand can be linked to a consumer preference for locally-grown food products. In relation to this, Mirosa and Lawson (2011) explored New Zealand consumers' attitudes to local food product purchasing, finding distinct differences in preferences between *buyers* and *non-buyers* of these products. Within the *buyer* segment, low prices and high quality were found to be key determinants of local food purchase. Chalmers et al. (2009) conducted a literature search to investigate different perspectives on farmers' markets in New Zealand, suggesting that the popularity of farmers' markets amongst New Zealand consumers may be based on positive media exposure.

Different methods were used to examine the use of alternative food networks in one European and in a number of Australian examples. In Finland, Koistinen and Järvinen (2009) undertook a series of focus group sessions with Finnish consumers, finding that price, quality, selection, versatile assortment as well as the retail environment were the main criteria for decisions to shop in hypermarkets and supermarkets, and that service, efficiency and accessibility were the main criteria if consumers preferred neighbourhood and convenience stores, as well as supermarkets at some level. Secondly, using a ranking method, Goodman and Remaud (2015) found that amongst 317 shoppers in South Australian wine retailers, the most important reasons influencing their specific retailer choice were related to location (close to home or work) and customer service. In contrast, the least important reasons included the use of special advertising or selling rare wines. Another recent Australian study focusing on fruit and vegetable purchases asked participants why they shop in a specific store, as well as which store they preferred (Batt 2014). These results showed that, for those who prefer to shop at supermarkets, the top three reasons were competitive prices, freshness of fruit and vegetable products, and convenience; for those who preferred independent supermarkets, the top three reasons were quality, freshness of products, and convenience; and lastly for those who preferred greengrocers, the main reason was superior value - a combination or freshness, quality and price. Andrée et al (2010) examined Australian farmer participation in alternative agri-food networks using semi-structure interviews, finding farmers' participation to be based on a perception of higher returns for food products by capturing value via alternatives to conventional supply chains. The authors also found an increasing number of farmers engaging in sales via alternative agri-food networks as a means of taking independent control over the supply chain for their own products. In another interview-based study, Lea et al. (2006) examined Australian consumers' attitudes towards community-supported agriculture, finding key associations to be product freshness but a lack of choice. However, this study used a small sample (12 participants). Overall while these studies indicate mixed international consumer preferences for a variety of food retail formats, they may not directly pertain to New Zealand consumers.

2.5 Conclusions

The New Zealand food and beverage retail market has become more sophisticated over time, becoming less restricted and more driven by consumer needs. This includes the deregulation of shopping hours, the stocking of higher proportions of foreign food and beverage products and improvements in grocery distribution networks. These changes are reflected in the sector's sales data and consumer expenditure on groceries, Furthermore, the development of alternative food markets may be of interest. As previously stated the retail sector of New Zealand is diverse and comprises alternative food markets such as farmers' markets, community-supported agriculture, and online shopping networks. However, literature examining consumer use of alternative markets in New Zealand is sparse and dated.

Chapter 3
Literature Review

The first part of this chapter provides a review of relevant literature examining New Zealand consumer perceptions, attitudes and behaviours in relation to food and beverage products, with particular emphasis credence attributes. Credence attributes are those product qualities that cannot be immediately seen or experienced in relation to the product and rely on consumer trust, communication or verification (Wirth et al. 2011). The second part of this chapter focuses on New Zealand consumers' use of various digital media and smart technologies, including online shopping, mobile device use and their integration, particularly their use in relation to the food and beverage retail market.

3.1 New Zealand consumer preferences

This paragraph includes a brief overview of previous research in NZ regarding consumer attitudes and perception of food and beverage attributes. These attributes include product quality, nutritional value, health enhancement, food safety, country of origin, production methods, animal health and welfare and environmental condition.

3.1.1 Quality and nutritional value

The perceived quality of a food product influences consumer attitudes and purchasing behaviour. Defining the attribute *quality* is not a simple task (Grunert 2005; Ophuis and Van Trijp 1995) and a number of different qualities can exist in products, such as colour, freshness or appearance. Gamble et al. (2006) examined Australian and New Zealand consumers' perceptions on pear quality, and found that the appearance of the products is important in relation to product quality. Insch and Jackson (2014) surveyed 402 consumers to determine the importance of particular attributes in food products when shopping, including price, taste, healthiness, quality and country of origin (COO), amongst others, finding that price and quality, followed by healthiness and quality, were the most important attributes in relation to product purchase choices.

Similar to product quality, the nutritional contents of a food product may also influence consumers' perceptions and purchasing behaviour. Food Standards Australia New Zealand (FSANZ) (2008) examined 1200 Australian and 800 New Zealand consumers' attitudes to concerns in the food supply, including healthy eating and nutritional content of food products. The study found that approximately half of the New Zealand consumers paid a moderate amount of attention to maintaining a healthy diet, with approximately a third of consumers reporting that they paid a high level of attention to maintaining a healthy diet. In addition, when asked about wider issues concerning food supply, 25 per cent of New Zealand consumers stated healthy eating to be a major concern for them. Overall, the study indicated a clear relationship between those consumers who were concerned about healthy eating and those that used labels to assess a product's nutritional value (FSANZ 2008). Another cross-country study by Prescott et al. (2002) examined motivations for food choice, including 126 consumers from New Zealand. The study considered the following motivational factors: health, mood, convenience, sensory appeal, natural content, price, weight control, familiarity and ethical concern. For NZ consumers, the top five attributes by importance were sensory appeal, price, health, convenience and weight management.

Hamlin (2016) examined differences between functional (stable) and constructed (at the point of sale) attitudes in regards to consumers' beef, pork, lamb and chicken choices. The study was conducted

amounts 513 students, and the functional attitudes were explored via "abstract" Likert-scale statements (agree to disagree) while the constructed attitudes were explored via an experiment revealing attitudes around the selected product cues. Both approaches included the following nine factors: healthiness, feel good, convenience, pleasant to eat, naturalness, value for money, calories, familiarity and enviroenmental friendliness. Analysis across products showed significant differences in seven attitudinal statements (excluding naturalness and enviroenmental friendliness), however, the cues revealed no evidence for significant differences in any factors. This indicates that the attitudinal statements showing differences between product types may not always match with constructive attitudes that could occur at the point of sale.

Giacalone and Jaeger (2016) examined the effects of product familiarity on product use. Four consumer studies were conducted focusing on fruit (with 246 respondents), white wine (112 respondents), chocolate (192 respondents) and kiwifruit (302 respondents). Overall, these studies showed that consumers tended to differentiate between products and attributes based on their familiarity and/or previous experience. A large number of consumers considered fruit products to be "healthy alternatives to other snacks"; organic and reduced alcohol wine were associated as being "for health-conscious people"; and kiwifruit as being consumed "as a digestive aid".

3.1.2 Health-enhancing food

Besides their nutritional value, food products can provide health benefits beyond basic nutrition. Other terms used to describe health-enhancing food products include 'functional foods' and 'fortified foods', a term first introduced in Japan (Bechtold and Abdulai 2014; Siró et al. 2008). In NZ, there is little available evidence regarding consumer preferences for such products. In one example, Devcich et al. (2007) examined 390 medical students' attitudes towards health implications of the consumption of functional foods. The authors found that barriers to the consumption of functional foods included worries regarding the use of synthetic chemicals in food products, mostly associated with the consumption of organic foods and food allergies, and that "natural" foods were often considered favourable.

3.1.3 Food safety

While regulations regarding the safety of food products are in place in New Zealand (Gosh 2014), consumers have shown concern regarding food safety. This may be due to recent food safety scares involving New Zealand food products. FSANZ (2015) have outlined historic incidences of food product contamination occurring in Australia and New Zealand between 2008 and 2016. These have included the incidence of *Salmonella* in rock melons, undeclared dairy in coconut milk products, the incidence of Hepatitis A in imported frozen berries, the incidence of Listeria in soft cheeses, cyanide poisoning from raw apricot kernels, and the incidence of melamine in infant formula products to China (FSANZ 2015).

A survey conducted in 2007 (FSANZ 2008) found that, overall, only a small proportion of New Zealand (7 per cent) consumers identified food safety as a major concern in relation to food and beverage purchase and consumption. Furthermore, the study examined some specific factors around food issues and found that, in NZ, the most common concerns were food poisoning (43 per cent of respondents) and obesity (38 per cent). However, the use of cloned animals in the food supply, GM-food and food safety/hygiene issues were considered of high concern to NZ participants.

3.1.4 Country of origin

As indicated above, the perception of the safety of food and/or beverage products can be related to a products place of origin - specifically country-of-origin (COO). The COO of food and beverage products is often associated with other attributes (Miller et al. 2016). In particular, the COO for food and beverage products can be defined at different levels, such as where the product was grown, produced, manufactured or processed. The labelling of such information in New Zealand is voluntary (Wood et al. 2013).

In 2006, some type of country-of-origin (COO) labelling was displayed on approximately 84 per cent of food and non-food products available in selected New Zealand supermarkets (Insch and Florek 2009). Furthermore, in their nationwide study, FSANZ (2008) found that approximately 43 per cent of NZ consumers read the provided COO information when buying a product for the first time. Another study found that while COO was a less important factor on product choices than price, taste, healthiness and quality, the COO did influence around a third of NZ consumers in their stated product choices. This was due to a preference for supporting NZ, Kiwi or local products (23 per cent of sample). This is consistent with other studies indicating that NZ consumers prefer domestic, in some cases locally-sourced products, over the imported ones; or if imported, products from culturally similar markets are preferred (e.g. Australia) (Holdershaw et al. 2013; Parsons et al. 2011). However, similar to nutritional labelling (e.g., McLean and Hoek 2013), it is possible that not all consumers interpret or understand the COO labels correctly (Insch and Florek 2009).

Specifically in relation to wine product choices, Jaeger et al (2009) examined purchase decision factors for 554 New Zealand consumers, finding that approximately 86 per cent recalled the COO of the wine products they purchased, with differences noted between frequent and infrequent wine purchasers (92 per cent and 76 per cent of respondents, respectively, recalling a product's COO). A similar finding was made amongst 592 restaurant consumers, where the 'geographical origin' of wine, alongside grape variety, was of higher importance to those highly or frequently involved with wine consumption (Jaeger et al. 2010).

3.1.5 Production methods

Besides knowledge of a product's origin (e.g. COO), consumers may also be interested in how products were produced. Thus concerns about production methods, such as organic production or genetically modified (GM) food are often compared to some base line of conventional production methods.

Firstly, with regard to organic food products, an early study found that, amongst 205 Christchurch consumers, those who purchased organic food did so for health reasons, while key barriers included product availability and cost (Saunders 1999). Similar results was found by Squires et al. (2001) study which found that health-conscious New Zealand consumers were more likely to include organic food products in their diet due to their perceived healthiness. A more recent report prepared by Organics Aotearoa New Zealand (OANZ) (2016) indicates that organic processing and domestic retail sectors (for fruit, wine and dairy) have been highly successful, with sales of organic products (in supermarkets) increasing by 127 per cent between 2012 and 2016.

Secondly, GM food has been a contentious issue in NZ (Wright and Kurian 2010) and several studies have explored public perceptions and attitudes towards these products using survey-based approaches. Kassardjian et al. (2005) conducted a survey and experimental auction to determine consumers' willingness to purchase GM apples (either with environmental or health related benefits) over ordinary

apples. A majority of the sample (87 participants) were willing to pay some amount for the GM apples. However, 25 people (30 per cent of the sample) were not willing to pay anything (i.e. "zero-bidders") for the GM apples, preferring the ordinary alternatives. The reasons for these zero bids included concerns regarding GM (52 per cent of zero bidders), wanting to keep their money (10 per cent) and being happy with conventional apples (10 per cent). Furthermore, the study looked at some additional associations with GM products, such as a linked opinions and WTP. These opinions were classified as GM-favourable and GM-unfavourable based on a single survey question and open-ended comments. The authors found that in the distribution of zero bidders, there were significant differences between the two types of question responses, with open-ended comments showing stronger opinions than the survey question. This suggests that examining open-ended comments may provide a better indication on GM-product related opinions.

In other sets of surveys, Kaye-Blake et al. (2004) explored people's purchase intentions or WTP in relation to GM foods. First, the authors examined purchase intentions in relation to GM food products for 701 New Zealand consumers. They found that between 36 per cent and 43 per cent of the respondents would not intend/definitely intend to purchase a range of GM products. Another question indicated that between 39 per cent and 45 per cent would not be willing to pay for GM products while only 4 per cent-21 per cent were willing to pay some premium. The highest proportion of people willing to pay for premium was found for apples, and the lowest for milk and bread. In another study examining attitudes to GM food, Kaye-Blake et al. (2005) found that 41 per cent of the sample (353 shoppers in Christchurch) agreed/strongly agreed that GM food was risky, while 33 per cent had a favourable view on GM food. A third study by Kaye-Blake et al (2007) used Likert-scale based survey data to identify six clusters of consumer types in relation to GM-food: "Price-sensitive", "True believing", "Appreciative", "Middle of the road", "Opposed" and "Concerned" consumers, with most respondents located in the *appreciative* cluster (N = 70 out of 300 respondents) and the least in the *true believing* or *concerned* clusters (39 and 41, respectively). The *appreciative* consumers were described as willing to buy GM food but with "tepid" or "neutral" opinions regarding GM food; the *true believers* agreed with the potential of GM food to provide help in the "world food problem" with little risk or clash with cultural beliefs; whereas the *concerned* cluster would not purchase GM food yet were not as extreme on their opinions as the *opposed* cluster. Overall, these six clusters were split between the consumers who do incline towards buying GM food and those who do not.

Finally, Knight et al. (2005) examined New Zealand consumers' preferences for different types of cherries, finding that that consumers preferred cherries labelled as 'organic' the most, followed by 'low residue' and '100 per cent spray-free genetically engineered' cherries.

3.1.6 Animal health and welfare

The health status and welfare conditions of animals is another product attribute influencing consumers' choices. The Ministry of Agriculture and Forestry (MAF) (now Ministry of Primary Industries) examined the attitudes of New Zealand consumers in relation to animal welfare issues in an online survey (with 1006 respondents) (MAF 2011). The study found that, overall, animal welfare was considered as an important issue and that participants believed the level of animal welfare and protection in NZ to be better than (around 43 per cent-45 per cent of sample) or the same as (30 per cent-38 per cent) overseas. There was slight discrepancy in the results as to whether the animal welfare receives a right level (32 per cent-42 per cent) or not enough (43 per cent-52 per cent) attention. The majority of the sample agreed that animal welfare should be either probably or certainly improved in NZ. Participants also expressed

concern regarding the overall treatment of animals. However, when asking people about their behaviour towards purchasing animal welfare products, the findings were slightly inconsistent with the attitudinal statements of importance. For example, between 37 per cent and 64 per cent of the sample considered animal welfare most or some of the time, with the highest consideration for eggs, pork and chicken rather than beef and lamb/sheep. In turn, this means that between 36 per cent and 63 per cent rarely or never considered (or purchased) animal welfare protected products. While some respondents found it easy or fairly easy to find information regarding animal welfare, between 40 per cent and 84 per cent of the sample considered this either not easy or were uncertain (MAF 2011, p. 31). In addition, half of the participants (53 per cent) believed that the available range of animal-friendly products in supermarkets was not sufficient. Forty-five per cent claimed they would be willing to pay more for eggs with higher animal welfare standards, another 38 per cent said they would opt out for the cheapest eggs. Finally, while 42 per cent claimed they would be willing to pay more for meat with higher animal welfare standards, another 41 per cent claimed they would purchase the cheapest meat products. (MAF 2011).

Loveridge (2013) reviewed differences between two studies, conducted in 1994 and 2008 respectively, regarding New Zealand urban and rural people's attitudes towards animal welfare in New Zealand. The review found that, while methodological differences exist between the two studies, the New Zealand public's views changed over time regarding specific animal welfare issues. For example, within the 1994 study, rural people were most concerned about a lack of food and water, general mistreatment of farm animals and normal farming practices, while urban people indicated concern regarding the confinement of poultry and normal farming practices. However, within the 2008 study, rural people were more concerned about normal farming practices, followed by a lack of food and water and specific poultry issues, while urban consumers were more concerned regarding the mistreatment of animals, as well as the confinement of pigs and poultry. The author also suggests that a range of sources (including activist initiatives, government discourse, market-oriented organisations, media attention and farmer groups) may have contributed to public understanding of animal welfare issues (Loveridge 2013). In 2015, some amendments were made to the Animal Welfare Act (1999) in order to improve the protection of animals and associated standards or measures (MPI 2017).

3.1.7 Environmental condition and social responsibility

Similar to animal welfare, food product attributes can also include different ethical dimensions, such as environmental sustainability, social responsibility and/or Fair Trade (Grunert et al. 2014; Zander and Hamm 2010). In New Zealand, some research exists in relation to these attributes, however, similar to the other attributes, the available literature is relatively limited. The following subchapter considers environmental sustainability and social responsibility in relation to New Zealand consumer preferences for food and beverage products.

Environmental sustainability has important ethical dimensions when considering, for example, the need for feeding human populations within the limits of sustainability (Wooliscroft et al. 2014). In regards to these environmental attributes, while some NZ-focused research exists for the physical properties of an environmentally sustainable diet or environmental issues in agri-food production (Wilson et al. 2013; Zonderland-Thomassen et al. 2014), fewer studies exist examining associated consumer attitudes specific to food and beverage products. In a study assessing New Zealanders' concerns on a wide range of issues, FSANZ (2008) found that that every fifth consumer in NZ considered the pollution and environmental issues in the food supply, which was similar to the concerns around education standards but less than living cost and crime levels. In addition, Colmar Brunton (2016) found environmental issues to be among

the growing concerns for members of the New Zealand public between 2011 and 2016, including the impact of climate change, unsustainable use of natural resources, protection and management of conservation land and waters special to New Zealand, pollution of lakes and seas, and the protection of native plants and animals. In regard to wine purchases, Forbes et al. (2009) found a preference among NZ consumers for wines with labels communicating environmentally sustainable production practices, and that respondents had a strong desire for product labels identifying sustainably produced wines, with 73 per cent of respondents prepared to pay more for a wine that is environmentally sustainable. Similarly, Harris (2009) identified a demand for verifiably sustainable food and household products from Australian and New Zealand consumers, with sales of these products increasing following the inclusion of the Green Tick eco-label to product packaging.

A recent study applied two separate survey methods to environmental considerations in product purchasing in New Zealand. Firstly, based on ten semi-structured interviews, participants indicated that selecting Fair Trade products (if available) was considered to be an example of ethical consumption. Secondly, the authors conducted a survey of 403 New Zealanders, which revealed that recycling was considered to be the easiest type of ethical consumption behaviour to perform (Wooliscroft et al. 2014).

3.1.8 Māori culture

Lastly, there is sparse evidence regarding New Zealand consumers' attitudes to Māori culture in relation to food and beverages. However, Forbes and Dean (2013) found that the use of Māori brand names for wine products increased New Zealand consumers' (n=141) likelihood to purchase and willingness to pay for a particular wine product, with consumers associating the use of a Māori brand name with a quality wine product.

3.2 New Zealand consumer use of digital media and smart technology

In order to capture value for premium products with associated credence attributes, it is essential to communicate these qualities to the consumer. The means by which consumers generate knowledge of, as well as purchase, food products are evolving rapidly. One such method is via digital media and smart technologies, the use of which has increased significantly in recent years internationally, as well as in New Zealand. This section examines what is known about current New Zealand consumer use of such technologies as online shopping, social media, mobile devices (smartphones and tablets), as well as the integration of these technologies with everyday life. While traditional forms of media (i.e. print media, radio, television) remain an important feature of the current sphere of New Zealander's overall media use (Nielsen 2015), the current report focuses on digital media and smart technologies.

New Zealanders' use of internet technology has increased in recent years. In 2016, there were approximately 1.5 million residential and 353 thousand business/government internet connections in New Zealand, including approximately 223 thousand high-speed fibre optic connections. In addition, there were approximately 3.5 million mobile phone internet connections in New Zealand in 2016 (StatsNZ 2016b). Furthermore, a 2014 study of New Zealand internet users showed that approximately 73 per cent of participants believed the internet to be an important part of their everyday lives, with 38 per cent accessing the internet daily using a variety of devices.

The way in which New Zealanders use the Internet has also changed over time, including increased use of social media and other media formats. Internationally, New Zealand was rated as having the second-highest ratio of engagement with Facebook (85 per cent), second highest ratio of daily use of tablets (64

per cent), second-highest ratio of viewing user-generated content on a PC (58 per cent), and the fifth-highest user ratio for streaming movies and TV on a PC (40 per cent) (Chorus 2014). Similarly, a 2013 study of New Zealanders' attitudes and behaviours regarding internet usage found most people to use the internet for at least one hour every day (Gibson et al. 2013). In addition, as online entertainment and tools are used more frequently and diversely, the need for faster internet infrastructure within New Zealand amongst New Zealand users increases (Mirza and Beltran 2014).

There is some evidence regarding New Zealanders' use of technology for information regarding food products. FSANZ (2008) showed that, for those participants that used the internet as a main source of food product information, 33 per cent (n=732) used it as a main source of information regarding the nutritional content of food, while 44 percent (n=1000) used it as their main preferred source of information regarding animal welfare, particularly for farm animals. However, while some information is available regarding New Zealand consumers' use of digital media and smart technology in general, there is less information available in relation to its use for food and beverage information gathering and purchasing.

3.2.1 Online shopping

While there is some evidence of New Zealand consumers' use of online shopping, the literature is sparse, particularly those regarding online food beverage shopping, and some studies are dated and may not accurately reflect current online shopping behaviour.

In an early study, Shergill and Chen (2005) examined New Zealand consumers' attitudes to online shopping, finding that website design and reliability significantly impacted consumers' decision to use online shopping services. Similarly, Fam et al. (2004) examined New Zealand consumers' attitudes to and use of online shopping for accommodation services, finding consumers' trust in these services to be dependent on the provision of guarantees, refunds, room availability and confidentiality, suggesting a greater need to communicate service authenticity to online New Zealand consumers. However, the above studies are now dated and may not provide relevant results for New Zealand consumers' current online shopping use.

A 2013 study of New Zealand internet users (N=2,006) found 93 per cent of participants to use the internet to look for product information (13 per cent *daily*, 39 per cent *weekly*), and 85 per cent compare prices between products (9 per cent *daily*, 33 per cent *weekly*) (Gibson et al. 2013). Similarly, in a 2013 study of New Zealand internet users found that approximately 67 per cent of participants regularly shop online, with 19 per cent stating to have shopped less in-store after using online shopping (Roy Morgan Research 2013). Bank of New Zealand (BNZ 2016) found that the total online retail spend for New Zealand consumers in 2016 was approximately NZ$3.75 billion, with December 2016 online sales up 17 per cent on the previous December. In particular, grocery and liquor sales (including health food and supplements) for December 2016 was up 16 per cent on the previous December (BNZ 2016). In addition, in a study of New Zealand internet users, approximately 47 per cent preferred to use online shopping over visiting a physical store (Chorus 2014). However, barriers to online shopping still exist in New Zealand, with Roy Morgan Research (2013) finding only 37 per cent of New Zealand consumers comfortable using credit cards online, with approximately half of consumers often using online shopping websites as a research tool for shopping offline (47 per cent).

Google (2016) provides extensive information regarding international internet, online shopping, mobile device and video services use, including comprehensive information regarding New Zealand consumers,

within its Consumer Barometer Tool. This tool combines the results of several studies, including Google's Connected Consumer Survey (2016) and Consumer Barometer Survey (2015). These results show that New Zealand consumers (approximate n=1000) use their computer on a weekly basis to look for product information (27 per cent) and purchase products/services (9 per cent). In finding more information about a product or service, online information sources used by New Zealand consumers include search engines (39 per cent), brand websites (23 percent), retailer websites (20 per cent), price comparison sites (9 per cent), online video sites (7 per cent) and social networks (5 per cent). In addition, New Zealand consumers used online information sources to assist their purchase decisions by comparing products/prices online (53 per cent), discovering relevant brands online (27 per cent), getting ideas/inspiration online (26 per cent), checking where to buy/product availability online (22 per cent) and looking for opinions/reviews/advice online (22 per cent). With regards to product purchasing online, following online research, 59 per cent of New Zealand consumers made purchases in a store (59 per cent), with 27 per cent making their purchases online.

Finally, Google (2016) also reported the international product purchasing behaviours of New Zealand consumers. In particular, 58 per cent of New Zealand consumers purchased products from foreign countries online at least once per year, with 17 per cent never having purchased products from foreign countries online. The product types from foreign countries purchased included clothing/accessories/footwear (41 per cent), books/CDs/DVDs/video games (41 per cent) and food (groceries, delicacies, special food from other countries) (6 per cent). Fifty-three per cent of New Zealand consumers stated that they prefer to buy products from within their own country, with 28 per cent willing to buy international items online but only from particular countries. Motivations for purchasing products from foreign countries included better availability (43 per cent), broader range of products (28 per cent), appealing offers (27 per cent) and better quality (10 per cent) (Google 2016).

Finally, online grocery shopping was introduced in New Zealand at retailer Countdown in 2010, with an accompanying online shopping mobile app launched in 2013 (Mason 2013). In relation to online grocery shopping, Parsons and Wilkinson (2014) provide an overview of the New Zealand retail sector, finding that supermarket retailer Countdown experienced an online sales growth of 32 per cent between 2013 and 2014, facilitated by the use of "click and collect" services.

3.2.2 Social media

Social media represents a major method of communication between people internationally. This includes the use of social networking websites such as Facebook or Twitter (or corresponding alternatives in markets like China and Japan), but may also include services such as professional networking website LinkedIn or photo sharing service Instagram. New Zealand consumers currently use such services on a regular basis and these services are used in consumer communication and purchasing of New Zealand food products. This is significant as many studies have shown that electronic word-of-mouth (eWOM) (i.e. social media users discussing products and services online) can impact on consumer attitudes and purchasing behaviour (Chu and Kim 2011; Trusov et al. 2009; Wang et al. 2012). However, the authors found no studies specifically examining the impact of eWOM on New Zealand consumers.

Nielsen (2016) examined New Zealanders use of a variety of media, including social media. This study found that Google and Facebook were the Top 2 visited online brands in New Zealand respectively, with 88 per cent of New Zealanders accessing social media at least once a month. In addition, Facebook was the most popular social media website with 75 per cent accessing the service in a month, followed by YouTube (61 per cent), Google+ (23 per cent) and LinkedIn (20 per cent) (Nielsen 2016). Furthermore, a

2015 study conducted by Facebook found that there were over 2.5 million active monthly Facebook users in New Zealand, 2 million of which used the service every day. In particular, 85 per cent of users aged 18-24 stated that using the service was a regular, daily activity. In addition, approximately 80 per cent of New Zealand Facebook users stated that they use the service to "make product and brand discoveries", 55 per cent have stated that they have found products/businesses using the service and used it to learn more or visit that product/business's website, while 36 per cent have used Facebook to share or discuss products/businesses with their peers. Specifically, 65 per cent of New Zealand Facebook users used the service to find out more about or visit the website of new food product(s)/recipe(s) (Facebook 2015).

Based on the above, Facebook has become a popular tool for marketers, and consumer engagement with brands on Facebook indicates its usefulness, particularly for food and beverages. Top brands can be assessed by the total number of "likes" received by each brand on Facebook, and can be organised by their corresponding industries. For New Zealand, the top five industries on Facebook in New Zealand (as represented by total fans) are detailed in Table 3.1. The top industry by total fans (as of August 2015) is retail food, with fast-moving consumer goods (FMCG) food ranked as the third most "liked" industry on Facebook for New Zealand users.

Table 3.1. Top five New Zealand Industries on Facebook by Total Fans

Rank	Industry	Total Fans
1	Retail Food	744,121
2	Airlines	662,719
3	FMCG Food	587,212
4	Retail	474,619
5	Industrial	254,989

Source: SocialBakers 2015.

Similarly, as shown in Table 3.2, three of the top five brands for New Zealand Facebook users by total fans (as of August 2015), as well as high percentages of New Zealand-based fans (local fans) are retail food brands (McDonald's, KFC, Whittaker's Chocolate).

Table 3.2. Top five New Zealand brands on Facebook by Total Fans

Rank	Brands	Total Fans	Local Fans (%)
1	Air New Zealand	435,947	39.5
2	McDonald's	380,116	99.5
3	KFC	364,005	99.6
4	Whittaker's Chocolate	348,798	71.5
5	Z Energy	254,989	95.2

Source: SocialBakers 2015.

3.2.3 Mobile

Mobile device use is increasing within New Zealand, including the use of smart devices, such as smartphones and tablets. Between 2011 and 2014, the average number of smart devices per New Zealand household has increased from 2.9 to 5.2; smartphone penetration increased from 13 per cent to 68 per cent; and tablet penetration increased from 4 per cent to 39 per cent (Chorus 2014). This trend is expected to continue, reaching approximately 90 per cent penetration for smartphones and 78 per cent penetration for tablets by 2018 (Frost & Sullivan 2013). In addition, 64 per cent of New Zealand consumers

had access to or owned three or more mobile devices in 2015, with smartphone use showing the highest usage growth of all other technology types (i.e. laptops, tablets) (Research New Zealand 2015). A 2013 study of New Zealand internet use found that 65 per cent of users downloaded free apps and 41 per cent purchased apps on their mobile device(s) (Gibson et al. 2013). Facebook (2015) showed that 1.6 million New Zealand Facebook users access the service primarily using a mobile device.

A more recent study which provides extensive information regarding increased use of smartphones in New Zealand smartphone is Google's Consumer Barometer Tool (2016). For New Zealand participants (approximate n=1000), 76 per cent generally use a smartphone, 40 per cent generally use a tablet and 7 per cent generally use a wearable digital device. In addition, New Zealand participants use their smartphones to manage shopping or to-do lists (17 per cent) and track health/diet/activity levels (7 per cent), as well as use their smartphone on a weekly basis to use search engines (61 per cent), visit social networks (52 per cent), look for product information (26 per cent) and purchase products/services (8 per cent). Specifically for product information-gathering and purchasing, New Zealand participants used a variety of devices to research products/services, including smartphones (23 per cent), tablets (16 per cent) and other internet-enabled devices (3 per cent). New Zealand participants also used a smartphone while researching to share product photos (17 per cent), research products in-store (14 per cent), perform a location search (13 per cent), scan QR codes (5 per cent) and retrieve coupons (4 per cent). Furthermore, New Zealand participants used a number of devices to purchase products/services, including smartphones (8 per cent), tablets (8 per cent) and other internet-enabled devices (2 per cent) (Google 2016).

In response to the above trends, some New Zealand retailers have begun to engage with mobile device users in promotional activities, developing third-party applications (or "apps") specific to their retail activities. These apps can be downloaded from a mobile device's relevant online store and used on the device in conjunction with in-store promotions, loyalty programmes and similar uses. An example of such apps is retailer The Warehouse's mobile shopping app "Your Warehouse", which includes a barcode scanner that can be used on product barcodes from competing retailers to check their value against that of the same or similar stocked item at The Warehouse, allowing the consumer to know the price difference between them. The app has over 50,000 products listed online, constituting New Zealand's largest available product catalogue. Additional functions include the ability to view the retailer's current promotional offers, add products to a "favourites" list, locate physical retail outlets near the user (as well as driving directions) and similar functions (Lynch 2014).

3.2.4 Future technology opportunities for producers and retailers

Retailers are increasingly their engagement with new technologies for promotional and customer service applications, particularly in-store. These are often used in conjunction with consumers' mobile devices, and includes barcode and QR code scanning, as well as interactive technologies such as Radio Frequency Identification Devices (RFID), Near Field Communication (NFC) and beacon technology. RFID and NFC are microchip-based tags that can be interacted with via a reader device, with many smartphones already capable of interacting with RFID and NFC devices. These tags often require the user to hold their reader device (i.e. smartphone) in close proximity to the tag, after which a specific action (such as opening an app) will occur on the user's device (Thrasher 2013). Similarly, beacon technology works on a much wider proximity, and may interact with a user's smartphone assuming that they have a corresponding app installed on their device. For example, a smartphone user with a loyalty app for a particular retailer may be alerted by their smartphone with a promotional message as they walk past one of the retailer's

physical stores (Maycotte 2015). The use of these technologies allow the consumer to access product information, participate in loyalty programmes and purchase goods, as well as other potentially limitless applications.

One such example of the application of this technology within New Zealand is the use of beacon technology as part of a loyalty programme in a Wellington café. The app, known as Royalty, acts as a loyalty card for café customers, with the in-store beacon technology recognising the customer's mobile device on opening the app. When the customer's mobile device is touched to the beacon device, a "stamp" is added to the in-app loyalty card for that retailer, in the same way that a physical card is stamped as part of a café's loyalty programme (Walters 2013). A similar system is currently in use by Westpac bank, whereby a customer passes a beacon upon entering the bank outlet which provides customer data to bank employees (Kwon et al. 2014). However, there is currently little information regarding New Zealand consumer attitudes towards and use of interactive technologies, particularly in relation to information gathering and purchasing behaviour.

3.3 Conclusions of literature review NZ and overseas, and implications for further research

This chapter presented current literature regarding New Zealand consumer attitudes and preferences in relation to product attributes, particularly credence attributes, their WTP for such attributes, as well as use of digital media and smart technologies in New Zealand. In addition, selected international literature was included for credence attributes in food and beverage products. The main observation regarding current literature is that studies relating to New Zealand consumer attitudes to and perceptions of both generic and credence attributes are limited, suggesting a need for more research across different attributes and products.

The available literature on consumer preferences has been dominated by considerations on products' quality, nutritional value and price which are often amongst the most important attributes in relation to product choices. In regards to credence attributes, some literature exists around animal welfare, health-enhancing foods, food safety, production methods, product origin, animal welfare, environmental and other ethical attributes including the role of Māori culture in food and beverage production. The literature on economic methods to assess WTP for some or many of these attributes is fairly limited. As summarised in Table 3.6, the NZ studies have found positive WTP, for example, for organic production or products with lower chemical use (Kaye-Blake et al. 2004, 2005; Rutledge 2009), and for product attributes with nutritional or health-related improvements (Kaye-Blake et al. 2004, 2005). In contrast, GM food and imported products have been associated with a negative WTP (Kaye-Blake et al. 2004, 2005). While these valuation results are always context specific, they are broadly similar, in terms of positive or negative WTP, with the international literature.

New Zealand consumers' use of digital media and smart technology has increased in recent years, with internet quality improving and access increasing over the past decade. Internet use has become essential for many New Zealanders, with daily internet access and use common across a range of devices. Many New Zealand consumers currently use the internet to look for product information and compare product prices, with a large proportion regularly shopping online. In addition, a large proportion of New Zealand consumers currently use social media such as Facebook and Twitter, with 1.4 million New Zealanders accessing Facebook daily. This is significant, as many of the key food retailers and brands on Facebook for New Zealand consumers are food retailers and FMCG food brands. There is also evidence to suggest that

many New Zealand consumers are using of mobile devices (such as smartphones and tablets) to engage with products and services online. This includes the use of mobile devices for searching for product information, finding retailer information or locations, using barcodes and QR codes to interact with products and/or services, and purchasing products. In response, many retailers have introduced specialised applications for mobile devices in order to capture the interest of these consumers. However, while there is much information sheds available regarding New Zealand consumers' use of digital media and smart technology, less information is available regarding their use specifically in relation to food and beverage information finding and purchasing.

Chapter 4
Method and Survey Development

This chapter outlines the survey development process for this study, including focus groups, survey structure development, attributes selection, choice modelling and the development of alternative retailer questions. The method included a structured and self-administered online survey. Overall, the survey was largely was based on previous research (i.e. the Maximising Export Returns research programme) in order to provide comparable results with domestic and export markets (Guenther et al. 2015; Driver et al. 2015; Saunders et al. 2015a). Based on the literature review, focus groups and stakeholder interviews, some adjustments were made to improve the survey's relevance to a New Zealand context. Finally, five cognitive interviews were conducted to test the survey instrument.

4.1 Survey development

The survey was conducted in May 2016 nationwide. The survey was administered via Qualtrics™, a web-based survey system, with a sample size of 1,400 consumers across New Zealand. The sample was obtained in consultation with a market research company (ConsumerLink).

As part of the survey development process, two focus group sessions were held. Both sessions were conducted on the basis of approval from the Lincoln University Human Ethics Committee, with focus group participants from diverse demographic backgrounds. The first focus group was conducted to acquire information on the perceptions and preferences of New Zealand consumers regarding the attributes of food and beverage products that influence their purchasing behaviour, as well as the use of the digital media and smart technology in relation to food shopping. The second focus group was conducted to test the selected survey questions including attitudinal questions, choice sets, alternative retailer types and reasons, and questions of smart tech use. A summary of findings from the focus group sessions can be found in Appendix 3.

4.2 Survey structure

Following consultation with focus groups, the survey structure was developed. The survey comprised a range of questions including single and multi-response questions, Likert-scale questions and a choice experiment. The survey structure is illustrated in Table 4.1 which shows the survey to be an in-depth investigation of consumer preferences, attitudes and demand for food and beverage attributes, as well as where and how to purchase food products in NZ. Each survey component is explained briefly in the following paragraphs.

The survey begin with a screening question to ensure that the participants went grocery shopping at least monthly, as well as two quota-sampling questions in order to capture an appropriate spread of regions across New Zealand as well as all income brackets.

The survey was implemented online where the use of a purchased respondent panel was selected as the sampling approach. This approach is non-probabilistic/non-random sampling which was considered to be a practical way to achieve an adequate sampling frame for this study. A brief overview of this sampling approach, its advantages and disadvantages, is reported in Guenther et al. 2015.

Table 4.1. Survey structure

Component	Main question		Type	Logic
Sampling	Screen-outs	• Shopping frequency	Single-response	
	Quota	• Region • Income		
Credence attributes, purchases	Attributes	Quality, Price, Animal health, Animal welfare, Environmental condition, Health enhancing foods, Food safety, Social responsibility, Nutritional value, Māori culture, Country of origin	Likert-scale	
	Authentication		Likert-scale	
	Factors of attributes	For: food safety, environmental condition, animal welfare, health enhancing foods, social responsibility, and Māori food and beverage products	Likert-scale	
	Current level	Attributes	Likert-scale	
	Product purchases		Multi-response	Product purchases
	Dietary habits			
Choice Experiment	Information			
	Choice sets	• Dairy generic • Dairy: butter • Meat: generic • Meat: beef steak	Choice set	Randomly selected; conditional a respondent buying meat/dairy products (skipped otherwise)
	Debriefing questions	• Attribute attendance • Certainty, difficulty, understanding • Reasons behind choices	Single and multi-response	
Alternative retailers	Alternative retailers	Budget, Frequency	Allocate 100 per cent, Likert-scale	Frequency: if shop…
		Reasons to shop	Likert-scale	weekly or more often
		Reasons to not shop		monthly or never
		Reasons to change behaviour		never
"Smart tech"	Use and potential use	Attitudes, importance	Likert-scale, single and multi-response	
Demo-graphics			single and multi-response	

4.2.1 Credence attributes and purchases

The survey then continued with questions regarding the importance of different credence (and other) attributes in relation to consumers' food and beverage choices. These questions closely followed the structure of the international MER survey (Guenther et al., 2015). The first set of questions explored the selected attributes (Figure 5.2) at a general level of importance. This was followed with more detailed investigation of the assessment of the importance of underpinning factors for some of these attributes, including food safety, environmental condition, animal welfare, health-enhancing foods, social responsibility, and lastly, specific to New Zealand, the role of Māori culture in relation to food and beverage products. Different authentication schemes for product claims were also investigated within this set of questions, all using a Likert-scale importance rating. This part of the questionnaire finished with yes/no questions of usual product purchases and multi-response question about dietary requirements, if any.

4.2.2 Alternative retailer, smart tech and demographic questions

The survey also presented questions regarding the use of alternative retailers and consumers' reasons to use these, as well as their use of and attitudes regarding digital media and smart technology in relation to food and beverage information gathering and purchasing.

In the alternative retailer questions, the participants were asked first to indicate how they split their grocery budget over the different retailer types, and then how often they used each of the *Supermarket, Specialty stores (e.g. bakery, butchers, greengrocers, health stores), Dairy, convenience stores, Farmers' market, Take-away food (including deliveries), Other food delivery services (e.g. My Food Bag, Food Box), Ethnic food stores, Restaurants*, and *Other* retailers which were designated based on the focus group discussions. From these, participants' reasons to shop, not to shop or change their shopping behaviour (if they had never shopped at a particular retailer type) were explored for four selected retailer types only (Supermarkets, Specialty stores, Farmers' markets and Other food delivery services)[1]. The following logics were used:

- If a respondent selected a shopping frequency of *Fortnightly*, *Weekly, 2-3 times a week* or *Daily* for a particular retailer type, they were asked to indicate the reasons why they shopped at this retailer type; or
- If a respondent selected a shopping frequency of *Never* or *Less than once a month* for a particular retailer type, they were asked to indicate the reasons why they chose not to shop to shop at this retailer type; as well as
- If a respondent selected a shopping frequency of *Never* for a particular retailer type, they were also asked to indicate under what circumstances they would then choose shop at this retailer type.

The questions about participants' use of and attitudes towards digital media and smart technology were consistent with the MER project (Driver et al. 2015) to allow for a straightforward comparison. The survey finished with standard demographic questions. The full questionnaire can be found in Appendix 1**.**

[1] This question was limited to some retailers and frequencies only in order to keep the survey length manageable.

Chapter 5
Survey Results

This chapter presents the results for the 2016 New Zealand survey. The results presented in this report are analysed using descriptive statistics. Unless otherwise noted, all *don't know* and *missing* responses were excluded from the analysis. A scoring methodology was created (similar to those presented in the online tool for the MER project, available at http://www.lincoln.ac.nz/aeru/mer) for the attributes and factors in order to provide a comparison with the overseas results (Driver et al. 2015; Guenther et al. 2015). Based on the scoring methodology, where indicated, results shown are scores ranging from 0 to 100, where 100 represents the highest rating and zero represents the lowest. To achieve this, Likert-scale responses were converted into the following numbers (for example): 0 = 'not at all important', 25 = 'somewhat important', 50 = 'neutral', 75 = 'important', 100 = 'very important'. Following this, averages were calculated using all responses for a particular question, creating an average 'score' for an attribute or factor.

5.1 Sample

The survey was conducted in May 2016 with a total sample size of 1,400. This sample size excludes a few observations with insufficient responses.

Sample demographics are presented in Appendix 2. Overall, the sample included respondents from most age, education, household and income categories and was consistent with census data of the overall population. Overall, more than half of the sample were female, with the majority of respondents from the age groups 30-44, 45-59 and 60-74. More than half of the respondents lived in a household without children, however "couple with children" was the second most common household situation in the sample. Regarding education levels, 60 per cent or more of the respondents had at least a tertiary qualification below a degree. Annual household income ranges varied. In addition, the largest represented region was Auckland (33 per cent), followed by Christchurch (13 per cent), Wellington (11 per cent) and Waikato (10 per cent).

5.2 Importance of attributes in food and beverages

This section examines New Zealand consumers' attitudes towards the importance of product attributes, the underlying factors of these attributes and authentication schemes for product claim verification when shopping for food and beverages.

5.2.1 Importance of basic attributes in food (Q7)

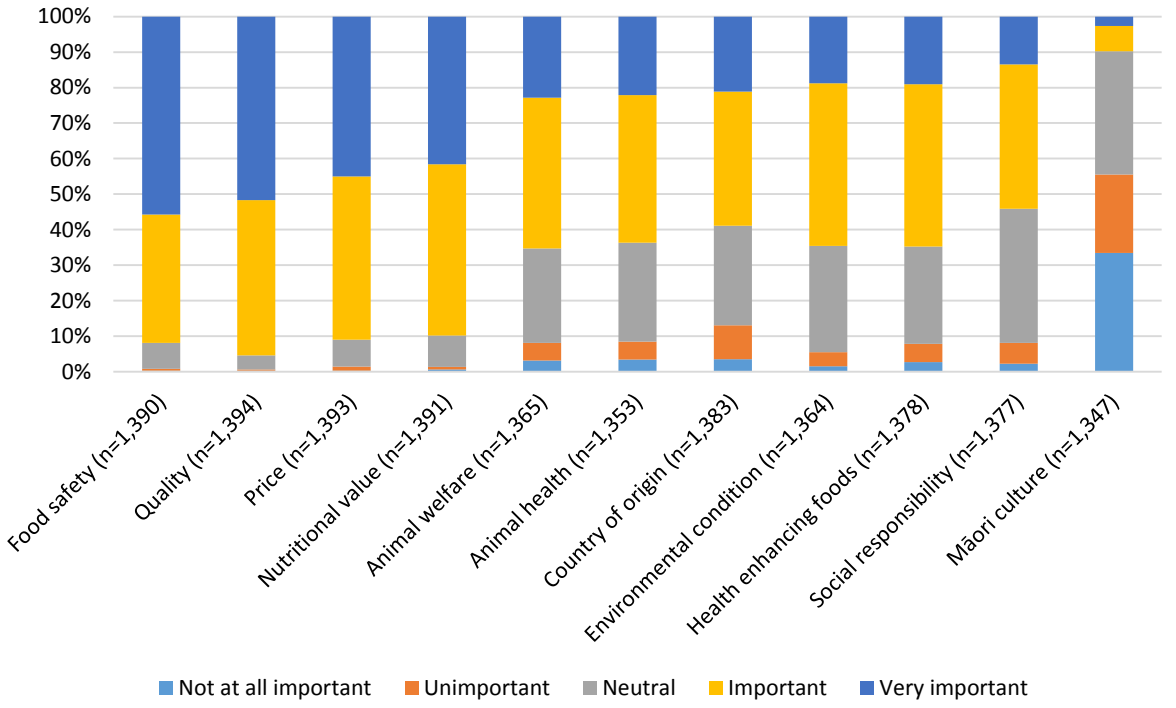
Based on a five-point Likert scale varying from 'very important' to 'not important at all', participants were asked to rate the importance of ten key attributes when shopping for food and beverages. These were *quality, price, animal health, animal welfare, environmental condition, health enhancing foods, food safety, social responsibility, nutritional value,* and *Māori culture*[2]. Country-of-origin (COO) was added in the list based on the discussion of the focus group (i.e. not included in the overseas survey). Two sets of results for this question are presented. First, Figure 5.2 presents the NZ results. Second, Figures 5.3 and

[2] This was *traditional cultures* in the overseas survey.

5.4 provide cross-country comparisons, where possible, of the distribution of important/very important answers and the weighted scores, respectively, while Table 5.1 summarises the top five attributes.

In NZ, *food safety* and *quality* were rated as the most important attributes when shopping for food and beverages, with over half of the respondents indicating these attributes to be *very important* (56 per cent and 52 per cent, respectively) and 36 per cent and 44 per cent respectively finding these to be *important*. These were closely followed by price and nutritional value as shown in Figure 5.2. This supports earlier findings that price, quality and nutritional content are considered to be important by NZ consumers (FSANZ 2008; Gamble et al. 2006; Insch and Jackson 2014; Prescott et al. 2002). For the remaining attributes, the proportion of *important/very important* responses were slightly lower, and consistent across animal welfare and health, COO, environmental condition and social responsibility. The Māori culture attribute, in contrast, differed from the other attributes in that approximately half of the respondents (55 per cent) considered this to be either *unimportant* or *not at all important*.

Figure 5.1. Importance of attributes when shopping for food and beverages



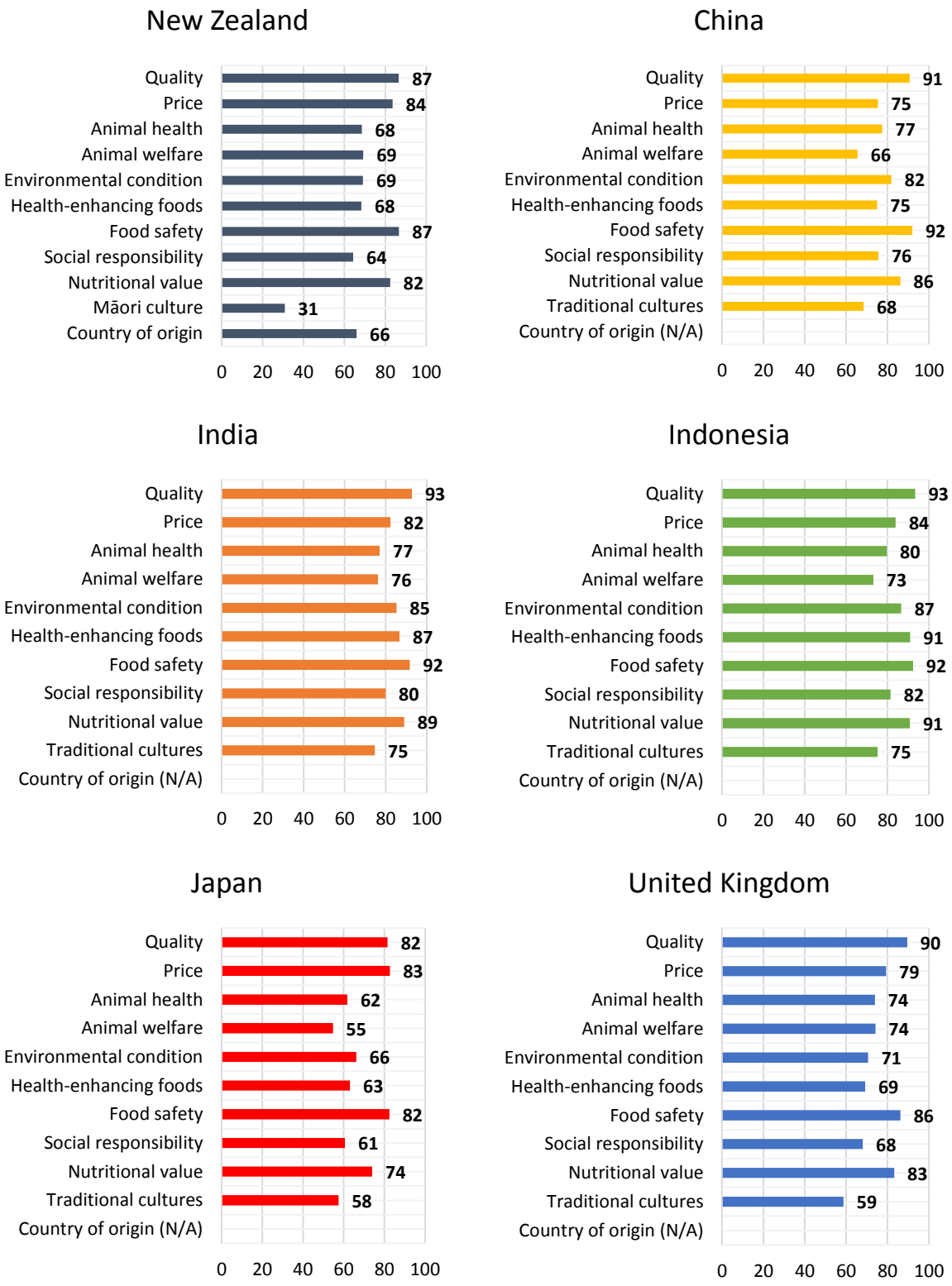
Compared to the overseas results (as reported in Guenther et al., 2015), the NZ results, when looking at the *important* and *very important* combined (Figure 5.2), seem to closely resemble the UK results in that they were relatively lower than other countries' results but higher than Japanese responses. In particular, within the UK results, the importance of food safety, quality, nutritional value, price and animal welfare were highlighted as the top five attributes. Traditional cultures[3] was considered to be of relatively lower importance in the UK compared with the other attributes, which is similar to the NZ responses.

If the comparison is narrowed to consider only the *very important* responses (Figure 5.4), further observations can be made. Firstly, the NZ results are still similar to the UK, and located between Japan and the other countries. However, the price attribute was considered to be *very important* by a slightly higher proportion of NZ than UK participants. In regards to the top attributes by importance, quality,

[3] Note: for NZ, *Māori culture* attribute was used instead of *traditional cultures*

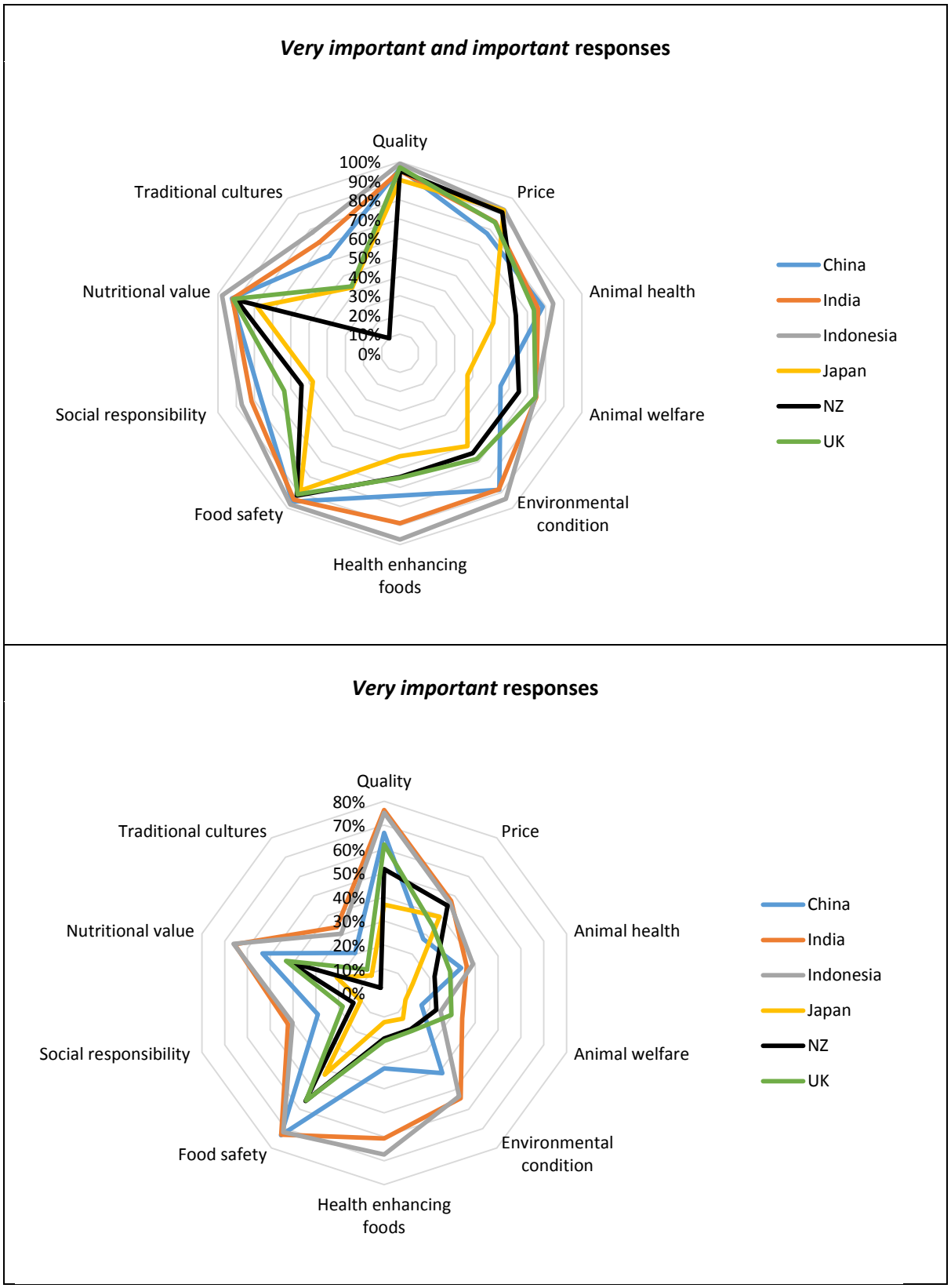
nutritional value and food safety were stated to be *very important* by a higher percentage of respondents in Indonesia, India and China compared to NZ.

Figure 5.2: Importance of attributes when shopping for food and beverages – international comparison



Source: Guenther et al. 2015

Figure 5.3: Importance of attributes when shopping for food and beverages – international comparison (*very important* and *important* responses)



Source: Guenther et al. 2015

Table 5.1 below shows the top 5 attributes considered important by international and New Zealand study participants when shopping for food and beverages. The majority of participants in every country excluding Japan stated that product quality was the most important factor, usually followed by food safety or nutritional value. It was also shown that all developed countries (Japan, NZ, UK) across these studies included price within the top 5 attributes, while developing countries (China, India, Indonesia) did not. Differences were also shown for New Zealand and UK participants in that they were the only two countries for which environmental condition was not included in the top 5 attributes.

Table 5.1: Top 5 attributes in relation to food and beverages by country

Rank	China	India	Indonesia	Japan	UK	NZ
1	Quality	Quality	Quality	Price	Quality	Quality
2	Food safety	Food safety	Nutritional value	Quality	Nutritional value	Food safety
3	Nutritional value	Nutritional value	Food safety	Food safety	Food safety	Price
4	Environmental condition	Health enhancing foods	Health enhancing foods	Nutritional value	Price	Nutritional value
5	Animal health	Environmental condition	Environmental condition	Environmental condition	Animal welfare	Animal welfare

Source: Guenther et al. (2015, p. 9 Table 3-1).
Note: Ranking is based on the per cent of very important and important responses

5.2.2 Authentication of attributes in food and beverages (Q8)

In the next question, survey participants were asked to rate the importance of attribute authentication for food and beverages by type on a five-point Likert scale ranging from *very important* to *not important at all*. Authentication types followed closely the overseas study including certification by own country government; other governments; independent private verifiers or globally recognised certification schemes; as well as brand, company and retailer based schemes. Results are shown in Figure 5.4 (NZ) and Figure 5.5 (cross-country).

As presented in Figure 5.4, of all authentication types, the NZ government and globally recognised certification schemes were rated highest in importance between 24 per cent and 30 per cent of *very important* and between 46 per cent and 47 per cent of *important* ratings. Overseas government certification, on the other hand, was not rated as highly with 42 per cent considering it either *very important* or *important*. Brand and company schemes were considered somewhat similar in terms of their importance same as the independent private and retailer certifications.

Overall, only a minority of respondents (between 5 per cent and 14 per cent) considered any of the schemes to be unimportant (or not at all important) supporting the focus group participants' desire for more information in products that could be trusted by appropriate certifications.

Compared to overseas results (as reported in Guenther et al., 2015), New Zealand results closely resembled those of the UK, with New Zealand government certification and globally recognised certification seen as the two most important factors in both countries. As shown in Figure 5.5 below, similar results were shown for all countries excluding Japan.

Figure 5.4: Importance of different certification types in relation to authentication

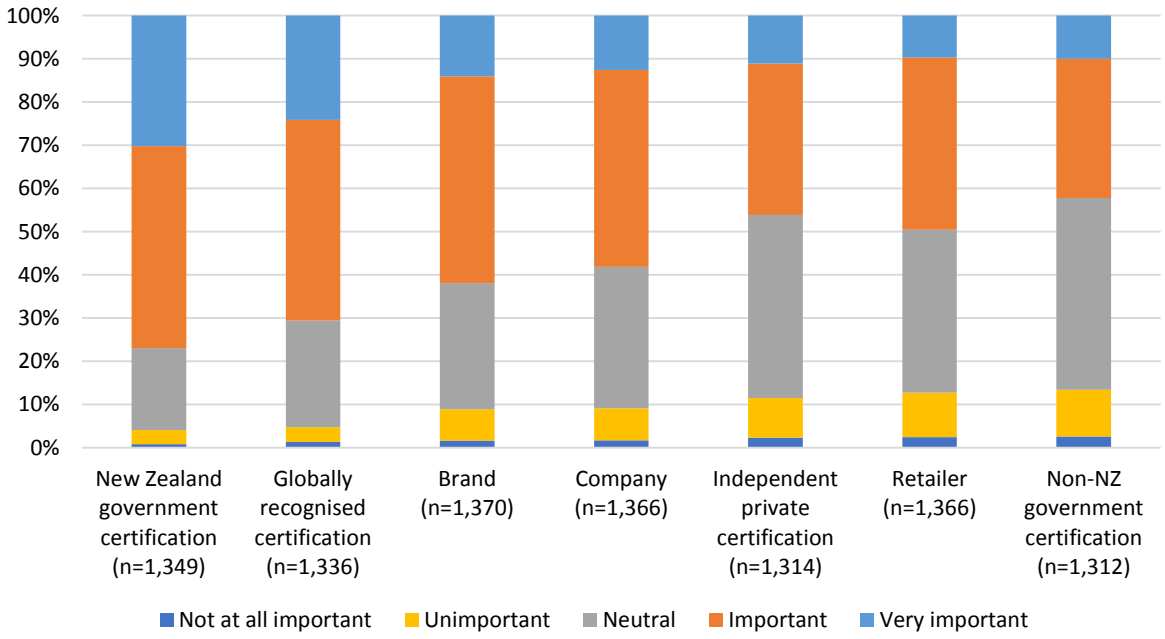
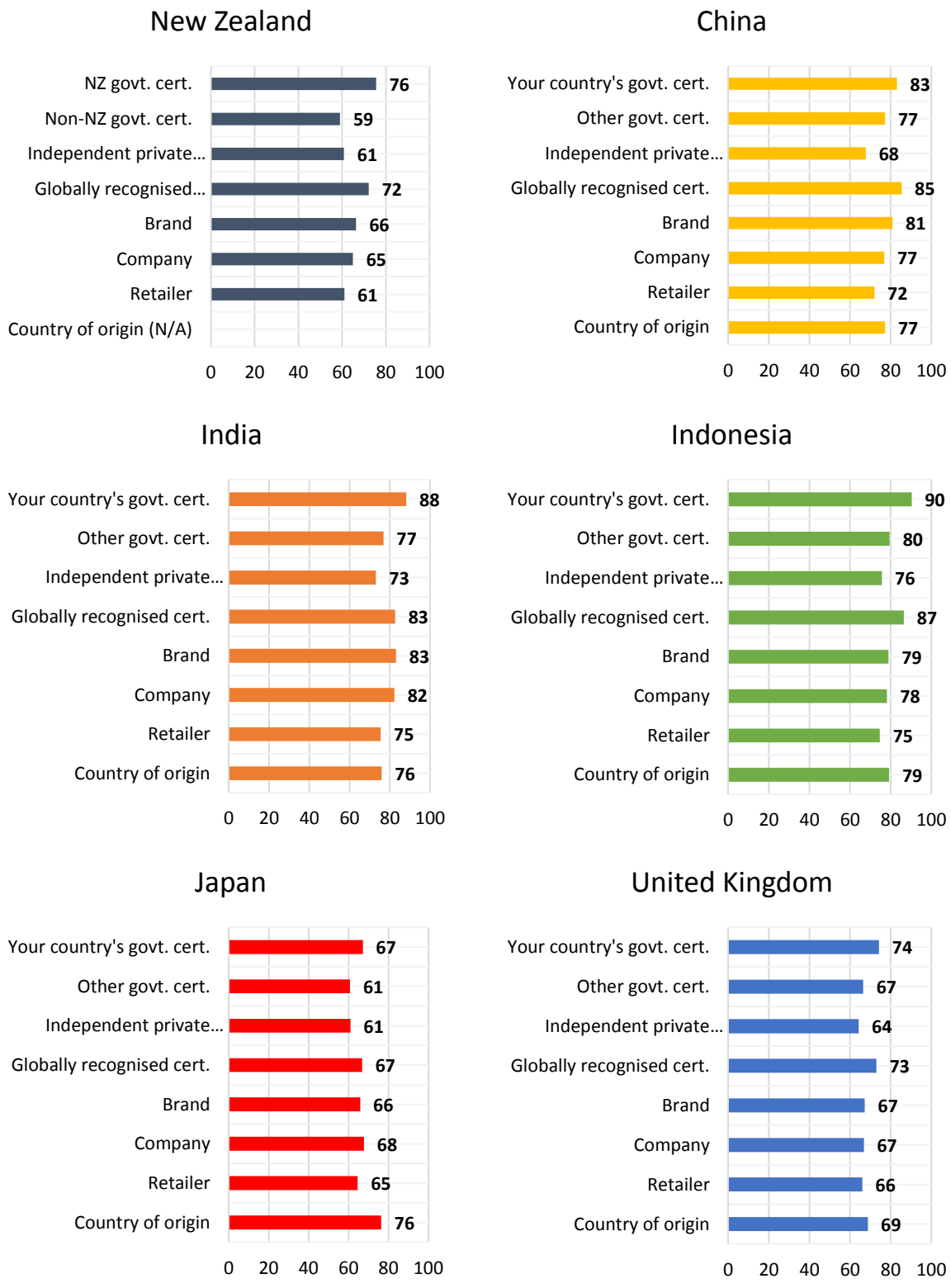


Figure 5.5: Importance of different certification types in relation to authentication – international comparison



Source: Guenther et al. 2015

5.2.3 Importance of factors in relation to key attributes

In the previous subsection, results pertaining to consumer attitudes regarding key attributes when shopping for food and beverages, as well as their preferred authentication schemes, were presented. Based on the overseas survey (Guenther et al. 2015), six of those key attributes were assessed in more detail by examining their underpinning factors. The six attributes considered were food safety (Q9), environmental condition (Q10), animal welfare[4] (Q11), human health-enhancing foods (Q12), social responsibility (Q13) and the role of Māori culture in relation to food and beverage products (Q14) representing a specific traditional culture in NZ.

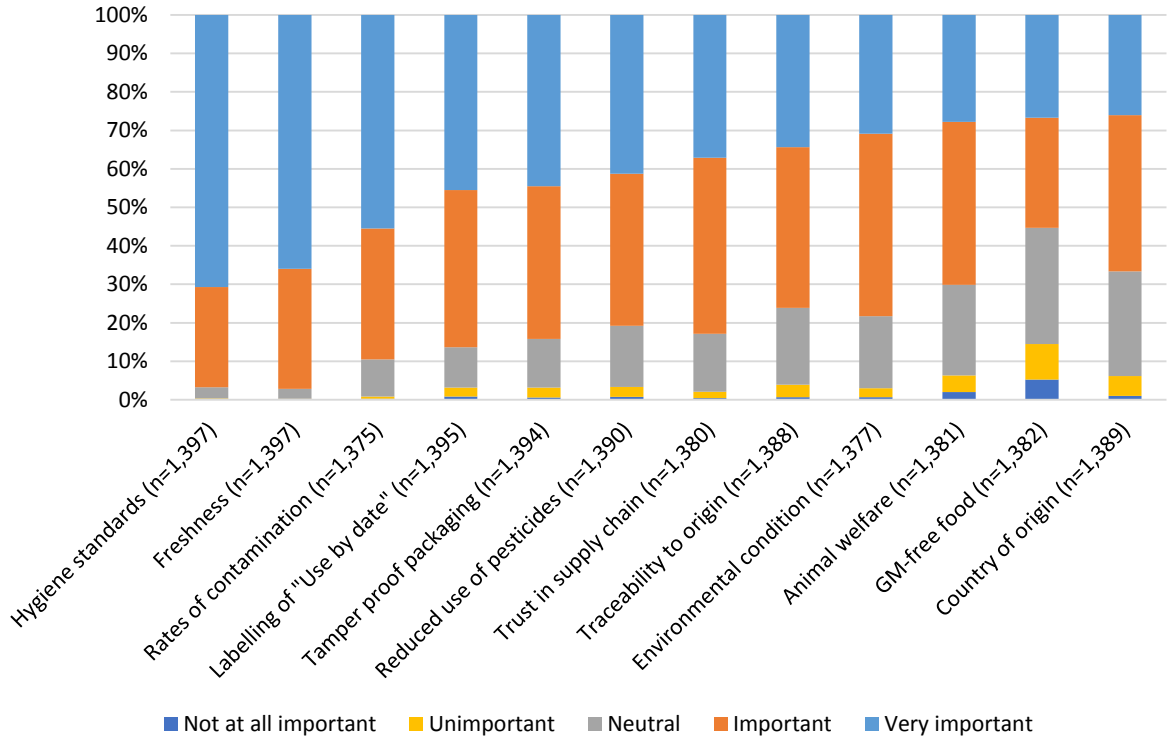
Participants were asked to rate the importance of a set of factors underpinning each key attribute in food and beverages supply on a five-point Likert scale ranging from *very important* to *not important at all*. Factors for each attribute are listed in Appendix 4.

Food safety (Q9)

As shown in Guenther et al. (2015) as well as earlier international research (Saunders et al, 2013; Saunders et al. 2015a), food safety is often considered to be one of the most important attributes in relation to food and beverages. This was also the case for NZ food production and supply, as seen in Figure 5.2. Furthermore, with regards to the underpinning factors of food safety (Figure 5.6), over half of NZ participants considered *hygiene standards*, *freshness* and *rates of contamination* as *very important* factors in relation to food safety. These were followed by labelling of a "use-by date", tamper proof packaging and reductions in pesticide use, all with over 40 per cent of respondents considering them as *very important*. A considerable proportion of respondents also considered the remaining attributes (environmental condition, animal welfare, traceability, trust in supply chain, GM-free food and COO) either as *very important* (between 26 per cent and 37 per cent) or *important* (between 29 per cent and 47 per cent) with a slightly higher amount (14 per cent) of *unimportant* or *not all important* responses regarding GM-free food.

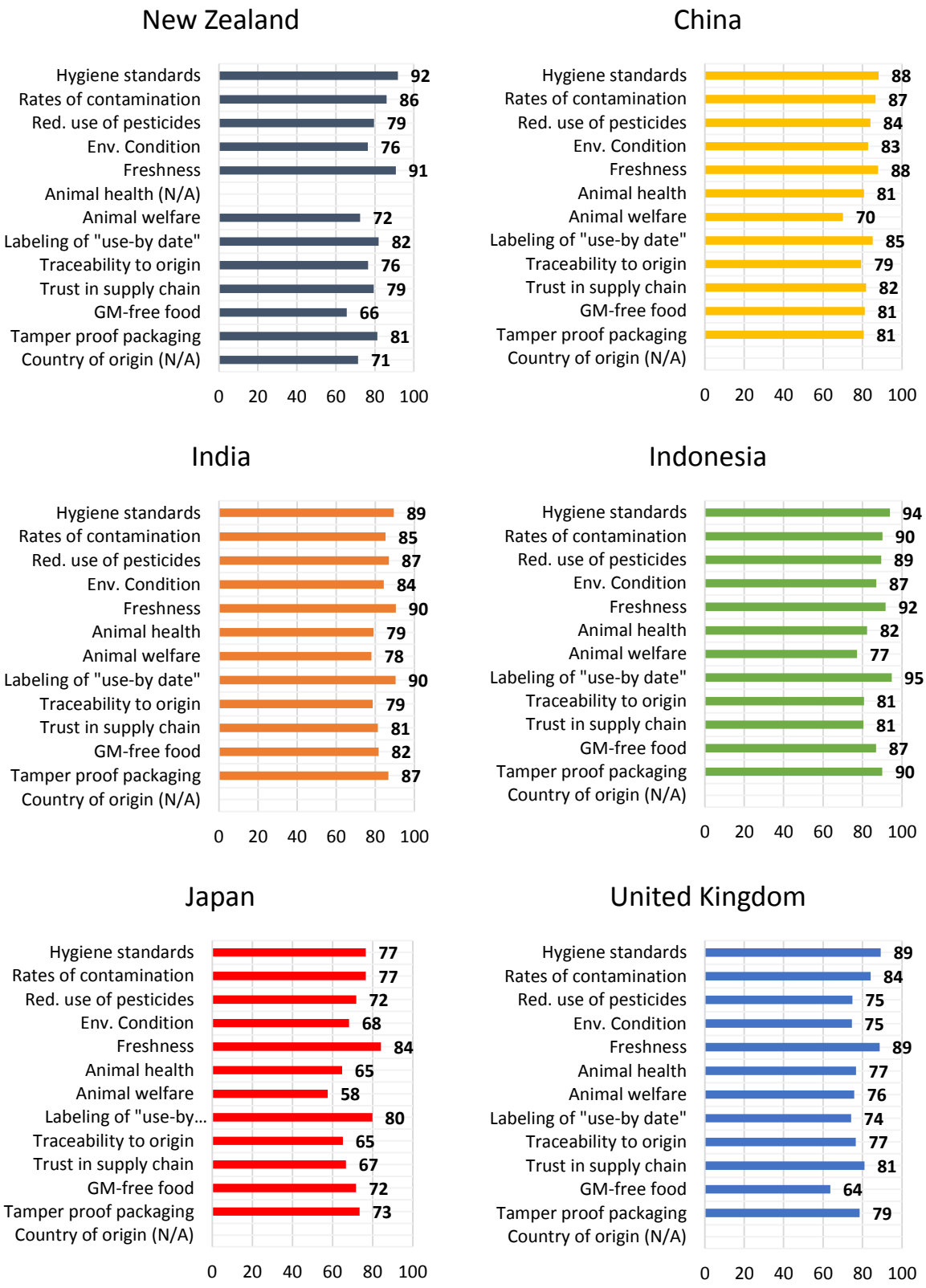
[4] Note: In contrast to the overseas survey, the third attribute considered only animal welfare, not welfare & health, based on the focus group discussion and cognitive interviews for the situation in NZ.

Figure 5.6: Importance of factors in relation to food safety



Compared to the overseas results (as reported in Guenther et al., 2015), New Zealand results closely resembled those of Japan and the UK, with *hygiene standards*, *freshness* and *rates of contamination* seen as the most important factors in both countries. As shown in Figure 5.7 below, these results are also similar to other countries examined.

Figure 5.7: Importance of factors in relation to food safety – international comparison

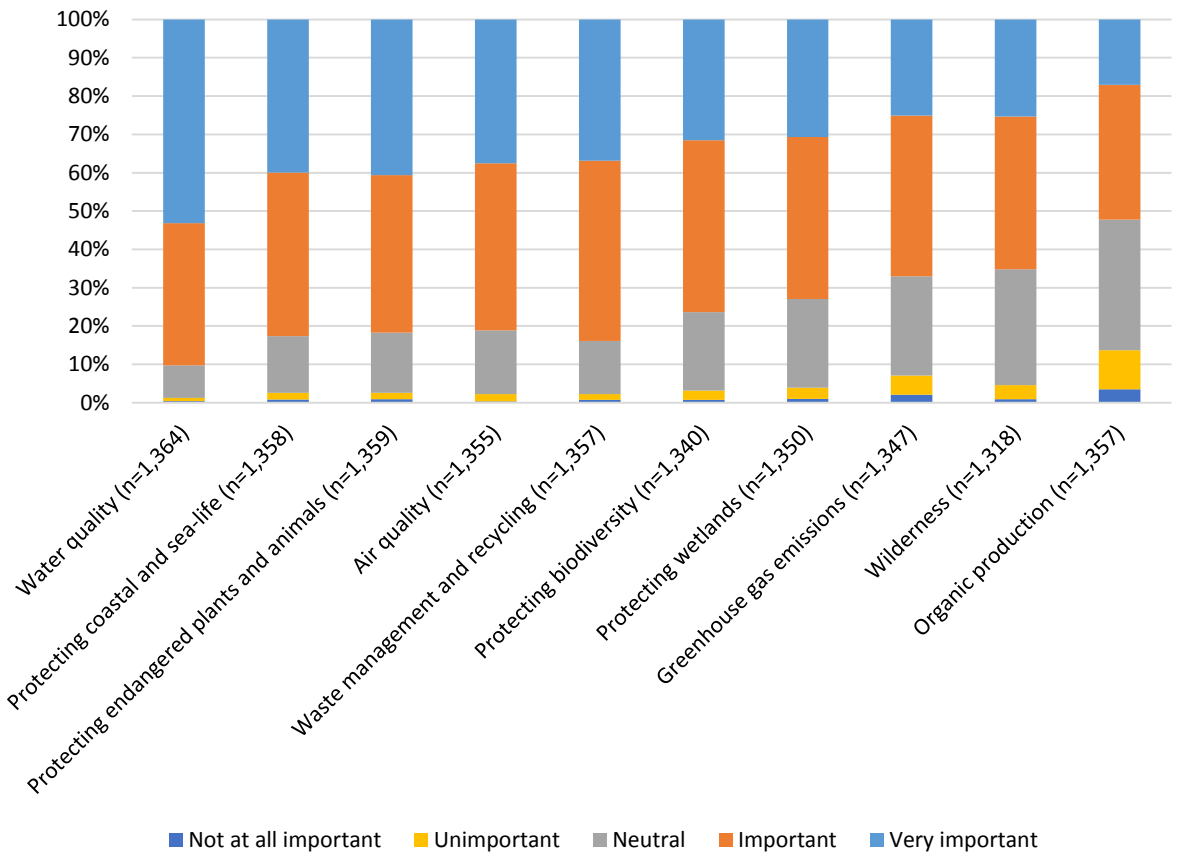


Source: Guenther et al. 2015

Environmental condition (Q10)

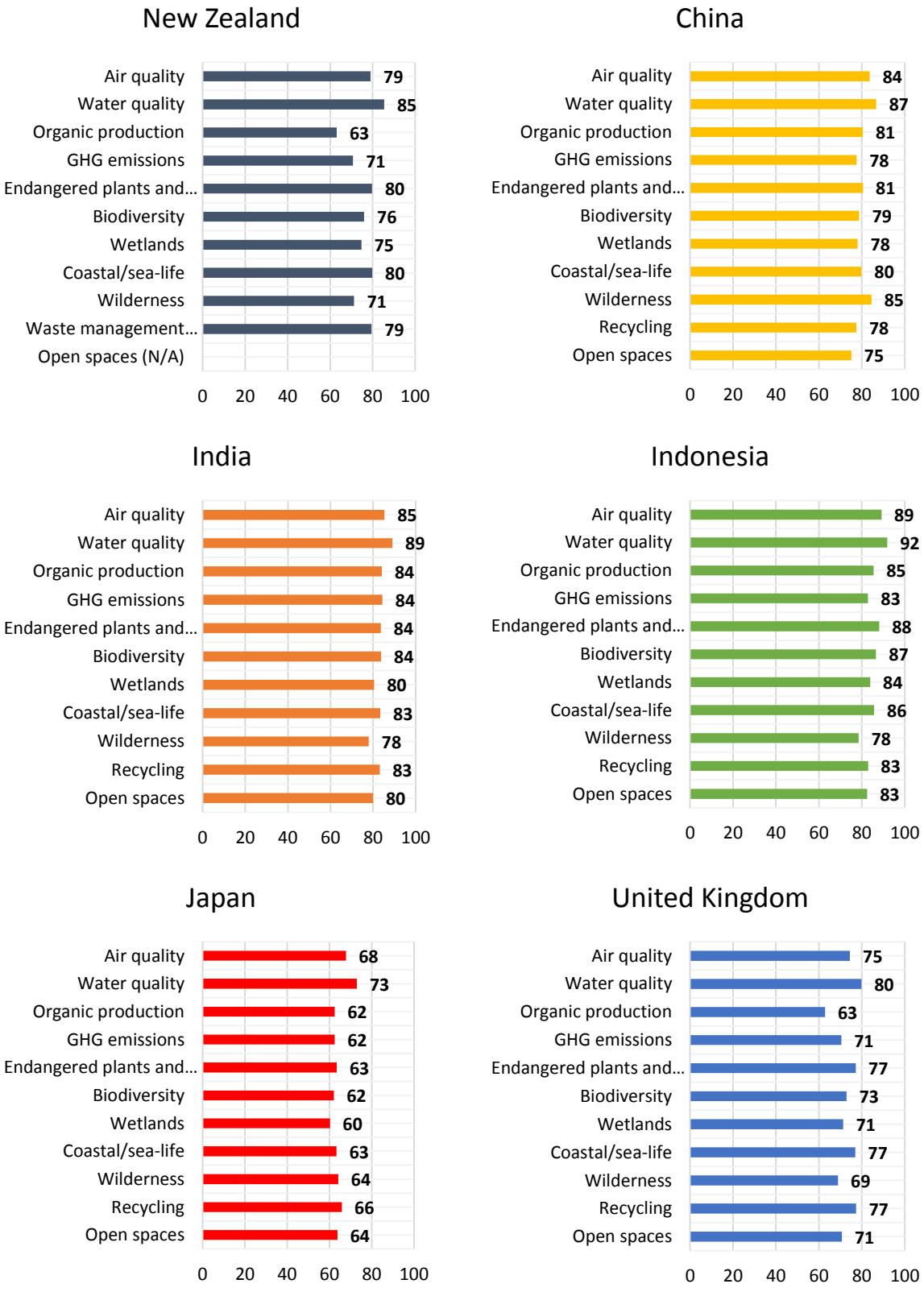
The survey then asked participants which factors they regard as important when considering environmental condition in food and beverage production and supply. The results, as shown in Figure 5.8, indicate that while most attributes were similar in terms of their overall rating of importance, over half of the participants (53 per cent) considered water quality as *very important*. This was closely followed by the protection of coastal and sea-life and endangered species, air quality and waste management and recycling, all with similarly high ratings. Furthermore, the protection of wetlands and biodiversity were considered to be of similar importance. While a large proportion of respondents also considered greenhouse gas (GHG) emissions, wilderness and organic production to be either *important* or *very important* (between 65 per cent and 67 per cent), the amount of *neutral* or *unimportant* were also relatively high. Finally, whilst organic production was considered to be *important* by many respondents, based on these result it was the lowest ranked attribute in relation to environmental condition.

Figure 5.8: Importance of factors in relation to environmental condition in food and beverage production and supply



Compared to the overseas results (as reported in Guenther et al., 2015), New Zealand results were similar to all other countries in that *water quality* was indicated to be the most important factor of environmental condition. As shown in Figure 5.9 below, participants from developing countries rated all factors of environmental condition higher than their developed country counterparts, with New Zealand responses most closely resembling those of the UK.

Figure 5.9: Importance of factors in relation to environmental condition in food and beverage production and supply – international comparison

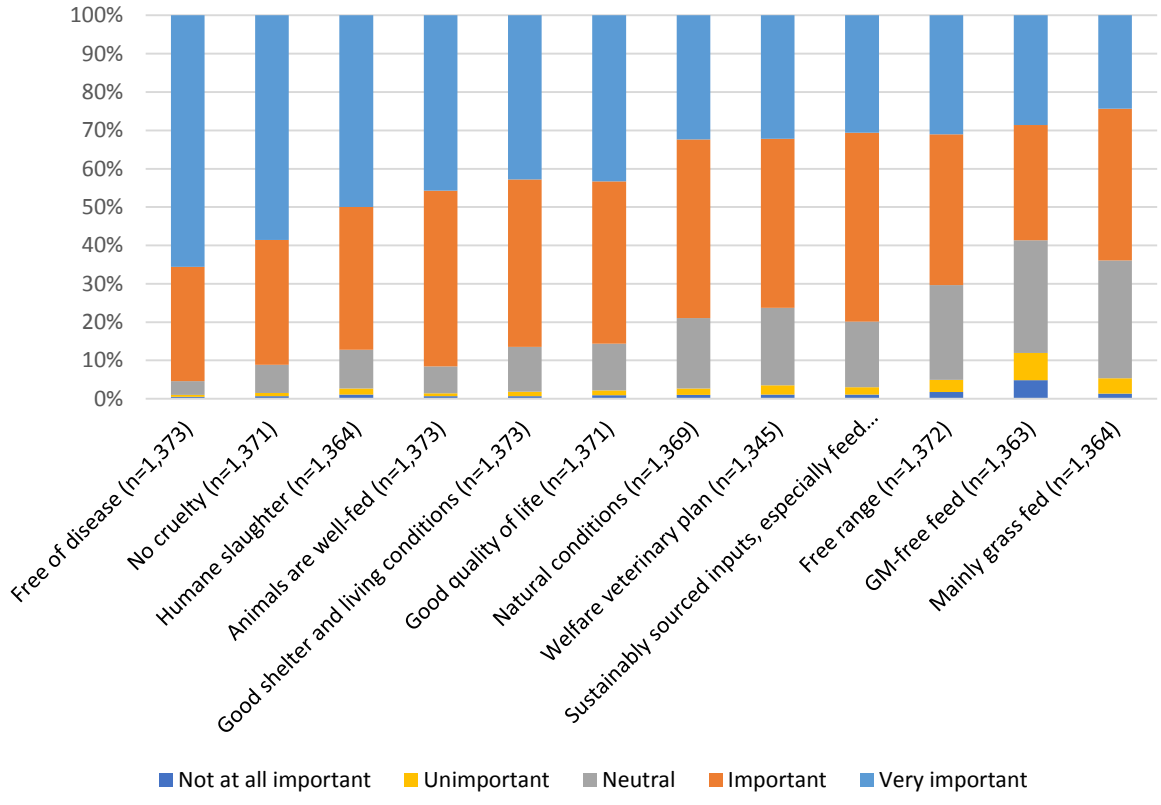


Source: Guenther et al. 2015

Animal welfare (Q11)

The next question asked participants to rate the importance of factors associated with animal welfare[5] in food and beverages production and supply. As shown in Figure 5.10, 50 per cent or more of the respondents considered free of disease, no cruelty and humane slaughter as *very important* attributes in relation to animal health and welfare, reflecting to the highest ranks based on these Likert-scale assessments. However, factors such as animals being well-fed, having good shelter and living conditions, as well as a good quality life were also considered highly when looking at both *very important* and *important* responses. Following these factors, natural conditions, welfare veterinary plan and sustainable sourcing (particularly feed) showed similar rankings, with a third of the respondents considering these as *very important* and close to half considering them to be *important*. Finally, while still showing a considerable proportion of *important* and *very important* responses, the factors of free range, GM-free and grass-feed were ranked the lowest of the twelve selected animal welfare attributes. This is surprising, as the free range attribute can be commonly be observed on products in NZ. These results were broadly consistent with MAF's (2011) findings, which showed the top three rated factors of animal welfare to be "healthy animals, with low stress and few illnesses", "indoor shelter but free to go outdoors" and "able to express natural behaviour".

Figure 5.10: Importance of animal welfare in food and beverages production and supply

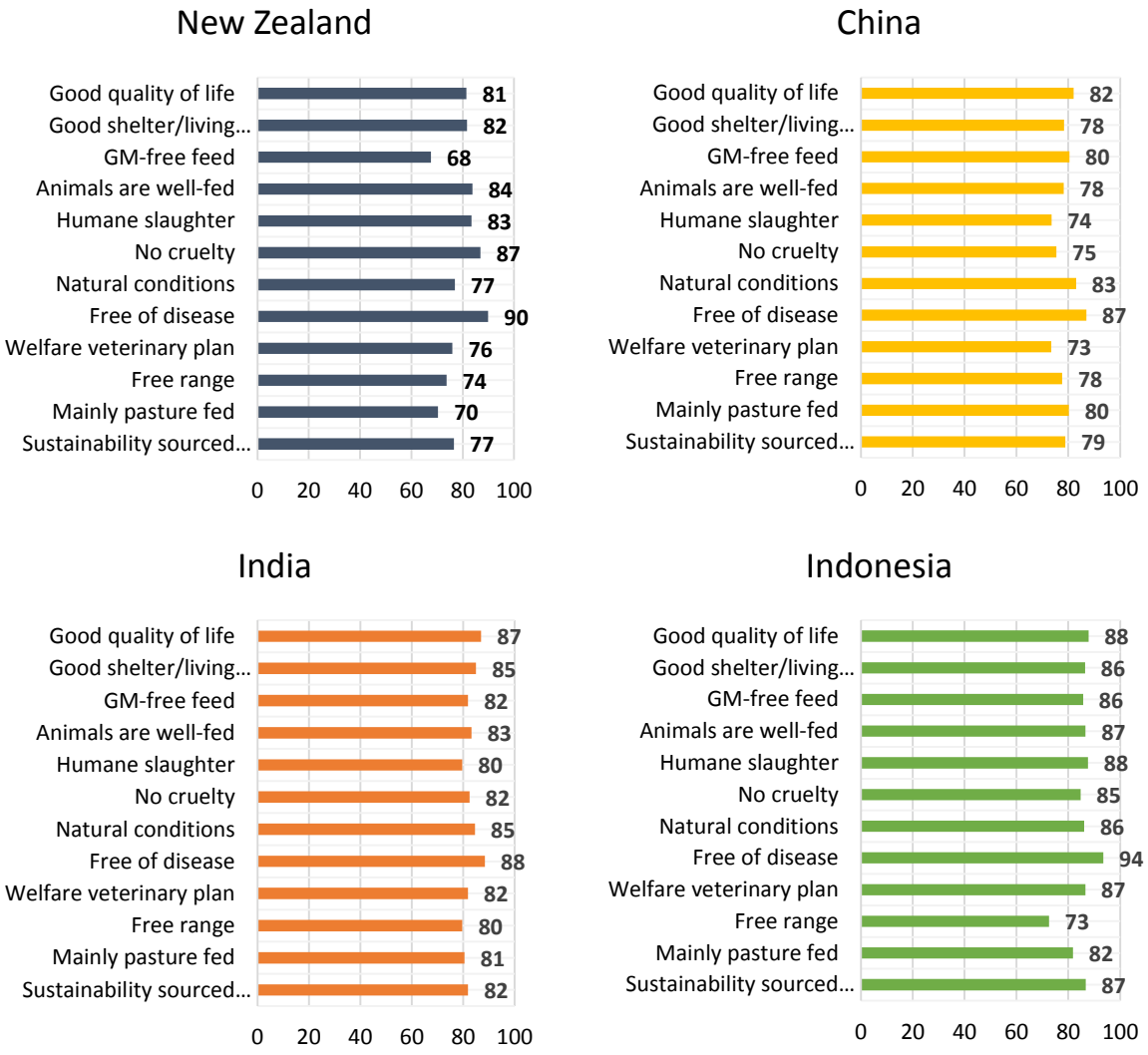


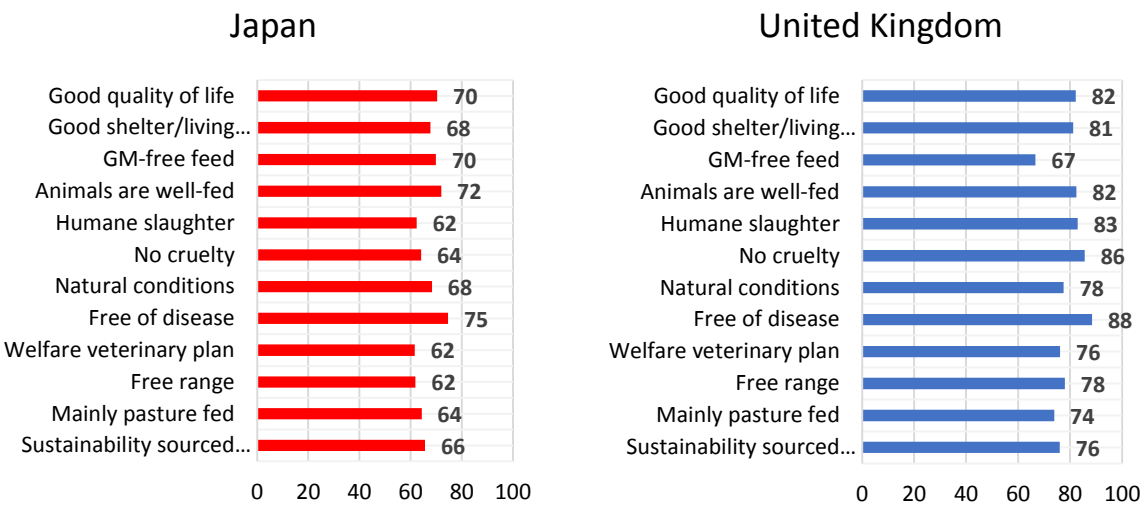
Compared to the overseas results (as reported in Guenther et al., 2015), New Zealand results were similar to all other countries in that *free of disease* was indicated to be the most important factor of animal health and welfare. However, New Zealand results also varied from international results in terms of the highest rated factors of animal health and welfare. As shown in Figure 5.11 below, participants from developing

[5] Note: In contrast to the overseas survey, this attribute in NZ considered only animal welfare, not welfare & health.

countries rated all factors of animal health and welfare higher than their developed country counterparts, with New Zealand responses most closely resembling those of the UK. Interestingly, the importance of free range in relation to animal welfare & health was lower across all countries compared to the other factors shown in Figure 5.11.

Figure 5.11: Importance of animal welfare in food and beverages production and supply – international comparison



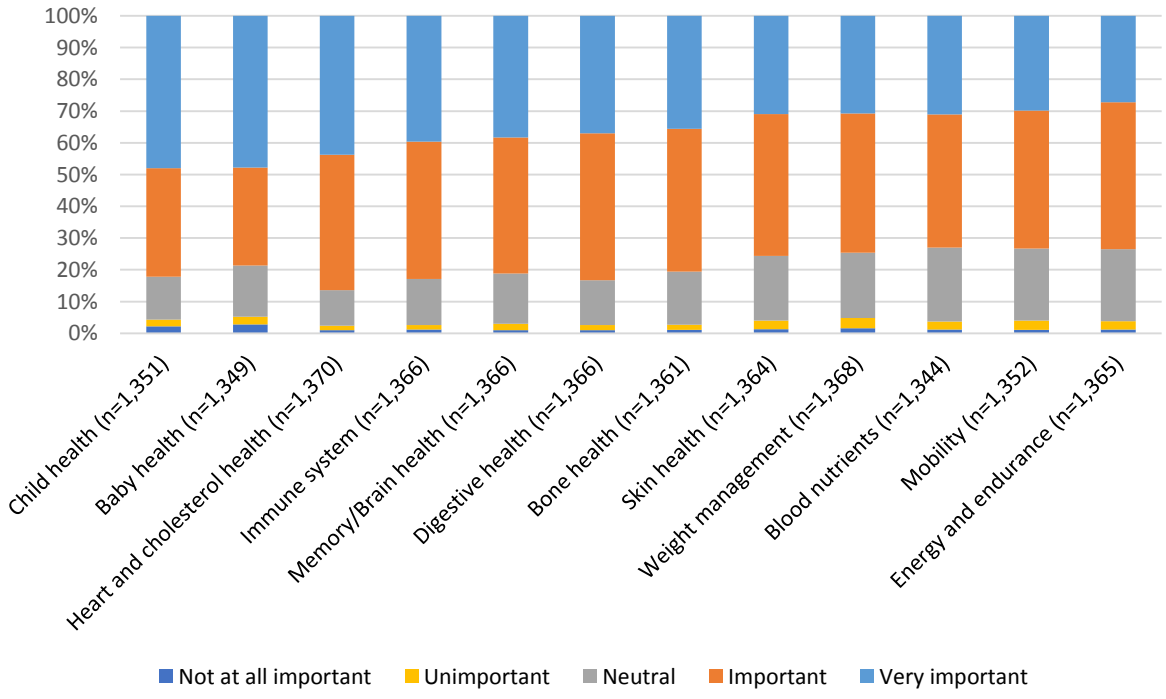


Source: Guenther et al. 2015

Human health enhancing foods (Q12)

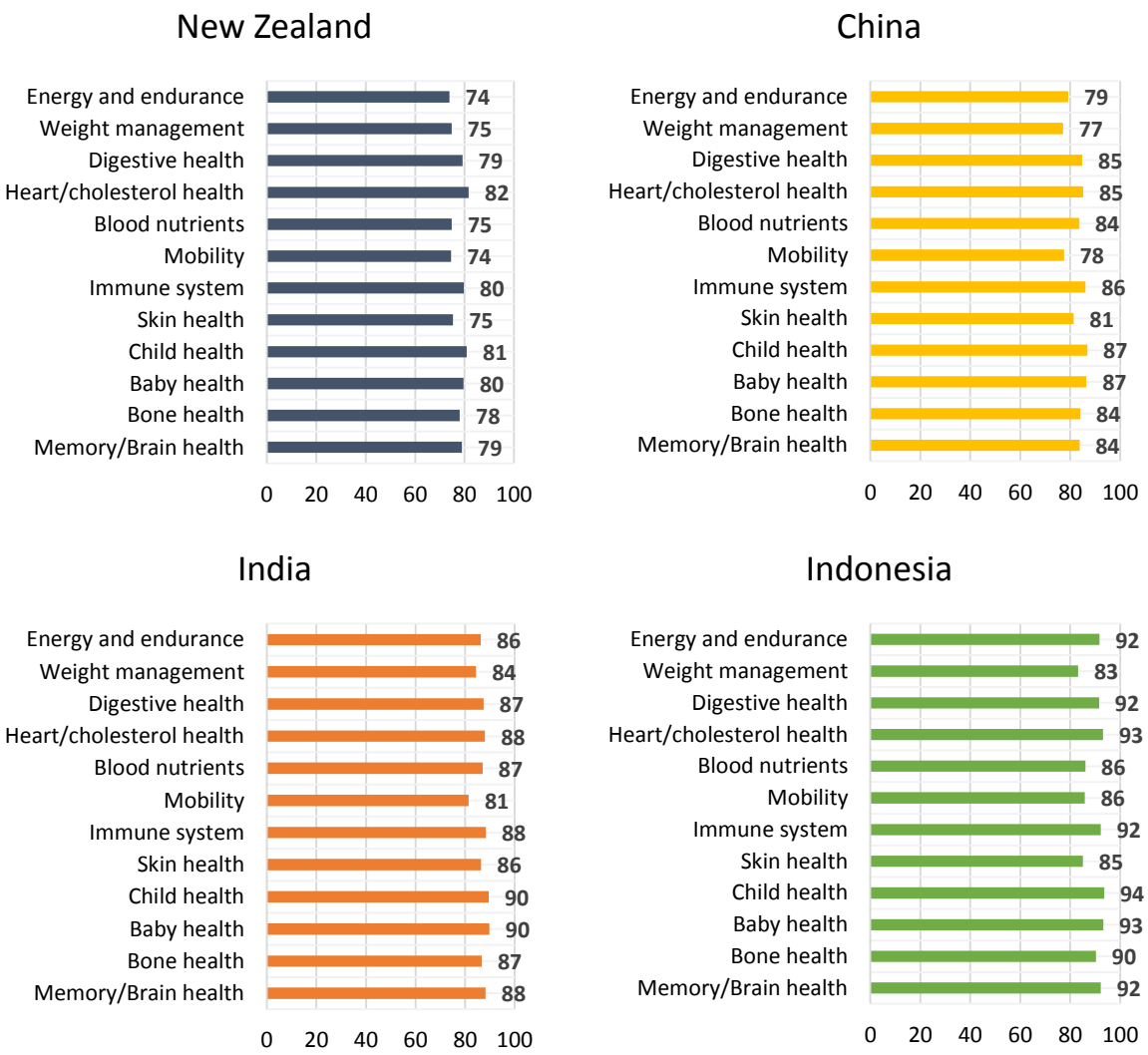
Next, the questionnaire explored consumer attitudes towards twelve factors in relation to human health-enhancing foods. Results presented in Figure 5.12 show that a considerable percentage of participants (minimum of 27 per cent) considered most factors to be either *very important* or *important* rather than *neutral* or *unimportant*. If ranked based on the percentage of *very important* responses, the top four attributes were child health, baby health, heart and cholesterol health, and immune system, ranging between 40 per cent and 48 per cent of *very important* responses. The next three attributes by importance were memory/brain, digestive and bone health; whilst a third of respondents considered skin health, weight management, blood nutrients, mobility, and energy and endurance to be *very important*.

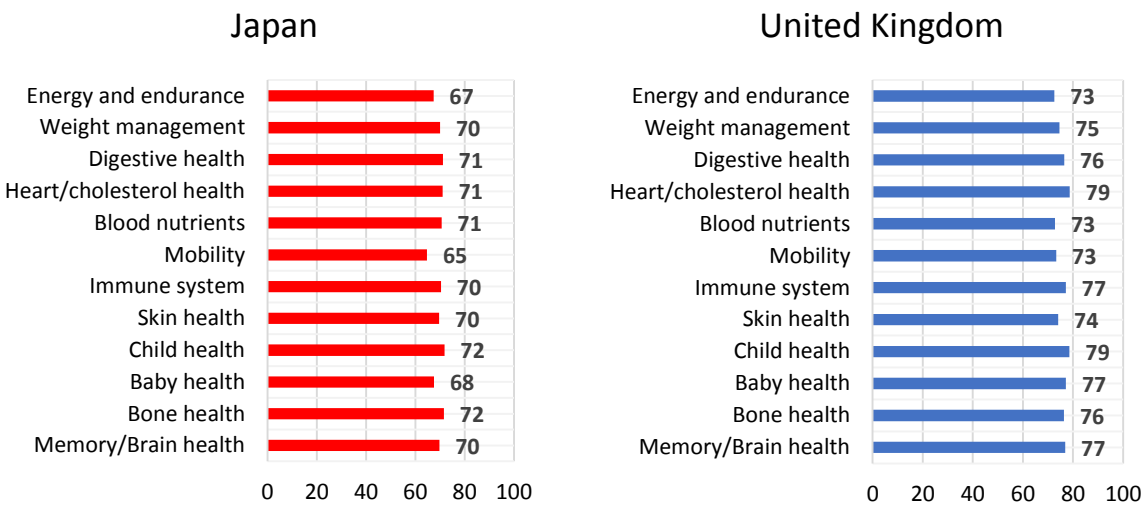
Figure 5.12: Importance of factors in relation to human health enhancing foods



Compared to the overseas results (Guenther et al. 2015), New Zealand results were similar to all other countries in that most factors of health-enhancing foods were rated similarly highly. As shown in Figure 5.13 below, New Zealand results resembled many other countries, particularly the UK, in that heart/cholesterol health was rated as the most important factor of human health-enhancing foods, followed by child health.

Figure 5.13: Importance of factors of human health-enhancing foods – international comparison





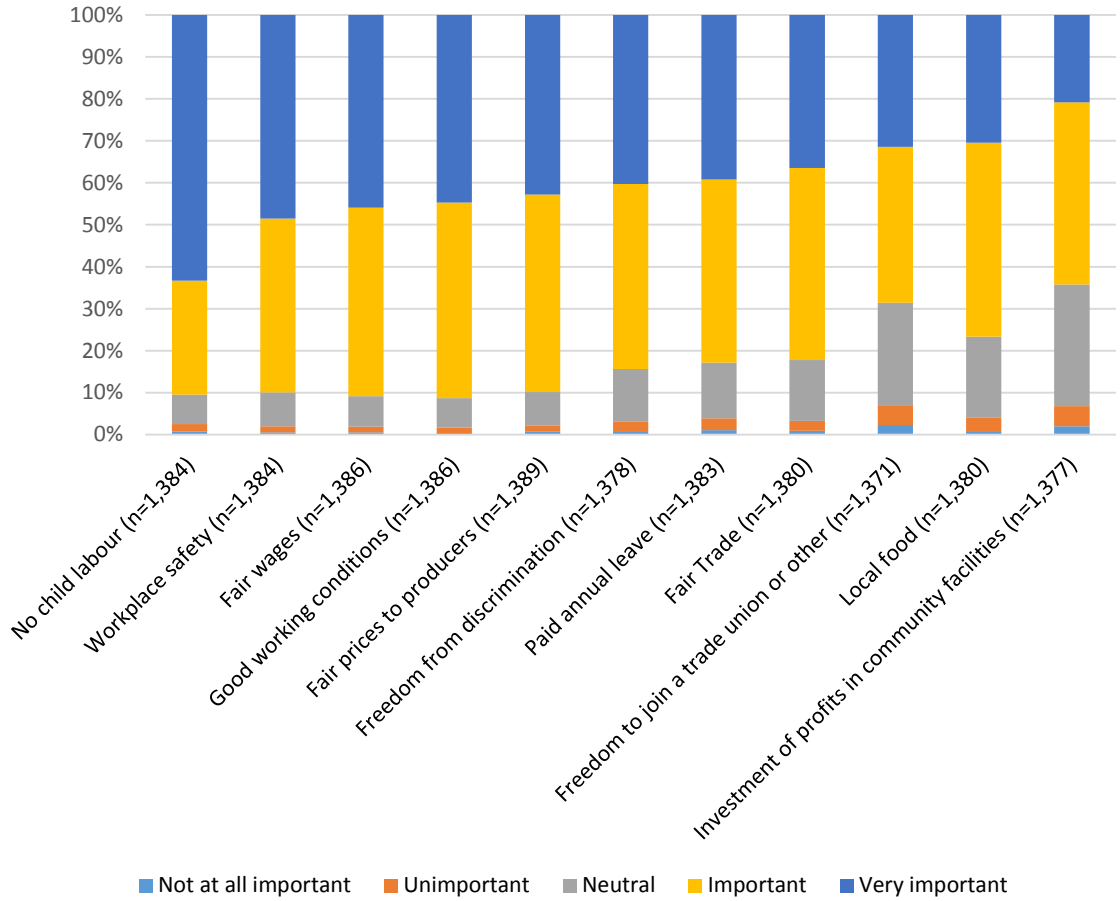
Source: Guenther et al. 2015

Social responsibility (Q13)

The survey then asked participants to rate the importance of several factors affecting social responsibility in production and supply. These factors included the provision of fair wages, paid annual leave, good working conditions, workplace safety, freedom from discrimination, no child labour, the freedom to join a trade union or other associations, Fair Trade, investment of profits in community facilities, and local food. In addition, fair prices for producers was added as a factor based on external comments in the survey development stage, whereas as equity, which was present in the overseas survey (Guenther et al., 2015), was excluded based on the focus group comments.

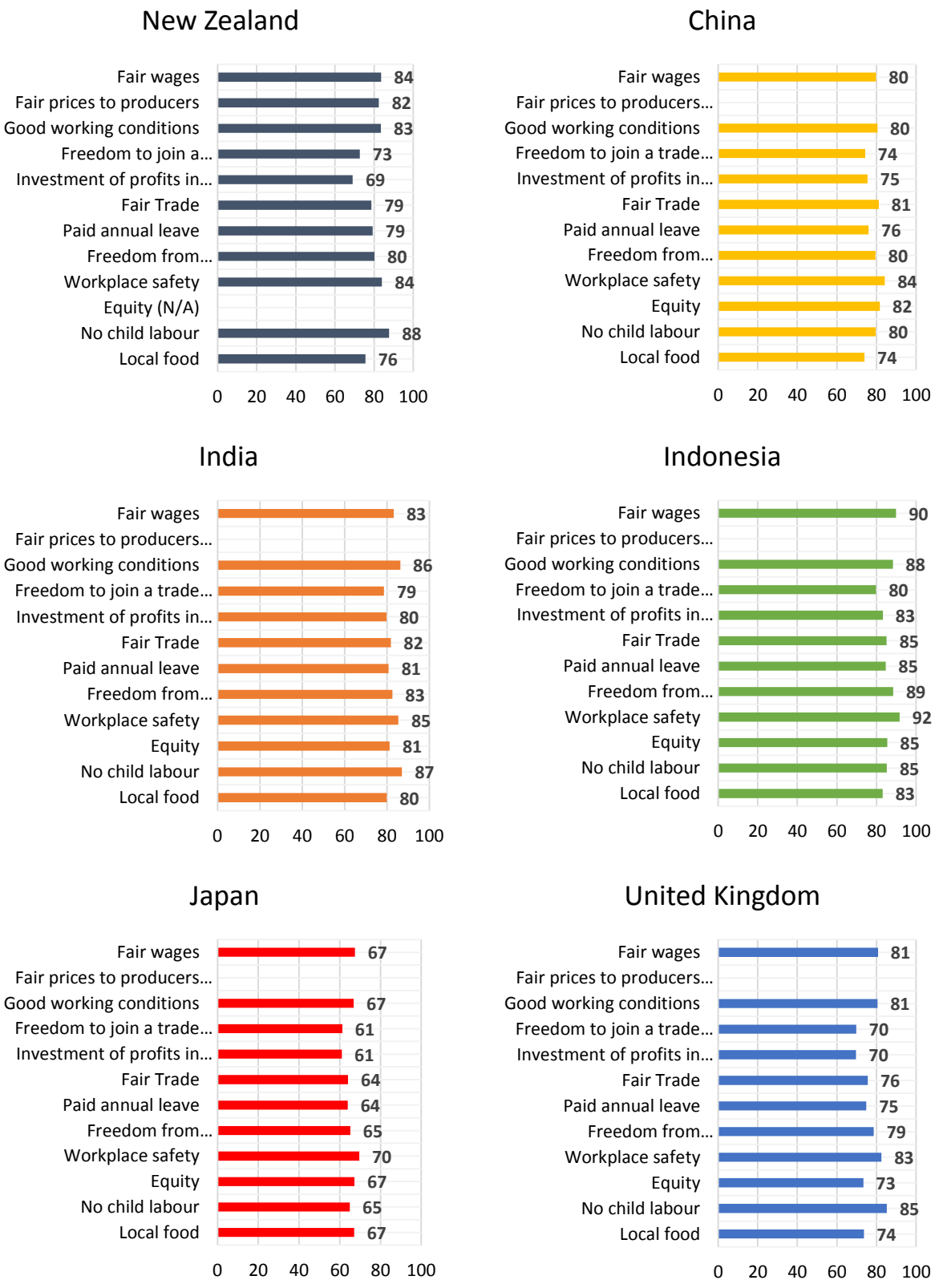
As shown in Figure 5.14, the factors of child labour, workplace safety, fair wages, working conditions and producer prices showed very similar responses when considering both *very important* and *important* responses together. In particular, having no child labour was considered as *very important* by two thirds of the respondents. Interestingly, the factor of fair prices for producers (added specifically to the NZ study) was also included in the top five attributes. Similar to free range in relation to animal welfare or organic production in relation to environmental condition, Fair Trade is a trademark that is currently displayed on some products in the NZ market, but was not one of the highest ranked attributes in this assessment, instead showing similar responses to factors such as to freedom from discrimination and provision of annual leave. The remaining three attributes (freedom to join unions or associations, local food and the investment of profits back into the community) had also showed considerable percentages of *very important* (up to third of respondents) and *important* (up to 46 per cent) responses, however, also slightly more *neutral* responses (between 19 per cent and 29 per cent).

Figure 5.14: Importance of factors in relation to social responsibility in food and beverage supply



Compared to the overseas results (as reported in Guenther et al. 2015), New Zealand results were similar to all other countries in that many factors of social responsibility were rated similarly highly. As shown in Figure 5.15 above, New Zealand results were most closely aligned with those of the UK in that no child labour was rated as the most important factor of social responsibility, followed by the provision of fair wages and workplace safety.

Figure 5.15: Importance of factors in relation to social responsibility in food and beverage supply – international comparison



Source: Guenther et al. 2015

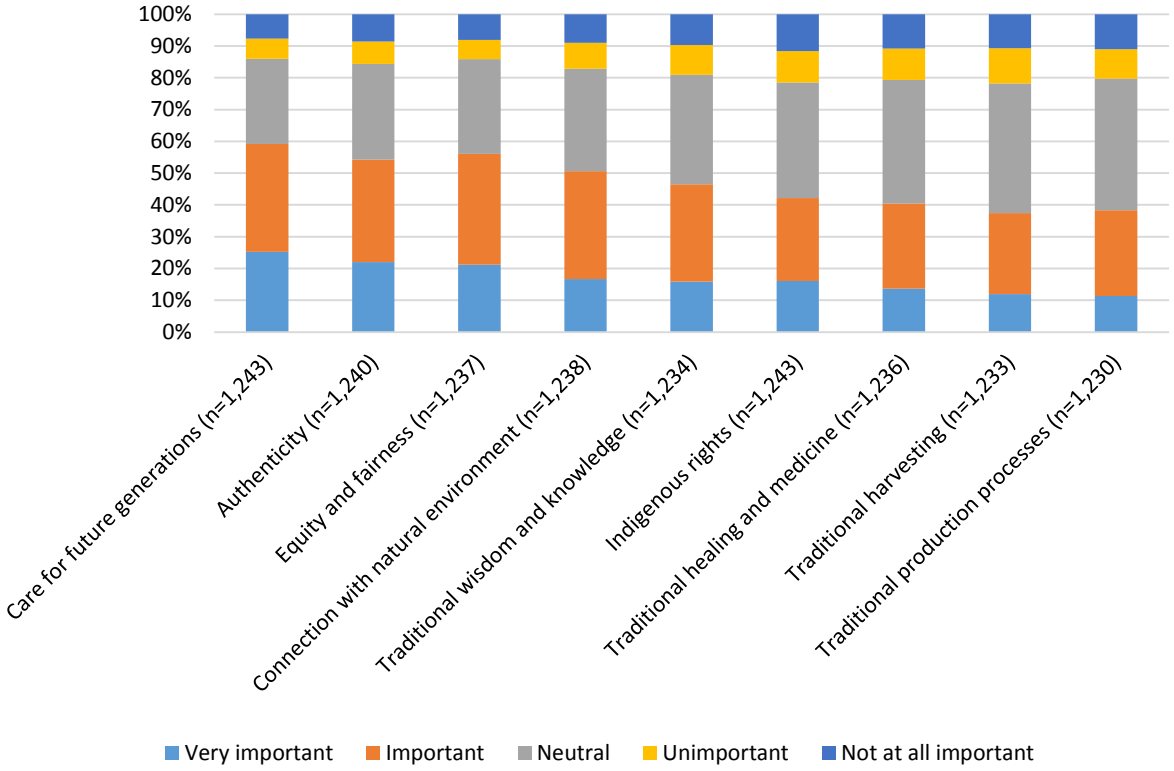
The role of traditional cultures (Q14)

The survey then asked respondents to indicate the importance of several factors when considering the role of traditional cultures in food and beverages supply. This attribute and its associated factors and question framing was the most different compared to its equivalent in overseas survey[6] as it was specifically oriented to consider NZ's indigenous Māori culture in relation to food and beverage products. In developing this question, consultation and comments were received from an expert in this area. Of the factors included in the overseas survey, equity & fairness, connection with natural environment, indigenous rights, traditional wisdom & knowledge, traditional production processes, care for future generations and traditional healing and medicine were retained and included[7] while the factors of traditional harvesting and authenticity factors were added specifically for the NZ survey.

As shown in Figure 5.16, these results were most different to other attributes and factors considered previously, with a relatively higher proportion of responses other than *important* or higher. For example, 25 per cent of the respondents considered care for future generations as *very important* and 34 per cent considered this to be *important*. For the remaining attributes, less than half of the respondents considered these to be either *very important* or *important*. The majority of responses, however, showed *neutral* ratings of importance for the factors of this attribute. This may be due to a lack of familiarity or limited availability of such products currently on the NZ market. This is supported by the relatively higher amount of *don't know* or *missing* responses received for this question (ranging from 157 and 170 out of 1400 sample size).

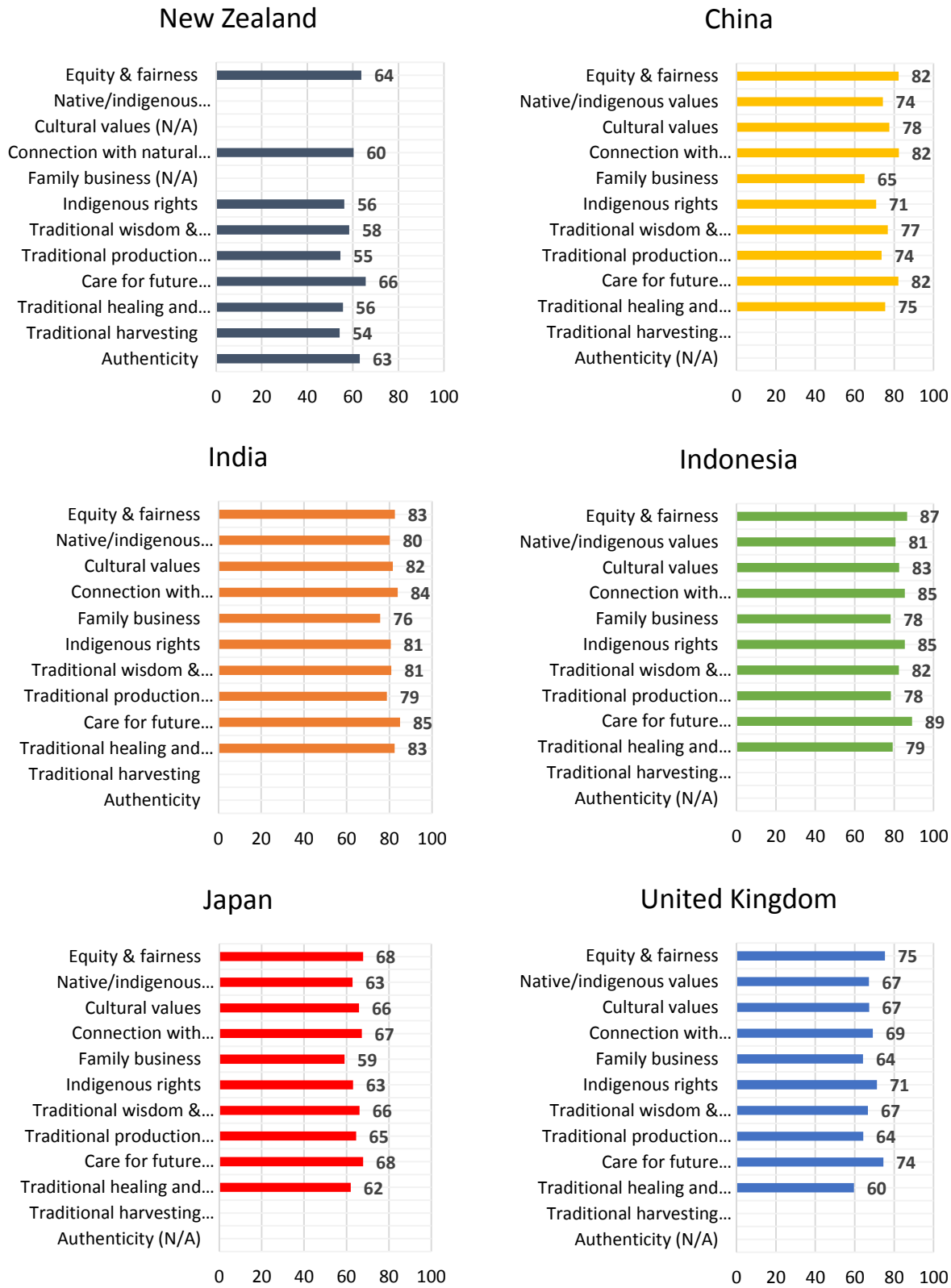
[6] The overseas survey question was about cultures in "the role of traditional cultures in food and beverages supply and how important are the selected factors "whereas the NZ survey question was about "the extent people associate the importance of the factors with Māori food and beverage products".
[7] Factors of *Native/ indigenous values*, *Cultural values* and *Family business* were excluded from the NZ study.

Figure 5.16: Importance of factors in relation to Māori culture in food and beverage supply



Compared to overseas results (as reported in Guenther et al. 2015), New Zealand results differed from most other countries examined. This may be due to a different cultural context presented in the New Zealand survey (i.e. specifically Māori culture versus more generic traditional cultures). In addition, many factors that were considered in the international survey were not included in the New Zealand survey (such as native/indigenous values, cultural values and family business). Similarly, the New Zealand survey asked participants to consider two additional factors (traditional harvesting and authenticity) that were not included in the international survey. As shown in Figure 5.17 below, New Zealand participants rated *care for future generations* as the most important factor of Māori culture, followed by *equity and fairness*. These results are somewhat similar to other countries regarding traditional cultures, with New Zealand responses closely resembling those reported by the UK.

Figure 5.17: Importance of factors in relation to traditional cultures/Māori culture in food and beverage supply – international comparison

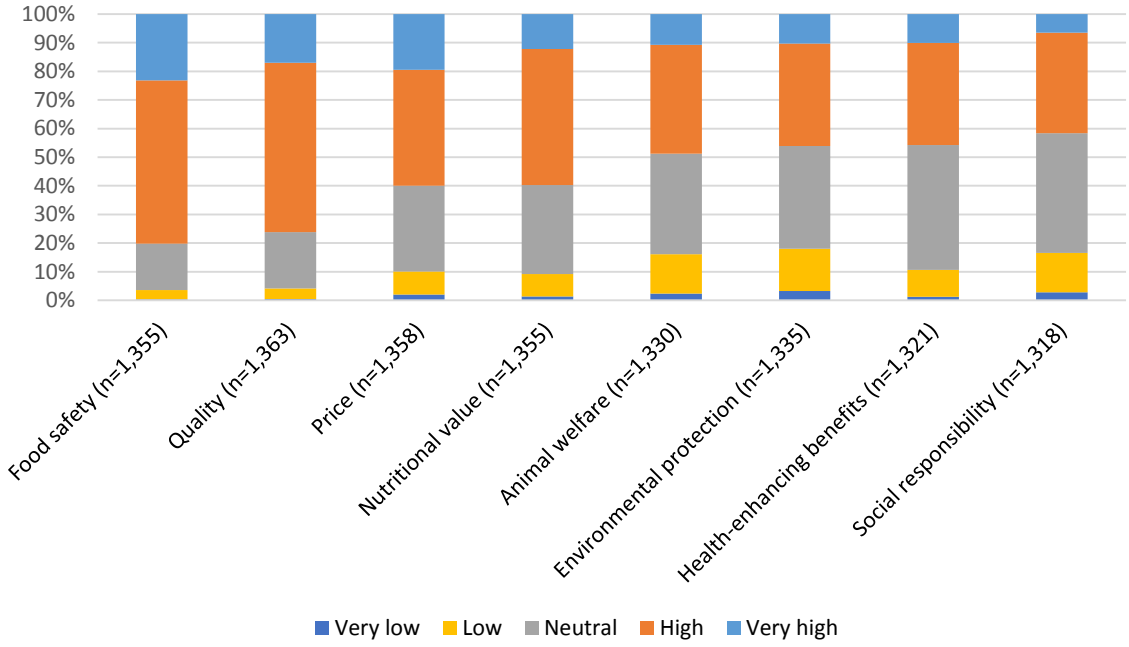


Source: Guenther et al. 2015

5.2.4 Perceived levels of the key attributes in NZ (Q15)

In the NZ study, people's perceptions regarding the current levels on these key attributes in the NZ market were explored in order to establish a better understanding of what consumers considered to be the "base line" for these attributes. Attributes considered included food safety, price, quality, nutritional value, animal welfare, environmental protection, health enhancing benefits and social responsibility. As presented in Figure 5.18, the results indicate that food safety and quality were generally considered if not *very high*, at least *high* (by 80 per cent and 76 per cent of respondents, respectively). More than half of the sample also considered price and nutritional value to be currently *high* or *very high*, whereas animal welfare, environmental protection, health enhancing benefits and social responsibility were considered to be *very high* by 7 per cent-11 per cent of the sample and *high* by 35 per cent-38 per cent of the sample. Thus, while only food safety, quality and price were considered as *very high* by a fifth of the sample, none of the attributes were considered to be *very low*, or at least these proportions were comparatively minor (between 0 per cent and 3 per cent of the sample), indicating that the majority of attributes were perceived to be somewhere between *neutral* and *high*. This provided some indication of what consumers perceived to be the current baseline of these attributes in the context of food and beverage production and supply in New Zealand.

Figure 5.18: Perceived current levels in New Zealand food and beverage production and supply



5.2.5 Conclusion of the key factors, factors under the key attributes, and current levels.

In summary, New Zealand participants considered the attributes *quality*, *food safety* and *price* to be the most important when shopping for food and beverages. With regards to the authentication of products, *New Zealand government certification* was shown to the best the most important, followed by *globally recognised certification* and *brand*. Considering food safety, *hygiene standards* was considered to be the most important factor, followed by *freshness* and *rates of contamination*. In relation to environmental condition, *water quality* was the rated at the most important factor, followed by the *protection of coastal and sea-life* as well as the *protection of endangered plants and animals*. For animal health and welfare, New Zealand participants rated *free of disease* as the most important factor, followed by *no cruelty* and

humane slaughter. For human health-enhancing food and beverages, *heart/cholesterol health* was rated as the most important, followed by *child* and *baby health*. Furthermore, for social responsibility, *no child labour* was seen as the most important factor, followed by *workplace safety* and *fair wages*. Finally, for the role of Māori culture in food and beverage production and supply, *care for future generations* was rated as the most important factor, followed by *authenticity* and *equity and fairness*. With regards to perceived current levels of attributes in domestic food production and supply, New Zealand participants indicated a perception of high levels of *food safety*, followed by *quality* and *price/nutritional value*.

Placing these results in a wider international context, New Zealand responses most consistently resembled those of the UK with similar importance placed in attributes and factors in both countries throughout. However, this was not uniformly consistent, with some factors more closely linking New Zealand and the developing countries (e.g. China, India and Indonesia).

5.3 New Zealand consumers food product purchasing behaviour (Q17 and Q18)

In the next questions, the survey examined which food and beverage products were purchased by consumers in NZ, as well as respondent-specific dietary requirements, if any. Both questions were allowed to have multiple responses. As presented in Table 5.3, results showed that cheese, butter, liquid milk, eggs, beef, chicken, and fruit & vegetables were the most purchased New Zealand products, with 83 per cent-98 per cent of the sample having purchased these. Only infant formula and milk powder were bought by a minority of the sample (4 per cent and 13 per cent of the respondents).

Table 5.2: Percentage of products previously purchased by participants

Cheese	94%
Butter	83%
Milk powder	13%
Infant formula	4%
Liquid milk (dairy)	91%
Other dairy	78%
Eggs	91%
Beef	84%
Lamb	72%
Pork	71%
Chicken	93%
Other meat	51%
Confectionery	65%
Kiwifruit	64%
Apples	86%
Other fruit	94%
Vegetables	98%
Honey	68%
Fish/ Seafood	72%
Wine	59%
Beer	55%

As presented in Table 5.4, with regards to participants' dietary requirements, most respondents (81 per cent) had no specific requirements, whereas gluten-free, vegetarian and dairy-free diets, or some other, were relevant to some respondents, with nut-free, halal and vegan diets relevant for a small portion of the sample. Examples of 'other' responses included diabetic diet, low sodium, low fat, low sugar or sugar-free, and organic, among others.

Table 5.3: Percentage of participants with specific dietary requirements

No specific requirements	81%
Vegetarian/vegan	6%
Gluten-free	7%
Dairy-free	4%
Nut-free	1%
Halal food	1%
Other	9%

5.3 Use of alternative retailers in New Zealand

Following the choice experiment, the questionnaire shifted to explore where consumers buy their food and beverage products and why. In particular, this set of question was to assess the use of alternative retailers in New Zealand.

This set of questions started by asking participants to indicate how much of their monthly budget for food and beverages is divided (in percentages) across different retailer types. The selected retailers were *supermarkets, specialty stores, dairy & convenience stores, farmers' markets, take-away food (including deliveries), other food delivery services, ethnic food stores, restaurants* and *other.* Table 5.5 presents the average shares of participants' monthly food and beverage spends (per cent). This shows that, on average, over 70 per cent of participants' budgets were spent at supermarkets, 11 per cent at specialty stores and 5 per cent for take-away food. A much smaller proportion of budget were spent at restaurants, convenience stores and farmers markets, and little at ethnic food stores and other food delivery services.

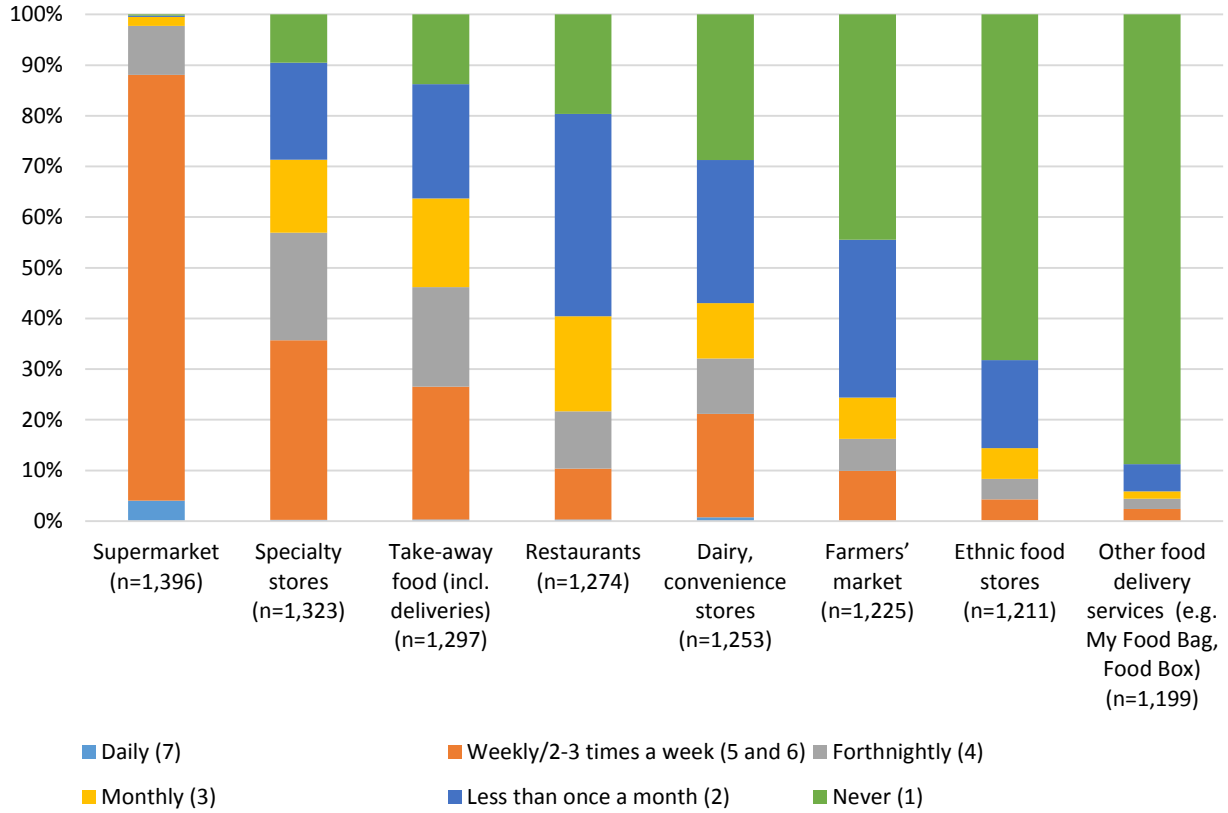
Table 5.4: Average of monthly grocery budget shares for particular retailer types

Retailer type	Average % of monthly budget spent
Supermarkets	71.1
Specialty stores	11.0
Take-away food (including deliveries)	5.0
Restaurants	3.6
Dairy, convenience stores	3.1
Farmers' market	2.6
Ethnic food stores	1.2
Other food delivery services	0.7
Other	0.7

Following this, respondents were asked to indicate how often they shopped for food products in each of these retailers. This was a Likert-scale assessment ranging from *never* to *daily* (or *don't know*). The amount of *missing* or *don't know* responses were minimal for supermarket and specialty stores, but higher for other retailer types. As shown in Figure 5.19, respondents tended to shop more regularly in the shops

where they spend a larger proportion of their food and beverage budget. In particular, supermarkets were visited at least weekly by the majority of respondents (88 per cent), while a much smaller proportion of respondents were weekly customers at specialty stores and farmers' markets, or used food delivery services. More than 40 per cent never shopped at farmers' markets, approximately 70 per cent never shopped at ethnic food stores and close to 90 per cent never used other food delivery services. A supplementary question asked participants whether they had heard of "Food Box" programmes, as a specific example of food delivery service type. Over half of the sample (57 per cent) had heard of this service, 37 per cent had not and 5 per cent were uncertain.

Figure 5.19: Shopping frequencies (in per cent)



5.4.1 Reasons for shopping in particular retail settings (Q23-26)

The next set of questions considered why or why not participants shopped at certain retailer types, and under what circumstances they would change their behaviour. These follow-up questions considered only four types of retailers: supermarkets, specialty stores, farmers' markets and other food delivery services.

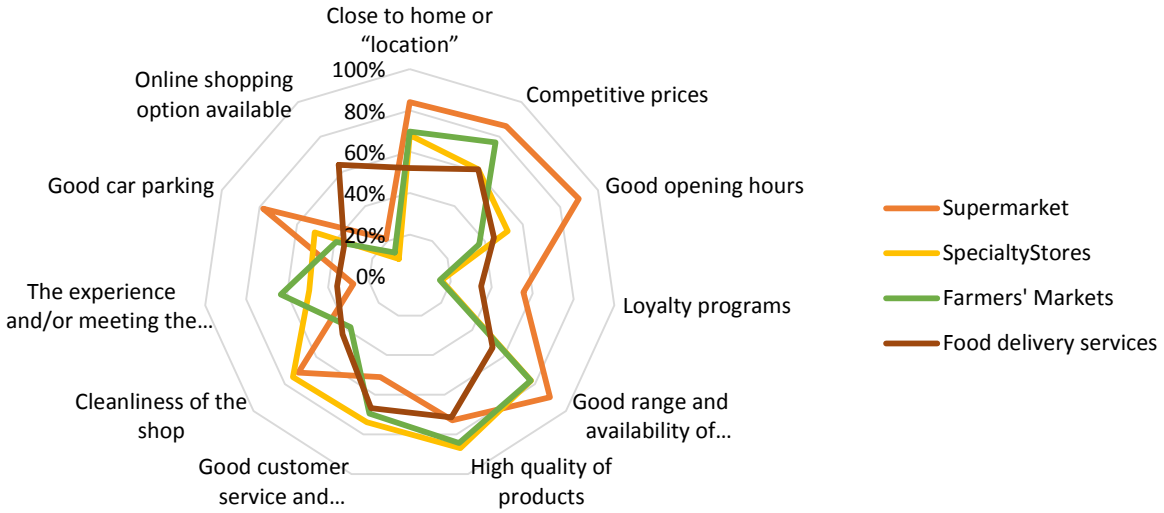
Participants who answered either *fortnightly, weekly, 2-3 times a week* or *daily* in the shopping frequency questions for supermarkets, specialty stores, farmers' markets or other food delivery services were then asked to indicate their main reasons for regularly shopping. This assessment was carried out using a series of Likert-scale statements ranging from *strongly disagree* or *strongly agree*. A *don't know* option was also provided, but was excluded from the analysis below.

Results, as illustrated in Figure 5.20, indicate participants' main reasons for shopping in using these retailer types. While many of the statements regarding reasons for shopping at particular retailer types

were considered important, as shown by the combined *agree* and *strongly agree* statements, the key reasons were:

- For **supermarkets**, convenience (location and opening hours), competitive prices with a good range and availability of products, good car parking, product quality and cleanliness.
- For **specialty stores**, product quality, range and availability, cleanliness, good service accompanied by knowledge of the products, location and competitive prices.
- For **farmers' markets**, a good range and availability of high quality products with competitive prices, location, good customer service, knowledge of the products and the experience of meeting the producer.
- For **other food delivery services**, high quality products, customer service and knowledge, location and competitive prices.

Figure 5.20: Reasons for shopping in particular retail settings

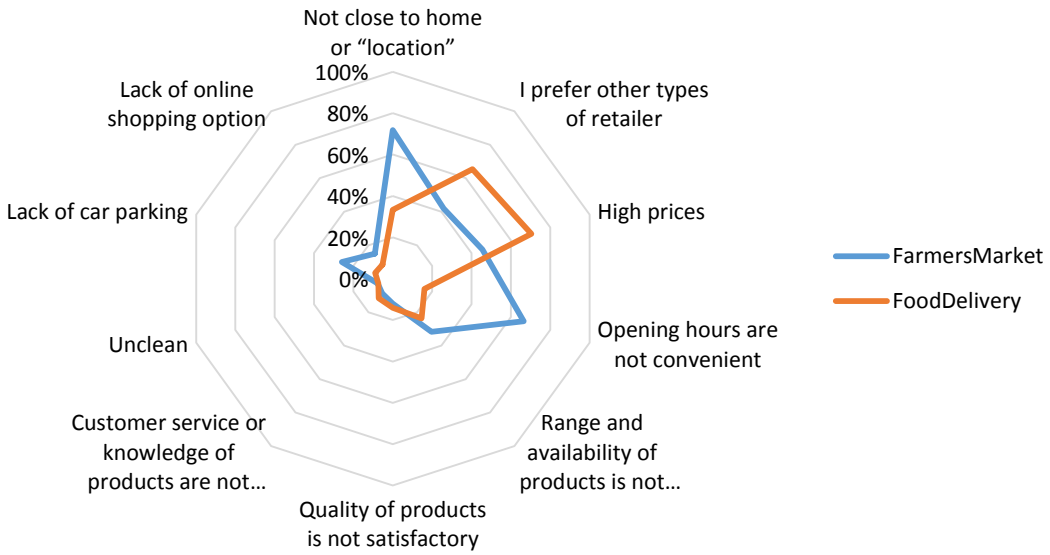


Next, as shown in Figures 5.21, participants' reasons for not shopping in particular retailer types was examined. This assessment was done only for the farmers' markets and (other) food delivery services due to the large number of missing responses. These questions were only shown to those respondents who indicated that their shopping frequencies for the above outlets were either *less than once a month* or *never* (reasons for not shopping *and* reasons to change shopping behaviour).

The number of other responses (excluding don't knows and missing values) were as follows:

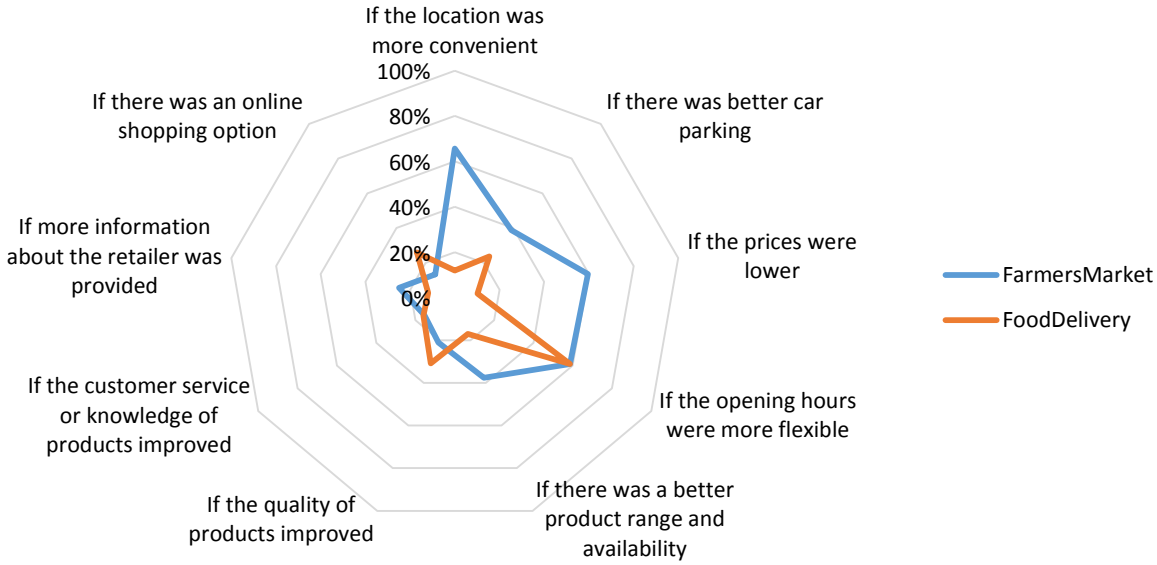
- 741-867 per statement for those that did not shopping at farmers' markets;
- 454-502 per statement for those that would potentially shop at farmers' markets;
- 741-958 per statement for those that were not using (other) food delivery services; and
- 783-878 per statement for those that would potentially shop using food delivery services.

Figure 5.21: Reasons for changing vs not shopping (per cent *strongly agree* and *agree*)



Next, as shown in Figure 5.22, the circumstances under which participants would change their shopping behaviour. This assessment was also done only for the farmers' markets and (other) food delivery services due to the large number of missing responses. These questions were only shown to those respondents who indicated that they never shopped at these retailers.

Figure 5.22: Reasons to change retailer types (per cent *strongly agree* and *agree*)



Firstly, the comparison of reasons for not shopping at farmers' markets and potential reasons to change shopping behaviour in relation to farmers' markets showed similar response rates. Thus, when participants agreed with statements regarding their reasons for not shopping, they also agreed that if these parameters were improved they would consider shopping at farmers' markets more frequently. The key reasons included *location, high prices* and *inconvenient opening hours,* with the strongest differences between current reasons for not shopping and reasons to change shopping behaviour being if the prices were lower.

Figure 5.193: Reasons for changing vs not shopping at farmers markets (where comparable) (per cent *strongly agree* and *agree*)

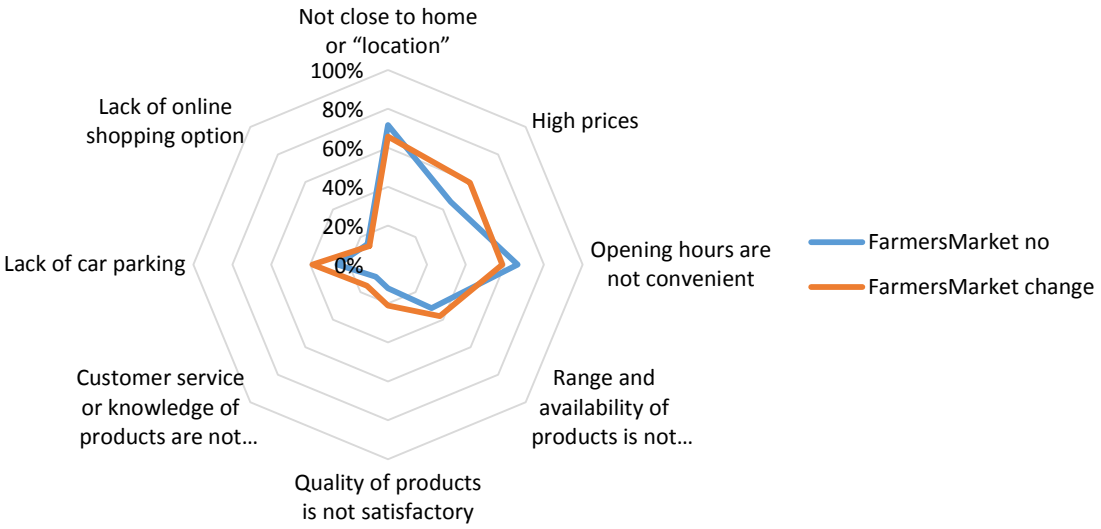
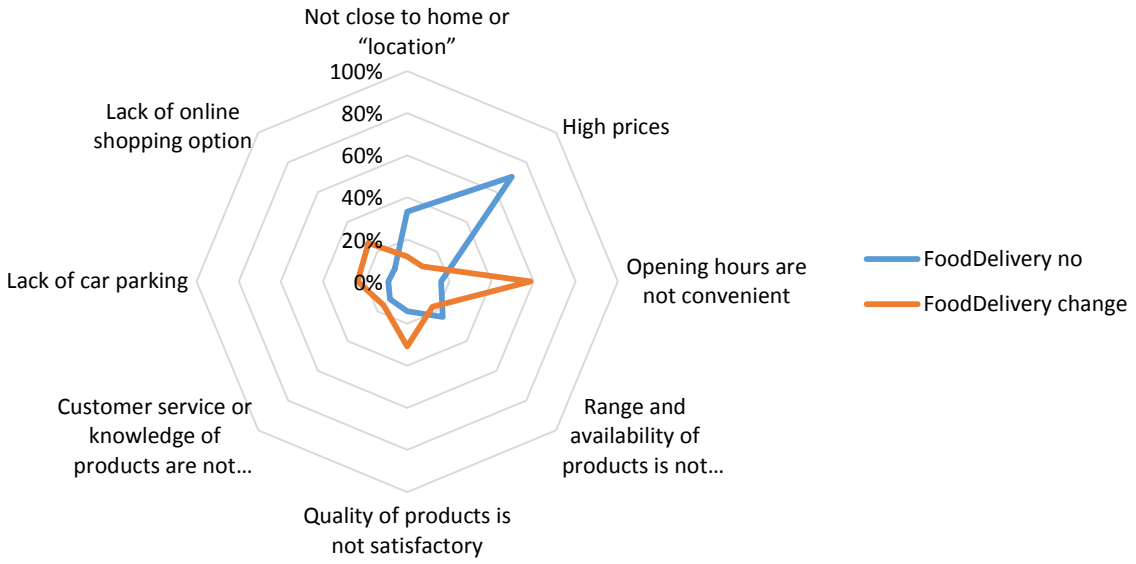


Figure 5.24: Reasons for changing vs not shopping using food delivery services (where comparable) (per cent agree + per cent strongly agree)



Secondly, a comparison of participants' reasons for not using food delivery services and potential reasons to change shopping behaviour in relation to farmers' markets, as indicated in Figures 5.23 and 5.24, showed greater differences. While participants' main reasons for not using food delivery services were largely centred on price, their main reasons to change included the inconvenience of operating hours (which could potentially mean inconvenient delivery times, as indicated by participants in the comment field of this question).

5.3.1 Summary of reasons for shopping at alternative retailers

In summary, participants in this sample tended to spend, on average, the largest proportion of their food and beverage budget, as well as their highest frequency of shopping, using supermarkets.

Table 5.6: Top 5 reasons for shopping at particular retailer types

Rank	Supermarket	Specialty stores	Farmers' markets	Other food delivery services.
1	Good opening hours	High quality of products	High quality of products	High quality of products
2	Good range and availability of products	Good range and availability of products	Good range and availability of products	Customer service/ product knowledge
3	Competitive prices	Cleanliness of the shop	Competitive prices	Online shopping option available
4	Close to home or "location"	Customer service/ product knowledge	Close to home or "location"	Competitive prices
5	Good car parking	Close to home or "location"	Customer service/ product knowledge	Good range and availability of products

Note: Ranking is based on the per cent of strongly agree and agree

In contrast, participants' reasons for not shopping or changing their shopping behaviour in relation to farmers' markets and/or using other food delivery services were investigated for those indicated that they used these retailer types either rarely (farmers' markets – n = 481; other food delivery services – n = 82) or never (farmers' markets – n = 545; other food delivery services – n = 1,064). The key reasons, as summarised in Table 5.7 below, included:

- Participants did not shop at **farmers' markets** mainly due to of their inconvenience (location and opening hours), high prices, dissatisfaction with product ranges or they preferred other retailer types. However, some indicated that they could potentially change their behaviour if the above factors were improved, as well as the inclusion of better car parking for this retailer type.
- Participants did not use **(other) food delivery services (e.g. My Food Bag or food box programmes)** mainly due to high prices, issues with location and times (which could relate to delivery), dissatisfaction with the product range, or simply preferred other retailer types. However, some indicated that they could change their behaviour if the above factors as well as the overall quality of products could be improved. In addition, these reasons could relate to delivery costs and options currently available to participants[8].

[8] Delivery not available at all locations

Table 5.7: Top 5 reasons not to change or shop at particular retailer types

	Not to shop		Could shop if…	
Rank	**Farmers' markets**	**Other food delivery services.**	**Farmers' markets**	**Other food delivery services.**
1	Not close to home or "location"	High prices	If the location was more convenient	If more flexible opening hours
2	Inconvenient opening hours	Prefer other types of retailer	If the prices were lower	If the quality of products improved
3	High prices	Not close to home or "location"	If more flexible opening hours	If there was an online shopping option
4	Prefer other types of retailer	Product range/availability dissatisfactory	If there was better car parking	If there was better car parking
5	Product range/availability dissatisfactory	Opening hours are not convenient	If product range and availability improve	If product range and availability improve

Note: Ranking is based on the per cent of strongly agree and agree

5.4 Digital media and smart technology use in New Zealand

The final portion of this survey asked participants to consider the relationship between their food and beverage information sources and purchasing activity and their use of digital media and smart technology. Digital media includes the use of online sources of information, such as social media and food company web pages, while smart technology includes the use of devices such as smartphones, barcodes, QR codes and microchip reading technology (such as Near Field Communication (NFC) or Radio Frequency Identification Devices (RFID)).

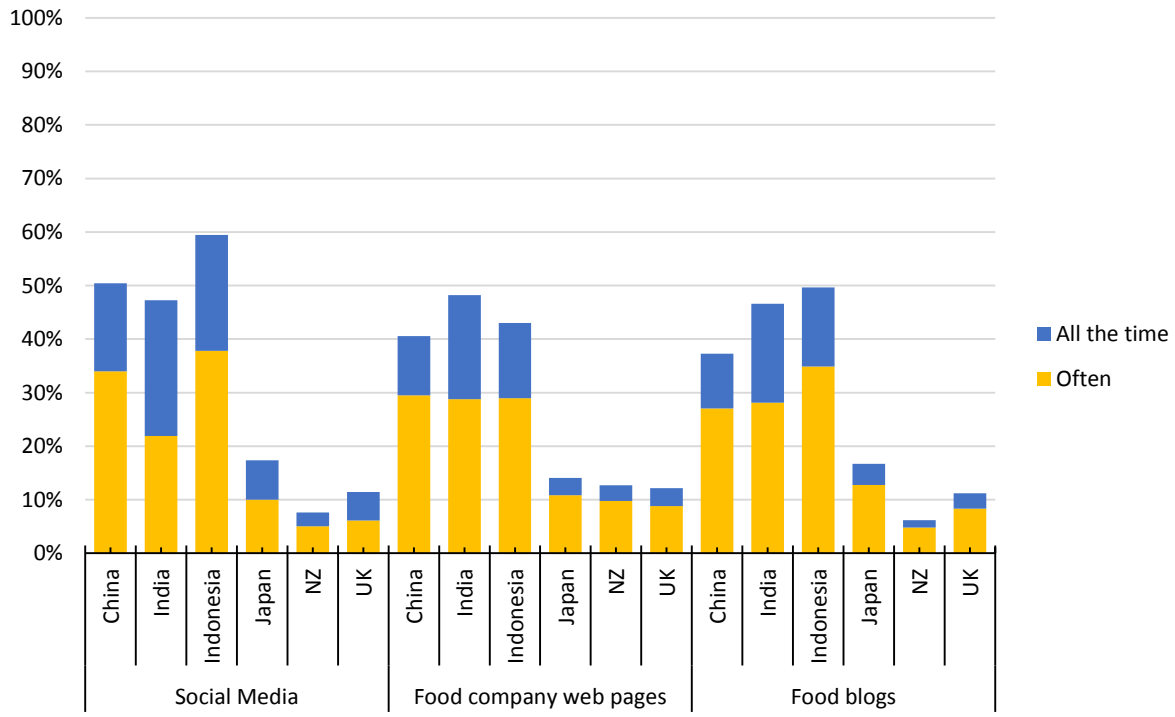
The first question in this section asked participants to consider their use of digital media to search for food information. This included social media, food company web pages, food blogs, Wikipedia, forums, Google and/or other search engines, apps and other sources. This question varied from the 2015 MER survey in that the sources *Google and/or other search engines* and *apps* were added, and the source *chat rooms* omitted. These results are presented in Table 5.8 below. The results show that New Zealand participants used Google and/or other search engines most frequently to search for information on food and beverages online, followed by food company webpages and social media. New Zealand participants used other sources and forums the least for this purpose.

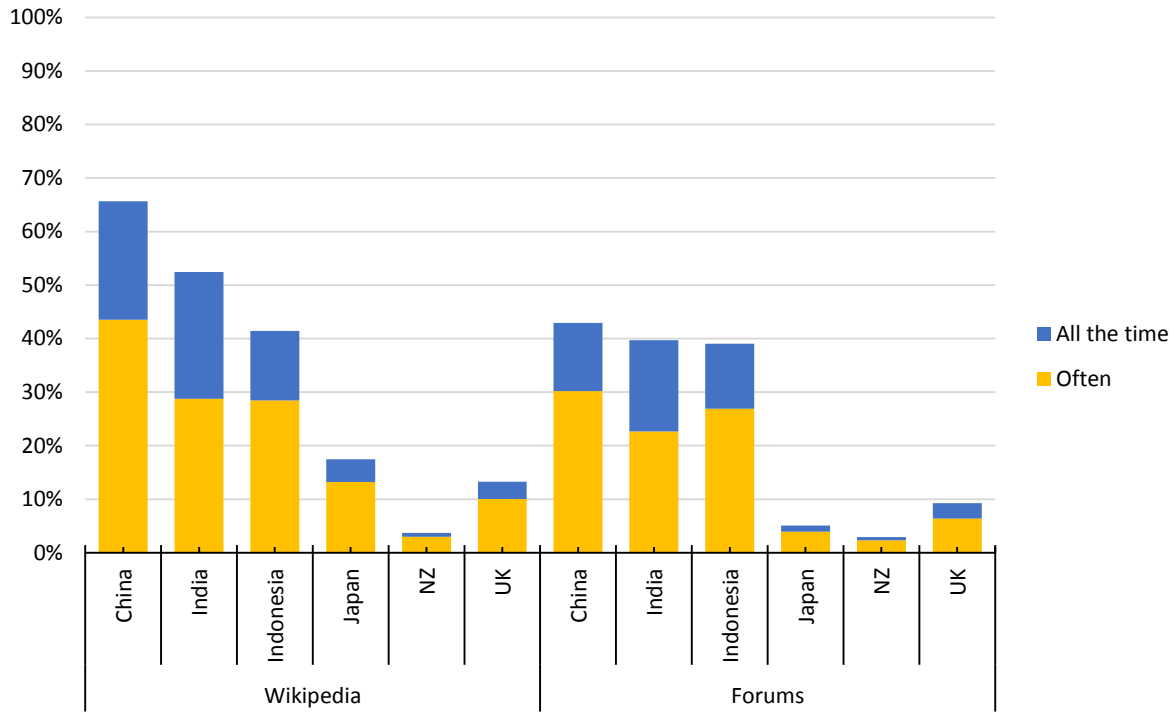
Table 5.85: Search for information on food and beverages online (NZ)

	Never	Rarely	Sometimes	Often	All the time	*n*
Social media	53%	19%	20%	5%	3%	1372
Food company web pages	34%	24%	30%	10%	3%	1376
Food blogs	55%	22%	17%	5%	1%	1372
Wikipedia	65%	19%	12%	3%	1%	1363
Forums	68%	20 %	10%	2%	1%	1361
Google and/or other search engines	33%	15%	29%	16%	8%	1382
Apps	63%	18%	12%	5%	2%	1355
Other	80%	8%	6%	4%	1%	379

In addition, a comparison between these results and those of Driver et al. 2015 (where comparable) is presented in Figure 5.25 below. The results show that New Zealand participants used all online information sources less than all other countries examined, particularly food blogs and Wikipedia.

Figure 5.25: Search for information on food and beverages online (international comparison)





Participants were then asked to indicate, using a slide bar ranging between 0 and 100 per cent, what percentage of their regular food and beverage shopping and other shopping is done online. These results are compared with the findings of Driver et al. 2015 and presented in Figures 5.26 and 5.27 below.

Figure 5.26: Online food and beverage shopping (international comparison) (per cent)

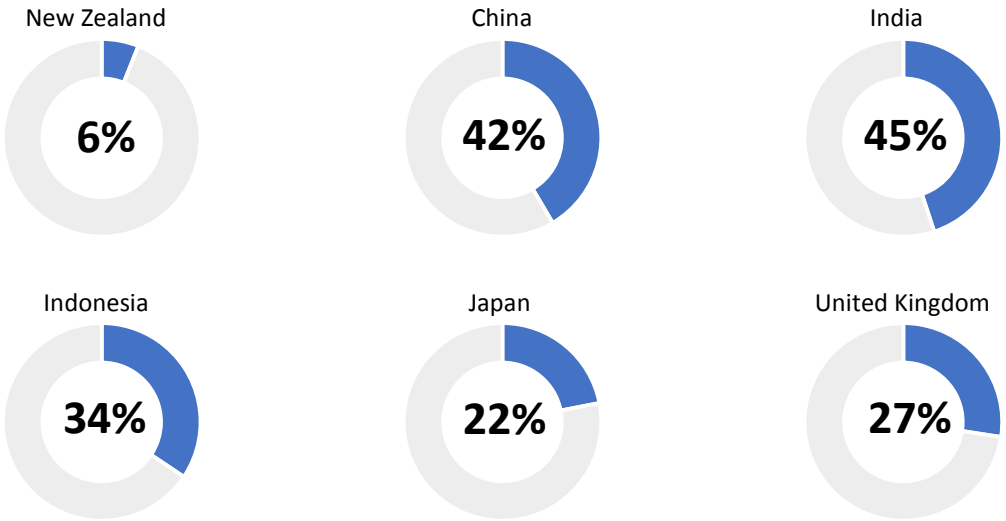
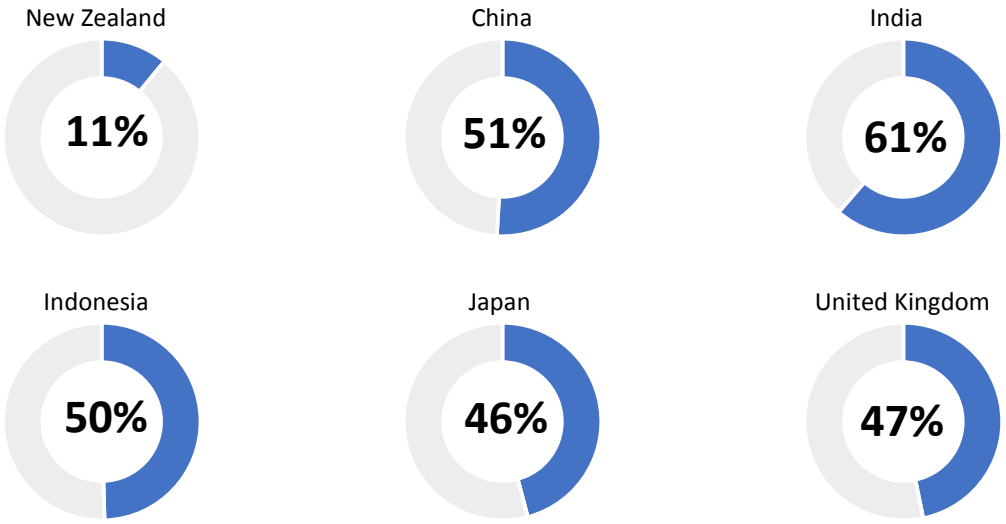


Figure 5.27: Online other shopping (international comparison) (per cent)



In summary, New Zealand participants used all types of online shopping less than all other countries surveyed, particularly food shopping.

For the next two questions, a threshold from the previous question (regarding their percentage of online shopping for food and beverages) was used. Of those participants who stated that they used online shopping for food and beverages for 5 per cent of more of their regular shopping, the following question was presented: What is the main reason for shopping for food and beverages online? Participants were able to select only one choice that most applied to them, as well as give another reason using the *Other (please specify)* option. From the total sample, 284 participants were shown and answered this question.

Table 5.9: Main reasons for shopping online (NZ)

	n = 284
Prices are generally lower online.	14%
Comparisons of food and beverages are easier to make online.	10%
The variety of food and beverages is greater online.	6%
The quality of food and beverages is better online.	1%
I like the convenience of having products delivered to my house.	49%
I like being able to order food and beverages from overseas that are better or not available in New Zealand.	9%
Other, please specify	11%

Most participants stated that the main reason for their use of online shopping for food and beverages was the convenience of having products delivered to their homes (49 per cent). This was followed by online shopping options having generally lower prices (14 per cent) and the ability to make easier comparisons between products online (10 per cent). Other reasons (11 per cent) included that they could only purchase specific products online (*n* = 13) and that online shopping saved them time (*n* = 6).

Similarly, for those who indicated that online shopping for food and beverages comprised less than 5 per cent of their regular shopping, the following question was presented: What is the main reason for not

shopping more often for food and beverages online? Participants were able to select only one choice that most applied to them, as well as give another reason using the Other (please specify) option.

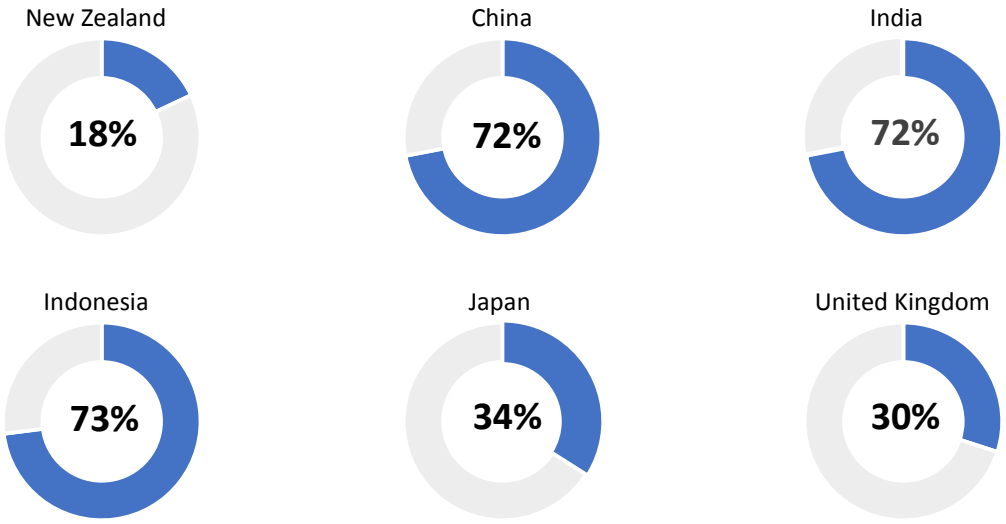
Table 5.60: Main reasons for not shopping online (NZ)

	n = 1112
Prices are generally not lower online.	6%
Comparisons of food and beverages are hard to make online.	8%
The variety of food and beverages is limited online.	2%
The quality of food and beverages is not satisfactory online.	1%
I prefer not to buy food and beverage products online.	51%
It is hard to find overseas food and beverage products online.	0%
I am not familiar with the required technology.	6%
Delivery is too expensive.	14%
Other	13%

Most participants indicated a general preference to not buy food and beverage online as the main barrier to using these services (51 per cent), followed by expensive delivery charges (14 per cent) and that comparisons between products are difficult to make online (8 per cent). For other reasons (13 per cent), barriers to online shopping included that participants preferred to inspect food items personally (*n* = 41), as well as stating a general preference for shopping for groceries in-store (*n* = 25), a lack of delivery options in their preferred location (*n* = 21) and a general indication that they were not interested in online shopping for groceries (*n* = 21).

The next set of questions asked participants to consider their use of smart technology (particularly smartphones) in relation to food and beverage shopping. Initially, participants were asked to indicate if they had ever used a mobile app to find out more about a food and/or beverage product. A comparison of these results with those of Driver et al. 2015 are shown in Figure 5.28 below.

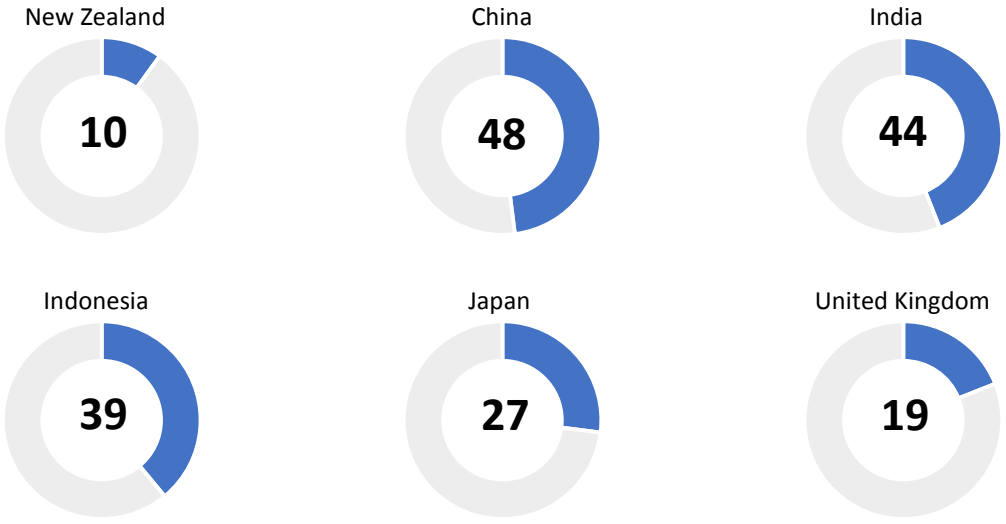
Figure 5.28. Use of mobile apps for more information about food and/or beverage products (international comparison) (per cent yes)



New Zealand results showed that 18 per cent of participants had previously used a mobile app to find out more about a food and/or beverage product – the lowest rate of use of all countries.

Following this, participants were asked to indicate the frequency at which they use their mobile device to purchase food and beverages. A comparison of these results with those of Driver et al. 2015 is presented in score form in Figure 5.29 below.

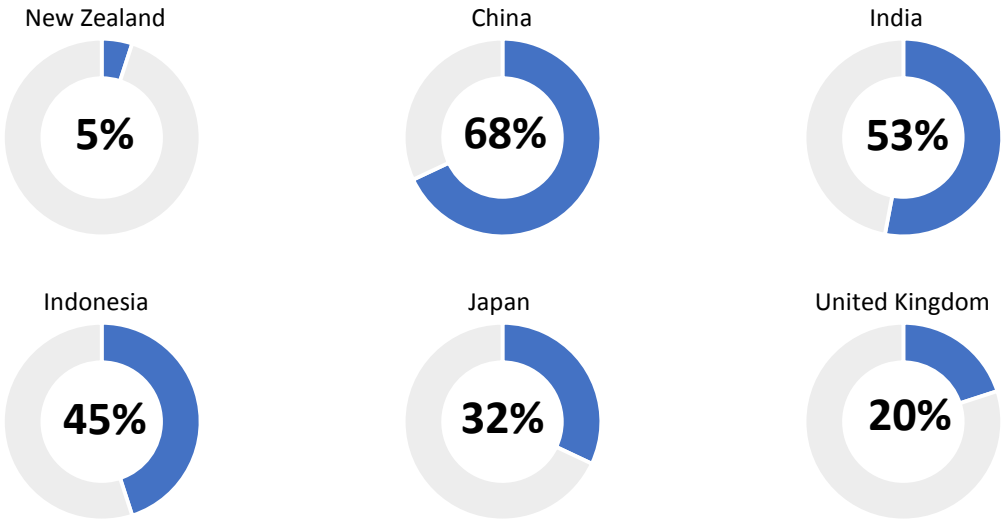
Figure 5.209: Use of mobile devices to purchase food and/or beverage products (international comparison) (score)



As shown above, New Zealand participants indicated the lowest overall use of mobile devices for purchasing food and beverages for all countries.

Following this, participants were asked if they had ever used their mobile device in conjunction with barcodes and/or QR codes for finding information about food and beverages. A comparison of these results with those of Driver et al. 2015 is presented in Figure 5.30 below.

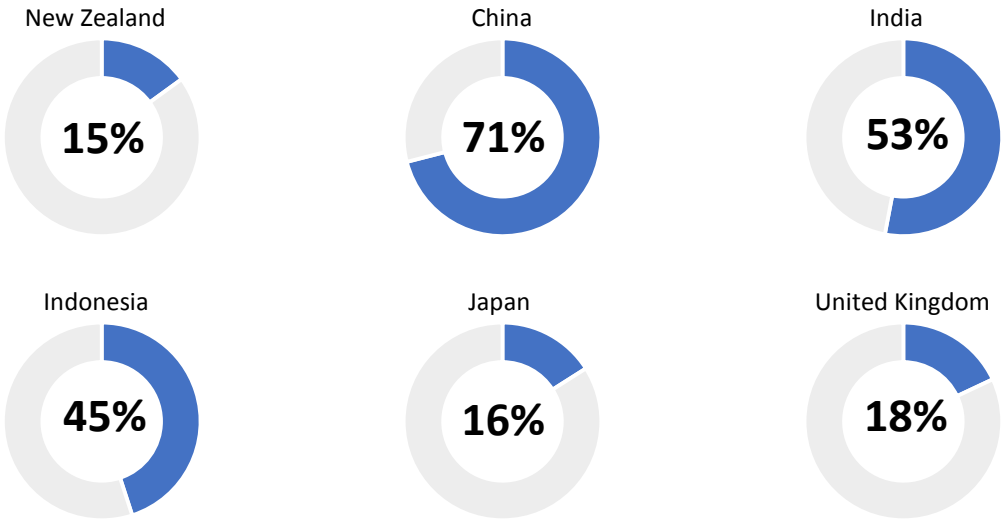
Figure 5.30: Use of barcodes/QR codes for finding information about food and/or beverage products (international comparison) (per cent yes)



As shown above, New Zealand participants indicated the lowest overall use of mobile devices in conjunction with barcodes and/or QR codes for finding more information about food and beverage products for all countries (5 per cent).

Similarly, participants were then asked if they had ever used their mobile device in conjunction with barcodes and/or QR codes for purchasing food and beverages. A comparison of these results with those of Driver et al. 2015 is presented in Figure 5.31 below.

Figure 5.3121: Use of barcodes/QR codes for purchasing food and/or beverage products (international comparison) (per cent yes)



As with the previous question, New Zealand participants indicated the lowest overall use of mobile devices in conjunction with barcodes and/or QR codes for purchasing food and beverage products for all countries (15 per cent). However, these results are comparable with the use of this technology in the other developed markets surveyed, such as Japan (16 per cent) and United Kingdom (18 per cent).

Next, participants were asked to indicate if they had ever used microchip reading technology. Examples cited in the survey included contactless smart card payment (such as MasterCard PayPass/Visa PayWave) or smartphone payment (such as Google Wallet). This question format differed from that in Driver et al. 2015 as several options were given, including smart card, smartphone and other technology, whereas Driver et al. 2015 presented a singular generic option. The results of this question are presented in Table 5.11 below. In summary, New Zealand participants had used smart cards the most frequently, with most participants never using any of these technologies.

Table 5.71: Use of microchip reading technology (NZ)

	Never	Rarely	Sometimes	Often	All of the time
Smart card	51%	8%	12%	13%	15%
Smartphone	88%	4%	5%	2%	1%
Other	95%	2%	2%	1%	1%

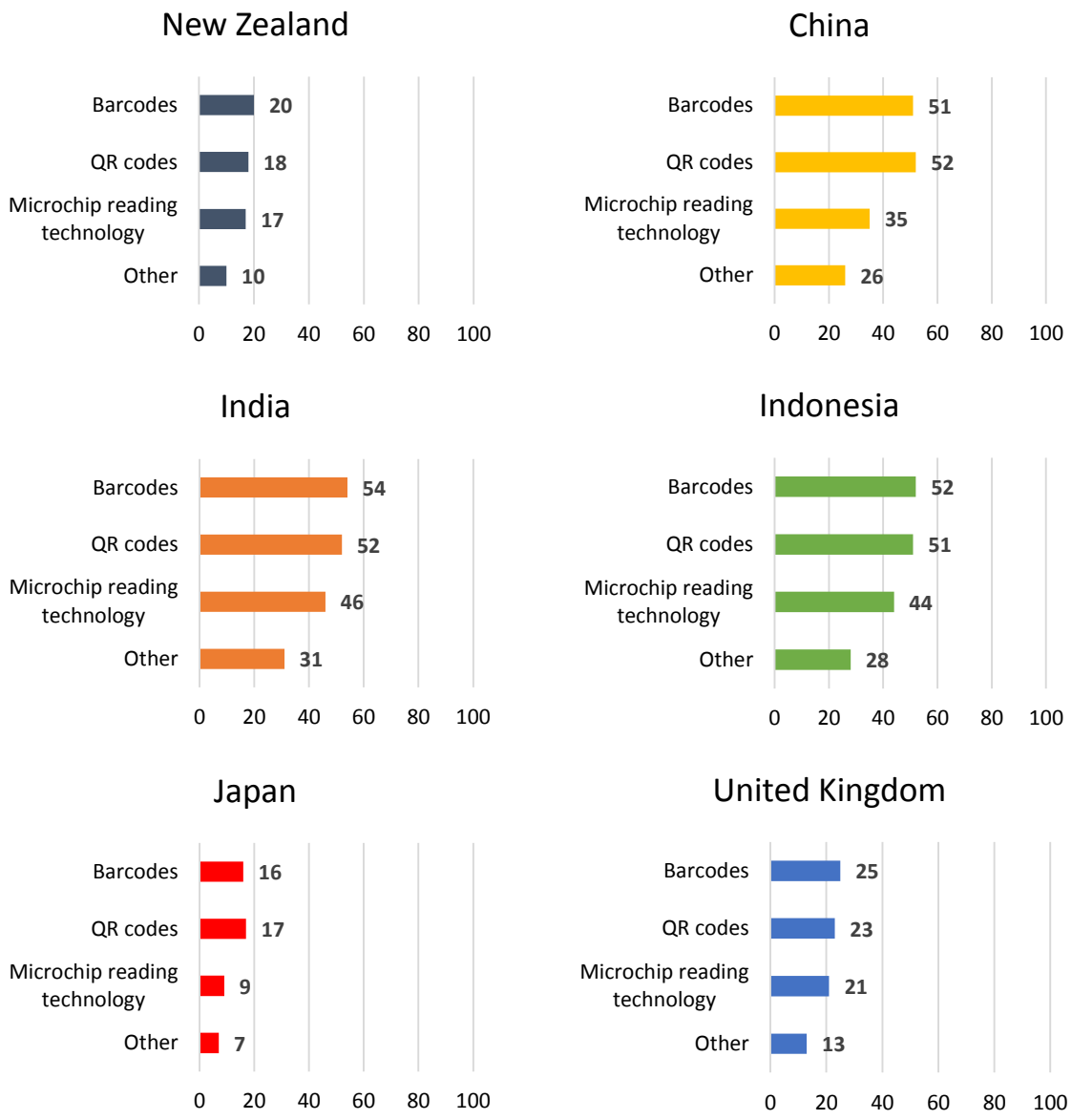
The final questions in this section of the survey asked participants to consider their use of smart technology for the verification of food and beverage product credentials. These included the use of barcodes, QR codes, microchip reading technology and other methods. Initially, participants were asked to indicate the frequency at which they currently use the above technologies for the verification of food and beverage product credentials. A comparison of these results with those of Driver et al. 2015 is presented in score form in Figure 5.32 below.

Figure 5.32: Current use of selected technology for verification of product claims (international comparison) (scores)

As shown above, New Zealand participants showed the lowest overall current use of any of the above technologies for the verification of food and beverage product credentials, particularly microchip reading technology.

Finally, participants were asked to indicate if they would use any of the stated technologies for the verification of food and beverage product credentials if these technologies were available. A comparison of these results with those of Driver et al. 2015 is presented in score form in Figure 5.33 below.

Figure 5.33: Intended use of selected technology for verification of product claims (international comparison) (scores)



As shown above, New Zealand participants intended use of these technologies for food and beverage product verification was the second-lowest of all countries surveyed, with results comparable to other developed countries. Results showed a marked increase between current and intended use, suggesting that, if available, New Zealand participants would be much more willing to verify product credentials using these technologies.

5.4.1 Summary of digital media and smart technology use in New Zealand

Overall, New Zealand participants showed the lowest use of all types of technology for all countries examined. In searching for food and beverage information online, New Zealand participants used all online information sources less than all other countries examined, using Google and/or other search engines most frequently to search for information on food and beverages online, followed by food

company webpages and social media. In addition, New Zealand participants used all types of online shopping less than all other countries surveyed, particularly food shopping.

Of those participants who stated that they used online shopping for food and beverages for 5 per cent of more of their regular shopping, more participants indicated that the main reason for their use of online shopping for food and beverages was the convenience of having products delivered to their homes. This was followed by online shopping options having generally lower prices and the ability to make easier comparisons between products online. Similarly, for those who indicated that online shopping for food and beverages comprised less than 5 per cent of their regular shopping, more participants indicated a general preference to not buy food and beverage online as the main barrier to using these services, followed by expensive delivery charges and that comparisons between products are difficult to make online.

For the use of mobile devices, New Zealand participants showed the lowest rate of use of mobile apps for food and beverage information and mobile devices for food and beverage purchasing of all countries examined. New Zealand participants also indicated the lowest overall use of mobile devices in conjunction with barcodes and/or QR codes for finding more information about and purchasing food and beverage products for all countries.

For microchip reading technology, New Zealand participants had used smart cards the most frequently, with most participants never using any of these technologies. New Zealand participants also showed the lowest overall current use of any of the above technologies for the verification of food and beverage product credentials. However, results showed a marked increase between current and intended use, suggesting that, if available, New Zealand participants would be much more willing to verify product credentials using this.

Chapter 6
Conclusion

This study examined New Zealand consumer preferences for particular food and beverage attributes, as well as their use of alternative retailers and digital media/smart technology. In summary, New Zealand participants considered the attributes quality, food safety and price to be the most important when shopping for food and beverages. With regards to the authentication of products, New Zealand government certification was shown to the best the most important, followed by globally recognised certification and brand. Considering food safety, hygiene standards was considered to be the most important factor, followed by freshness and rates of contamination. In relation to environmental condition, water quality was the rated at the most important factor, followed by the protection of coastal and sea-life as well as the protection of endangered plants and animals. For animal health and welfare, New Zealand participants rated free of disease as the most important factor, followed by no cruelty and humane slaughter. For human health-enhancing food and beverages, heart/cholesterol health was rated as the most important, followed by child and baby health. For social responsibility, no child labour was seen as the most important factor, followed by workplace safety and fair wages. Finally, for the role of Māori culture in food and beverage production and supply, care for future generations was rated as the most important factor, followed by authenticity and equity and fairness. With regards to perceived current levels of attributes in domestic food production and supply, New Zealand participants indicated a perception of high levels of food safety, followed by quality and price/nutritional value.

Placing these results in a wider international context, New Zealand responses most consistently resembled those of the UK with similar importance placed in attributes and factors in both countries throughout. In addition, New Zealand participants consistently rated every attribute as less important than their international counterparts, suggesting that New Zealand consumers are less concerned regarding the presented attributes and factors than international consumers in this study.

In relation to their use of alternative retailers, it was shown that New Zealand participants tended to spend, on average, the largest proportion of their food and beverage budget, as well as shop more frequently, in supermarkets. The key reasons for this included convenient locations, opening hours and car parking, as well as better prices and higher product availability. This was followed by specialty stores, takeaway food and restaurants.

Furthermore, New Zealand participants showed the lowest use of all types of technology for all countries examined. In searching for food and beverage information online, New Zealand participants used all online information sources less than all other countries examined, as well as using all types of online shopping less than all other countries surveyed, particularly food shopping. New Zealand participants also showed the lowest rate of use of mobile devices in relation to food and beverage information finding and purchasing, including their use in conjunction with barcodes and/or QR codes, for all countries. Finally, New Zealand participants also showed the lowest overall current use of microchip reading technology for the verification of food and beverage product credentials. However, results showed a marked increase between current and intended use, suggesting that, if available, New Zealand participants would be much more willing to verify product credentials using this.

In summary, this study has shown that, for New Zealand consumers, basic product attributes are generally more important than credence attributes, with participants using conventional food and beverage retail

channels most frequently. While use of digital media and smart technology is increasing in New Zealand, it remains relatively low.

Taken together, a distinct difference between New Zealand consumers and their international counterparts can be seen. Therefore, this study has also revealed implications for New Zealand food and beverage exporters seeking access to international markets. Based on the observed differences between New Zealand and the international countries in this study, it can be seen that achieving market access requires a clear understanding of international consumer preferences and attitudes country-by-country. In taking a New Zealand-centric view of international consumers, exporters may underestimate the potential value that could be captured in these markets.

References

Andrée, P., Dibden, J., Higgins, V. and Cocklin, C. (2010). Competitive productivism and Australia's emerging 'alternative' agri-food networks: Producing for farmers' markets in Victoria and beyond. Australian Geographer, 41(3), 307-322.

Animal Welfare Act, New Zealand Statutes (1999).

Bank of New Zealand (BNZ) (2016). New Zealand Online Retail Sales: Monthly Update for December 2016. Retrieved from https://www.bnz.co.nz/assets/business-banking-help-support/online-retail-sales-index/pdfs/NZ-Online-Retail-Sales-in-December-2016.pdf

Batt, P.J. (2014). How do consumers differentiate between fresh food stores. Acta Hortic. 1103, 61-68.

Bechtold, K.-B. and Abdulai, A. (2014). Combining attitudinal statements with choice experiments to analyse preference heterogeneity for functional dairy products. Food Policy, 47, 97-106.

Brodie, R.J. (1977). Meat: A consumer survey of Christchurch Households. Agribusiness and Economics Research Unit (AERU) Research Report No. 82, October 1977.

Chalmers, L., Joseph, A.E. and Smithers, J. (2009). Seeing Farmers' Markets: Theoretical and Media Perspectives on New Sites of Exchange in New Zealand.

Chorus (2014). The Need for Speed: NZ's appetite for better broadband. Quarterly Market Update September 2014. Retrieved 7th October 2015 from https://www.chorus.co.nz/file/54625/Need-for-Speed---Quarterly-Market-Update-September-2014-2.pdf.

Chu, S-C. and Kim, Y. (2011). Determinants of consumer engagement in electronic word-of-mouth (eWOM) in social networking sites. International Journal of Advertising, 30(1), pp. 47-75.

Clemens, R.L.B. and Babcock, B.A. (2004). Country of Origin as a Brand: The Case of New Zealand Lamb. MATRIC Briefing Paper 04-MBP 9, November 2004.

Colmar Brunton (2016). *Better futures report: 2016*. Retrieved 9 February 2017 from http://www.colmarbrunton.co.nz/wp-content/uploads/2016/12/2016-COLMAR-BRUNTON-BETTER-FUTURES-REPORT.pdf

Devcich, D.A., Pedersen, I.K. and Petrie, K.J. (2007). You eat what you are: Modern health worries and the acceptance of natural and synthetic additives in functional foods. Appetite, 48(2007), 333-337.

Dressler-Hawke, E. and Mansvelt, J. (2009). Shaping the "Authentic": Marketing ethnic food to consumers. In Lindgreen, A. and Hingley, M.L. (Ed.), New Cultures of Food. Ashgate Publishing Group: Abingdon, Oxon, Great Britain.

Driver, T., Saunders, C., Guenther, M., Dalziel, P. and Rutherford, P. (2015). Maximising Export Returns: The use of digital media and smart technology in shopping and information gathering for food and beverages. AERU Research Report No. 337. Agribusiness and Economics Research Unit: Lincoln University, Lincoln, New Zealand.

Euromonitor (2015). Grocery Retailers in New Zealand: Executive Summary. Accessed 19th October 2015 from http://www.euromonitor.com/grocery-retailers-in-new-zealand/report.

Facebook (2015). New Zealand Facebook Demographics, Usage Statistics and Trends 2015. Accessed 3rd November 2016 from https://scontent-lax3-2.xx.fbcdn.net/v/t39.2365-6/11404884_479689595533265_1705163377_n.pdf?oh=94847e5012c2222148a244873f447c44&oe=589C7BD8

Fam, K.S., Foscht, T. and Collins, R.D. (2004). Trust and the online relationship – an exploratory study from New Zealand. Tourism Management; 25 (2004), pp. 195-207.

Food Standards Australia New Zealand (FSANZ) (2008). Consumer Attitudes Survey 2007: A benchmark survey of consumers' attitudes to food issues. January 2008. Retrieved from http://www.foodstandards.govt.nz/publications/documents/Consumer per cent20Attitudes per cent20Survey.pdf

Food Standards Australia New Zealand (FSANZ) (2015). Food incidents. Retrieved 9 February 2017 from http://www.foodstandards.govt.nz/industry/FoodIncidents/Pages/default.aspx

Foodstuffs (2015). Who Are We? Accessed 19th October 2015 from https://www.foodstuffs-si.co.nz/about-us/who-are-we.

Forbes, S.L., Cohen, D.A., Cullen, R., Wratten, S.D. and Fountain, J. (2009). Consumer attitudes regarding environmentally sustainable wine: An exploratory study of the New Zealand marketplace. Journal of Cleaner Production: 17(2009), pp. 1195-1199.

Forbes, S.L. and Dean, D. (2013). Consumer perceptions of wine brand names. Faculty of Commerce Working Paper No. 5, September 2013. Lincoln University. Retrieved from https://researcharchive.lincoln.ac.nz/bitstream/handle/10182/5657/FoC_wp_05.pdf?sequence=3&isAllowed=y

Frost & Sullivan (2013). Frost & Sullivan: By 2018, New Zealand will have 90 per cent smartphone and 78 per cent tablet ownership levels. Accessed 8th October 2015 from http://www.frost.com/prod/servlet/press-release.pag?docid=288249825

Gamble, J., Jaeger, S.R. and Harker, F.R. (2006). Preferences in pear appearance and response to novelty among Australian and New Zealand consumers. Postharvest Biology and Technology; 41 (2006), pp. 38-47.

Giacalone, D., and Jaeger, S.R. (2016). Better the devil you know? How product familiarity affects usage versatility of foods and beverages. Journal of Economic Psychology (2016),

Gibson, A., Miller, M., Smith, P., Bell, A. and Crothers, C. (2013). The Internet in New Zealand 2013. World Internet Project New Zealand. Institute of Culture, Discourse and Communication: AUT University.

Goodman, S. and Remaud, H. (2015). Store choice: How understanding consumer choice of 'where' to shop may assist the small retailer. Journal of Retailing and Consumer Services, 23, 118-124.

Google (2016). Consumer Barometer: New Zealand – Graph Builder. Accessed 08/02/2017 from https://www.consumerbarometer.com/en/graph-builder/?question=N1&filter=country:new_zealand.

Gosh, D. (2014). Food safety regulations in Australia and New Zealand Food Standards. Journal of the Science of Food and Agriculture, 94(10), 1970-1973.

Gray, A. (2005). Retail Pressure. New Zealand Marketing Magazine; 24(8), pp. 8-13.

Grunert, K.G. (2005). Food quality and safety: Consumer perception and demand. European Review of Agricultural Economics, 32(3), 369-391.

Grunert, K.G., Hieke, S. and Wills, J. (2014). Sustainability labels on food products: Consumer motivation, understanding and use. Food Policy, 44, 177-189.

Guenther, M. and Saunders, C. (2015, November 12). The market for health-enhancing foods. Auckland University, New Zealand: Briefing papers. Retrieved 4 April 2016 from http://briefingpapers.co.nz/2015/11/the-market-for-health-enhancing-foods/

Guenther, M., Saunders, C., Dalziel, P., Rutherford, P., Driver, T. (2015). Maximising Export Returns: Consumer attitudes towards attributes of food and beverages in developed and emerging export markets relevant to New Zealand. AERU Research Report No. 336. Agribusiness and Economics Research Unit, Lincoln University; Lincoln, New Zealand.

Hamlin, R. (2016). Functional or constructive attitudes: Which type drives consumers' evaluation of meat products? Meat Science, 117, 97-107.

Harris, S.M. (2009). Does sustainability sell? Market responses to sustainability certification. Management of Environmental Quality: An International Journal; 18(1), pp. 50-60.

Holdershaw, J., Gendall, P. and Case, P. (2013). Country of origin labelling of fresh produce: Consumer preferences and policy implications. Market & Social Research; 21(2), pp. 22-31.

Insch, A. and Florek, M. (2009). Prevalence of country of origin associations on the supermarket shelf. International Journal of Retail and Distribution Management, 37(5), 453-471.

Insch, A. and Jackson, E. (2014). Consumer understanding and use of country-of-origin in food choice. British Food Journal, 116(1), 62-79.

Jaeger, S.R., Danaher, P.J. and Brodie, R.J. (2009). Wine purchase decisions and consumption behaviours: Insights from a probability sample drawn in Auckland, New Zealand. Food Quality and Preference; 20(2009), pp. 312-319.

Jaeger, S.R., Danaher, P.J. and Brodie, R.J. (2010). Consumption decisions made in restaurants: The case of wine selection. Food Quality and Preference, 21(4), 439-442.

Jaeger, S.R. and Rose, J.M. (2008). Stated choice experimentation, contextual influences and food choice: A case study. Food Quality and Preference, 19(6), 539-564.

Kassardjian, E., Gamble, J. Gunson, A. and Jaeger, S.R. (2005). A new approach to elicit consumers' willingness to purchase genetically modified apples. British Food Journal; 107(8), pp. 541-555.

Kaye-Blake, W., Bicknell, K. and Saunders, C. (2005). Process versus product: Which determines consumer demand for genetically modified apples? Australian Journal of Agricultural and Resource Economics, 49(4), 413-427.

Kaye-Blake, W., O'Connell, A. and Lamb, C. (2007). Potential market segments for genetically modified food: Results from cluster analysis. Agribusiness, 23(4), 567-582.

Kaye-Blake, W., Saunders, C. and Fairweather, J. (2004). Modelling the trade impacts of willingness to pay for Genetically Modified Food. AERU Research Report No. 270. Agribusiness and Economics Research Unit, Lincoln University; Lincoln, New Zealand.

Kennedy, A-M. (2010). The history of New Zealand shop trading hours. International Journal of Retail and Distribution Management: 38(8), pp. 625-640.

Knight, J.G., Mather, D.W. and Holdsworth, D.K. (2005). Consumer benefits and acceptance of genetically modified food. Journal of Public Affairs, 5(3-4), 226-235.

Koistinen, K. and Järvinen, R. (2009). Consumer observations on channel choices: Competitive strategies in Finnish grocery retailing. Journal of Retailing and Consumer Services, 16(4), 260-270.

Kwon, Y-M., Park, J-S., Lee, H-L. and Kim, M-H. (2014). Beacon-Based O2O Marketing for Financial Institutions. International Journal of Industrial Distribution and Business; 5(4), pp. 23-29.

Lea, E., Phillips, J., Ward, M. and Worsley, A. (2006). Farmers' and Consumers' Beliefs About Community-Supported Agriculture in Australia: A Qualitative Study. Ecology of Food and Nutrition; 45(2), pp. 61-86.

Loveridge, A. (2013). Changes in Animal Welfare Views in New Zealand: Responding to Global Change. Society & Animals: 21 (2013), pp. 325-340.

Lynch, D. (2014). Warehouse launches mobile shopping app. New Zealand Herald Online. Accessed 22nd October 2015 from http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=11222539.

Mason, C. (2013). More people buying from home. Accessed 26th November 2015 from http://m.nzherald.co.nz/bay-of-plenty-times/news/article.cfm?c_id=1503343&objectid=11125005.

Maycotte, H.O. (2015). Beacon Technology: The Where, What, Who, How and Why. Accessed 13th October 2015 from http://www.forbes.com/sites/homaycotte/2015/09/01/beacon-technology-the-what-who-how-why-and-where/.

McLean, R. and Hoek J. (2013). Sodium and nutrition labelling: A qualitative study exploring New Zealand consumers' food purchasing behaviours. Public Health Nutrition, 17(5), 138-146.

Migone, P. (2015). Most packaged supermarket food is unhealthy – study. Accessed 19th October 2015 from http://www.radionz.co.nz/news/national/280056/'supermarket-food-largely-unhealthy'.

Miller, S., Driver, T., Saunders, C. and Dalziel, P. (2016). High Value Nutrition: Country of Origin Literature Review. AERU Client Report, prepared for the High Value Nutrition National Science Challenge. Lincoln University, New Zealand: Agribusiness and Economics Research Unit (AERU).

Miller, S., Driver, T., Velasquez, N. and Saunders, C. (2014). Maximising Export Returns (MER): Consumer behaviour and trends for credence attributes in key markets and a review of how these may be communicated. AERU Research Report No. 332, July 2014. Agribusiness and Economics Research Unit: Lincoln University, Lincoln, New Zealand.

Ministry of Agriculture and Forestry (MAF) (2011). What New Zealanders Really Think About Animal Welfare. MAF Technical Paper No. 2011/55, March 2011. Prepared for MAF Operational Research by Synovate Ltd.

Ministry for Primary Industries (MPI). (2017, January 9). Animal welfare. Retrieved 8 February 2017 from https://www.mpi.govt.nz/law-and-policy/legal-overviews/animal-welfare/

Ministry of Health (MoH) (2009). New Zealand Adult Nutrition Survey 2008/09. Accessed from http://www.health.govt.nz/nz-health-statistics/national-collections-and-surveys/surveys/current-recent-surveys/nutrition-survey

Mirosa, M. and Lawson, R. (2011). Revealing the lifestyles of local food consumers. British Food Journal; 114(6), pp. 816-825.

Mirza, F. and Beltran, F. (2014). Consumer Resistance Factors for the Adoption of FTTH Ultra-Fast Broadband in New Zealand. Journal of Information Policy; 4 (2014), pp. 128-143.

Nielsen (2016). Media Trends 2016. Retrieved from http://www.nielsen.com/content/dam/nielsenglobal/nz/docs/reports/2016/nielsen-media-trends-report-2016.pdf

Nielsen (2015). New Zealand Multi-Screen Report. Retrieved 12th November 2015 from http://www.nielsen.com/content/dam/nielsenglobal/nz/docs/reports/2015/nz-multi-screen-report-2015.pdf.

Ophuis, P.A.M.O. and Van Trijp, H.C.M. (1995). Perceived quality: A market driven and consumer oriented approach. Food Quality and Preference, 6(3), 177-183.

Organics Aotearoa New Zealand (OANZ) (2016). 2016 New Zealand Organic Sector Report. Auckland, New Zealand. Retrieved 14 February 2017 from http://www.gefree.org.nz/assets/pdf/OANZMarket-Report2016FINALlow.pdf

Parsons, A.G., Ballantine, P.W. and Wilkinson, H. (2011). Country-of-origin and private-label merchandise. Journal of Marketing Management; 28 (5-6), pp. 594-608.

Parsons, A.G. and Wilkinson, H. (2014). Retailing in New Zealand: Where Are We and Where To Next? In Foscht, Y., Morschett, D., Rudolph, T., Schnedlitz, P., Schramm-Klein, H. and Swoboda, B. (Ed.), *European Retail Research: 2014, Volume 28, Issue 1.* Springer.

Prescott, J., Young, O., O'Neill, L., Yau, N.J.N., Stevens, R. (2002). Motives for food choice: A comparison of consumers from Japan, Taiwan, Malaysia and New Zealand. Food Quality and Preferences, 13(2002), 489-495.

Progressive Enterprises Limited (PEL) (2013). Our History. Retrieved 19th October 2015 from http://www.progressive.co.nz/media/2240215/pel-our-history.pdf.

Research New Zealand (2015). A Report on a Survey of New Zealanders' Use of Smartphones and other Mobile Communication Devices 2015. Retrieved 8th October 2015 from http://www.researchnz.com/pdf/Special per cent20Reports/Research per cent20New per

cent20Zealand per cent20Special per cent20Report per cent20- per cent20Use per cent20of per cent20Smartphones.pdf.

Roy Morgan Research (2013). The Digital Universe. Retrieved 12 October 2015 from http://www.roymorgan.com/.

Rutledge, M.P. (2009). Assessing Demand for Organic Lamb Using Choice Modelling. Unpublished Master's Thesis, Lincoln University, Lincoln, New Zealand

Ryan, H. (2015). My Food Bag's phenomenal rise: from zero to $100m revenue in three years. Accessed 20th January 2016 from http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=11558913.

Saunders, C., Guenther, M., Driver, T., Tait, P., Dalziel, P and Rutherford, P. (2015a). Consumer Attitudes to New Zealand Food Product Attributes and Technology Use in Key International Markets. AERU Research Report No. 333, May 2015. Agribusiness and Economics Research Unit: Lincoln University, Lincoln, New Zealand. Retrieved 6th October 2015 from http://www.lincoln.ac.nz/aeru/mer.

Saunders, C., Dalziel, P., Guenther, M., Saunders, J. and Rutherford, P. (2015b). The Land and the Brand. AERU Research Report No. 339. Agribusiness and Economics Research Unit: Lincoln University, Lincoln, New Zealand. Available at https://hdl.handle.net/10182/6920

Saunders, C., Guenther, M., Tait, P. and Saunders, J. (2013). Assessing consumer preferences and willingness to pay for NZ food attributes in China, India and the UK. Contributed paper prepared for presentation at the 87th Annual Conference of the Agricultural Economics Society, University of Warwick, United Kingdom, 8-10 April 2013.

Saunders, C., Guenther, M. and Driver, T. (2010). Sustainability trends in key overseas markets: Market drivers and implications to increase value for New Zealand exports. Agribusiness & Economics Research Unit (AERU) Research Report No. 319. Agribusiness and Economics Research Unit: Lincoln University, Lincoln, New Zealand.

Saunders, C. (1999). The potential for expansion of the organic industry in New Zealand: A contingent valuation of consumers WTP for organic produce. Commerce Division Discussion Paper 77; Lincoln University, New Zealand. Available at https://hdl.handle.net/10182/546

Shergill, G.S. and Chen, Z. (2005). Web-based shopping: Consumers' attitudes towards online shopping in New Zealand. Journal of Electronic Commerce Research: 6(2), pp. 79-94.

Siró, I., Kápolna, E., Kápolna, B. and Lugasi, A. (2008). Functional food. Product development, marketing and consumer acceptance - A review. Appetite, 51(3), 456-467.

SocialBakers (2015). August 2015 Social Marketing Report: New Zealand. Accessed 13th October 2015 from http://www.socialbakers.com/resources/reports/regional/new-zealand/2015/august/.

Squires, L., Juric, B. and Cornwell, T.B. (2001). Level of market development and intensity of organic food consumption: cross-cultural study of Danish and New Zealand consumers. The Journal of Consumer Marketing: 18 (4/5), pp. 392-409.

Statistics New Zealand (StatsNZ) (2016a). National Accounts: Series, GDP(P), Chain volume, Actual, Total (Annual-Mar). Accessed 19th January 2016 from http://www.stats.govt.nz/infoshare/ViewTable.aspx?pxID=9aaf3fa2-a610-4063-bf28-f8d8942b2c84.

Statistics New Zealand (StatsNZ) (2016b). Internet Service Provider Survey 2016. Accessed 29th September 2015 from http://www.stats.govt.nz/browse_for_stats/industry_sectors/information_technology_and_communications/ISPSurvey_HOTP2016.aspx

Statistics New Zealand (StatsNZ) (2015a). InfoShare: Retail Trade, Sales by industry in deflated prices (Annual-Mar). Retrieved 29th September 2015 from http://www.stats.govt.nz/infoshare/ViewTable.aspx?pxID=c5e41664-e96c-44da-9be4-5d13def3eb3a.

Statistics New Zealand (StatsNZ) (2015b). New Zealand Household Economic Survey 2013. Accessed 29th September 2015 from http://www.stats.govt.nz/browse_for_stats/people_and_communities/Households/HouseholdEconomicSurvey_HOTPYeJun13.aspx.

Statistics New Zealand (StatsNZ) (2015c). NZ Stat: Age by sex, for the census night population count, 1996, 2001, 2006 and 2013 Censuses. Accessed 30th September 2015 from http://nzdotstat.stats.govt.nz/wbos/Index.aspx?DataSetCode=TABLECODE8011#.

Statistics New Zealand (StatsNZ) (2015d). Global New Zealand: Section 3 – Merchandise trade by commodity. Retrieved 30th September from http://www.stats.govt.nz/~/media/Statistics/browse-categories/industry-sectors/imports-exports/global-nz/jun-14/global-nz-jun-2014-tables-3.xls.

Statistics New Zealand (StatsNZ) (2015e). New Zealand In Profile 2015: An overview of New Zealand's people, economy, and environment. Retrieved 15th October 2015 from http://www.stats.govt.nz/browse_for_stats/snapshots-of-nz/nz-in-profile-2015.aspx.

Statistics New Zealand (StatsNZ) (2015f). Disposable income per person. Accessed 26th November 2015 from http://www.stats.govt.nz/browse_for_stats/snapshots-of-nz/nz-social-indicators/Home/Standard per cent20of per cent20living/disp-income-pp.aspx.

Thrasher, J. (2013). RFID vs NFC: What's the difference? Accessed 26th November 2015 from http://blog.atlasrfidstore.com/rfid-vs-nfc.

Trusov, M., Bucklin, R.E. and Pauwels, K. (2009). Effects of Word-of-Mouth versus Traditional Marketing: Findings from an Internet Social Networking Site. Journal of Marketing, 73(5), 90-102.

United Nations (2015). Total Population – Both Sexes. Retrieved 30th September 2015 from http://esa.un.org/unpd/wpp/DVD/Files/1_Indicators per cent20(Standard)/EXCEL_FILES/1_Population/WPP2015_POP_F01_1_TOTAL_POPULATION_BOTH_SEXES.XLS.

Walrond, C. (2012). Food shops. Te Ara: The Encyclopedia of New Zealand. Accessed 29th September 2015 from http://www.teara.govt.nz/en/food-shops/.

Walters, L. (2013). New app gives coffee shots a shot. Retrieved 30th September 2015 from http://www.stuff.co.nz/dominion-post/business/9457002/New-app-gives-coffee-shops-a-shot

Wang, X., Yu, C. and Wei, Y. (2012). Social Media Peer Communication and Impacts on Purchase Intentions: A Consumer Socialization Framework. Journal of Interactive Marketing, 26 (2012), 198-208.

Wilson, N., Nghiem, N., Mhurchu, C.N., Eyles, H., Baker, M.G. and Blakely, T. (2013). Foods and Dietary Patterns That Are Healthy, Low-Cost and Environmentally Sustainable: A Case Study of Optimization Modelling for New Zealand. PLOS One; 8(3), pp. 1-10.

Wirth, F.F., Stanton, J.L. and Wiley, J.B. (2011). The relative importance of search versus credence product attributes: organic and locally grown. Agricultural and Resource Economics Review, 40: 48-62.

Wood, A., Tenbensel, T. and Utter, J. (2013). The divergence of country of origin labelling regulations between Australia and New Zealand. Food Policy, 43, 132-141.

Wooliscroft, B., Ganglmair-Wooliscroft, A. and Noone, A. (2014). The hierarchy of ethical consumption behavior: The case of New Zealand. Journal of Macromarketing, 34(1), 57-72.

Wright, J. and Kurian, P. (2010). Ecological modernization versus sustainable development: the case of genetic modification regulation in New Zealand. Sustainable Development, 18(6), 398-412.

Zander, K. and Hamm, U. (2010). Consumer preferences for additional ethical attributes of organic food. Food Quality and Preference, 21(5), 495-503.

Zonderland-Thomassen, M.A., Lieffering, M. and Ledgard, S.F. (2014). Water footprint of beef cattle and sheep produced in New Zealand: Water scarcity and eutrophication impacts. Journal of Cleaner Production; 73(2014), pp. 253-262.

Appendix 1. Survey Questionnaire

MER NZ Survey (13-14 May, 17-24 May 2016)

Q4 How often do you go grocery shopping?

- ❍ Daily (1)
- ❍ Weekly (2)
- ❍ Fortnightly (3)
- ❍ Monthly (4)
- ❍ Less than once a month (5)

Q5 Which region do you live in?

- ❍ Northland (1)
- ❍ Auckland (2)
- ❍ Waikato (3)
- ❍ Bay of Plenty (4)
- ❍ Gisborne (5)
- ❍ Hawke's Bay (6)
- ❍ Taranaki (7)
- ❍ Manawatu-Wanganui (8)
- ❍ Wellington (9)
- ❍ Tasman (10)
- ❍ Nelson (11)
- ❍ Marlborough (12)
- ❍ West Coast (13)
- ❍ Canterbury (14)
- ❍ Otago (15)
- ❍ Southland (16)

Q6 Please indicate your gross household income before taxes over the past 12 months:

- ❍ Less than $10,000 (1)
- ❍ $10,001 - $30,000 (2)
- ❍ $30,001 - $50,000 (3)
- ❍ $50,001 - $70,000 (4)
- ❍ $70,001 - $100,000 (5)
- ❍ $100,001 or more (6)

Q7 How important do you think the following attributes are when shopping for food and beverages? Please indicate the level of importance by selecting the relevant circles.

	Very important (5)	Important (4)	Neutral (3)	Unimportant (2)	Not at all important (1)	Don't know (0)
Quality (1)	❍	❍	❍	❍	❍	❍
Price (2)	❍	❍	❍	❍	❍	❍
Animal health (3)	❍	❍	❍	❍	❍	❍
Animal welfare (4)	❍	❍	❍	❍	❍	❍
Environmental condition (5)	❍	❍	❍	❍	❍	❍
Health enhancing foods (6)	❍	❍	❍	❍	❍	❍
Food safety (7)	❍	❍	❍	❍	❍	❍
Social responsibility (8)	❍	❍	❍	❍	❍	❍
Nutritional value (9)	❍	❍	❍	❍	❍	❍
Māori culture (10)	❍	❍	❍	❍	❍	❍
Country of origin (11)	❍	❍	❍	❍	❍	❍

Q8 Considering the authentication of attributes in food and beverages, how important do you think the following are?

	Very important (5)	Important (4)	Neutral (3)	Unimportant (2)	Not at all important (1)	Don't know (0)
New Zealand government certification (1)	❍	❍	❍	❍	❍	❍
Non-NZ government certification (2)	❍	❍	❍	❍	❍	❍
Independent private certification (3)	❍	❍	❍	❍	❍	❍
Globally recognised certification (4)	❍	❍	❍	❍	❍	❍
Brand (5)	❍	❍	❍	❍	❍	❍
Company (6)	❍	❍	❍	❍	❍	❍
Retailer (7)	❍	❍	❍	❍	❍	❍

Q9 Considering safety in food and beverages production and supply, how important are the following factors?

	Very important (5)	Important (4)	Neutral (3)	Unimportant (2)	Not at all important (1)	Don't know (0)
Hygiene standards (1)	❍	❍	❍	❍	❍	❍
Rates of contamination (2)	❍	❍	❍	❍	❍	❍
Reduced use of pesticides (3)	❍	❍	❍	❍	❍	❍
Environmental condition (4)	❍	❍	❍	❍	❍	❍
Freshness (5)	❍	❍	❍	❍	❍	❍
Animal welfare (6)	❍	❍	❍	❍	❍	❍
Labelling of "Use by date" (7)	❍	❍	❍	❍	❍	❍
Traceability to origin (8)	❍	❍	❍	❍	❍	❍
Trust in supply chain (9)	❍	❍	❍	❍	❍	❍
GM-free food (10)	❍	❍	❍	❍	❍	❍
Tamper proof packaging (11)	❍	❍	❍	❍	❍	❍
Country of origin (12)	❍	❍	❍	❍	❍	❍

Q10 Considering environmental condition in food and beverages production and supply, how important are the following factors?

	Very important (5)	Important (4)	Neutral (3)	Unimportant (2)	Not at all important (1)	Don't know (0)
Air quality (1)	❍	❍	❍	❍	❍	❍
Water quality (2)	❍	❍	❍	❍	❍	❍
Organic production (3)	❍	❍	❍	❍	❍	❍
Greenhouse gas emissions (4)	❍	❍	❍	❍	❍	❍
Protecting endangered plants and animals (5)	❍	❍	❍	❍	❍	❍
Protecting biodiversity (6)	❍	❍	❍	❍	❍	❍
Protecting wetlands (7)	❍	❍	❍	❍	❍	❍
Protecting coastal and sea-life (8)	❍	❍	❍	❍	❍	❍
Wilderness (9)	❍	❍	❍	❍	❍	❍
Waste management and recycling (10)	❍	❍	❍	❍	❍	❍

Q11 Considering animal welfare in food and beverages production and supply, how important are the following factors?

	Very important (5)	Important (4)	Neutral (3)	Unimportant (2)	Not at all important (1)	Don't know (0)
Good quality of life (1)	❍	❍	❍	❍	❍	❍
Good shelter and living conditions (2)	❍	❍	❍	❍	❍	❍
GM-free feed (3)	❍	❍	❍	❍	❍	❍
Animals are well-fed (4)	❍	❍	❍	❍	❍	❍
Humane slaughter (5)	❍	❍	❍	❍	❍	❍
No cruelty (6)	❍	❍	❍	❍	❍	❍
Natural conditions (7)	❍	❍	❍	❍	❍	❍
Free of disease (8)	❍	❍	❍	❍	❍	❍
Welfare veterinary plan (9)	❍	❍	❍	❍	❍	❍
Free range (10)	❍	❍	❍	❍	❍	❍
Mainly grass fed (11)	❍	❍	❍	❍	❍	❍
Sustainably sourced inputs, especially feed (12)	❍	❍	❍	❍	❍	❍

Q12 Considering human health enhancing foods, how important are the following factors?

	Very important (5)	Important (4)	Neutral (3)	Unimportant (2)	Not at all important (1)	Don't know (0)
Energy and endurance (1)	❍	❍	❍	❍	❍	❍
Weight management (2)	❍	❍	❍	❍	❍	❍
Digestive health (3)	❍	❍	❍	❍	❍	❍
Heart and cholesterol health (4)	❍	❍	❍	❍	❍	❍
Blood nutrients (5)	❍	❍	❍	❍	❍	❍
Mobility (6)	❍	❍	❍	❍	❍	❍
Immune system (7)	❍	❍	❍	❍	❍	❍
Skin health (8)	❍	❍	❍	❍	❍	❍
Child health (9)	❍	❍	❍	❍	❍	❍
Baby health (10)	❍	❍	❍	❍	❍	❍
Bone health (11)	❍	❍	❍	❍	❍	❍
Memory/ Brain health (12)	❍	❍	❍	❍	❍	❍

Q13 Considering social responsibility in food and beverages production and supply, how important are the following factors?

	Very important (5)	Important (4)	Neutral (3)	Unimportant (2)	Not at all important (1)	Don't know (0)
Fair wages (1)	❍	❍	❍	❍	❍	❍
Fair prices to producers (2)	❍	❍	❍	❍	❍	❍
Good working conditions (3)	❍	❍	❍	❍	❍	❍
Freedom to join a trade union or other associations (4)	❍	❍	❍	❍	❍	❍
Investment of profits in community facilities (5)	❍	❍	❍	❍	❍	❍
Fair Trade (6)	❍	❍	❍	❍	❍	❍
Paid annual leave (7)	❍	❍	❍	❍	❍	❍
Freedom from discrimination (8)	❍	❍	❍	❍	❍	❍
Workplace safety (9)	❍	❍	❍	❍	❍	❍
No child labour (10)	❍	❍	❍	❍	❍	❍
Local food (11)	❍	❍	❍	❍	❍	❍

Q14 To what extent would you associate the importance of the following factors with Māori food and beverage products?

	Very important (5)	Important (4)	Neutral (3)	Unimportant (2)	Not at all important (1)	Don't know (0)
Equity and fairness (1)	❍	❍	❍	❍	❍	❍
Connection with natural environment (2)	❍	❍	❍	❍	❍	❍
Indigenous rights (3)	❍	❍	❍	❍	❍	❍
Traditional wisdom and knowledge (4)	❍	❍	❍	❍	❍	❍
Traditional production processes (5)	❍	❍	❍	❍	❍	❍
Care for future generations (6)	❍	❍	❍	❍	❍	❍
Traditional healing and medicine (7)	❍	❍	❍	❍	❍	❍
Traditional harvesting (8)	❍	❍	❍	❍	❍	❍
Authenticity (9)	❍	❍	❍	❍	❍	❍

Q73 What is your perception of the current levels of the following attributes for food and beverage production and supply in New Zealand? Please indicate the level by selecting the relevant circles.

	Very high (5)	High (4)	Neutral (3)	Low (2)	Very low (1)	Don't know (0)
Quality (1)	❍	❍	❍	❍	❍	❍
Price (2)	❍	❍	❍	❍	❍	❍
Animal welfare (3)	❍	❍	❍	❍	❍	❍
Environmental protection (4)	❍	❍	❍	❍	❍	❍
Health enhancing benefits (5)	❍	❍	❍	❍	❍	❍
Food safety (6)	❍	❍	❍	❍	❍	❍
Social responsibility (7)	❍	❍	❍	❍	❍	❍
Nutritional value (8)	❍	❍	❍	❍	❍	❍

Q17 Which of the following products do you usually purchase? Please select all that apply.

	Which products do you usually purchase?	
	Yes (1)	No (0)
Cheese (1)	❍	❍
Butter (2)	❍	❍
Milk powder (3)	❍	❍
Infant formula (4)	❍	❍
Liquid milk (dairy) (5)	❍	❍
Other dairy (6)	❍	❍
Eggs (7)	❍	❍
Beef (8)	❍	❍
Lamb (9)	❍	❍
Pork (10)	❍	❍
Chicken (11)	❍	❍
Other meat (12)	❍	❍
Confectionery (13)	❍	❍
Kiwifruit (14)	❍	❍
Apples (15)	❍	❍
Other fruit (16)	❍	❍
Vegetables (17)	❍	❍
Honey (18)	❍	❍
Fish/ Seafood (19)	❍	❍
Wine (20)	❍	❍
Beer (21)	❍	❍

Q18 What are your dietary requirements, if any? Please select as many as applies

- ❑ No specific requirements (1)
- ❑ Vegetarian (2)
- ❑ Vegan (3)
- ❑ Gluten-free (4)
- ❑ Dairy-free (5)
- ❑ Nut-free (6)
- ❑ Halal food (7)
- ❑ Other, please specify (8) _____

Choice Experiment component

Set 1 of 7

Each **column** describes a New Zealand **dairy product** where ✓ shows verification of an improvement. Which of the following products would you prefer? Select your choice **(Selection)** as you would be shopping, keeping in mind your normal grocery budget, and then click on >> below to continue to the next question.

	Dairy Product A	Dairy Product B	Conventional Dairy Product C
Food safety	-	✓ improvements in Food Safety	-
Animal welfare	-	✓ improvements in Animal Welfare	-
Health enhancing benefits	-	✓ added Health Benefits	-
Environmental impact	✓ reductions in Environmental Impact	-	-
Social responsibility	✓ improvements in Social Responsibility	-	-
Product information (QR-code)		-	-
Change in Price	+150%	+100%	0%
Selection	○	○	○

More Info

>>

Set 1 of 7

Each **column** describes a New Zealand **butter product** where ✓ shows verification of an improvement. Which of the following products would you prefer? Select your choice **(Selection)** as you would be shopping, keeping in mind your normal grocery budget, and then click on >> below to continue to the next question.

	 **Butter B**	 **Conventional Butter C**	 **Butter A**
Food safety	✓ improvements in Food Safety	-	-
Animal welfare	✓ improvements in Animal Welfare	-	-
Health enhancing benefits	-	-	✓ added Health Benefits
Environmental impact	-	-	✓ reductions in Environmental Impact
Social responsibility	✓ improvements in Social Responsibility	-	-
Product information (QR-code)		-	-
Change in Price	$12.00/500g	$4.00/500g	$8.00/500g
Selection	○	○	○

More Info

>>

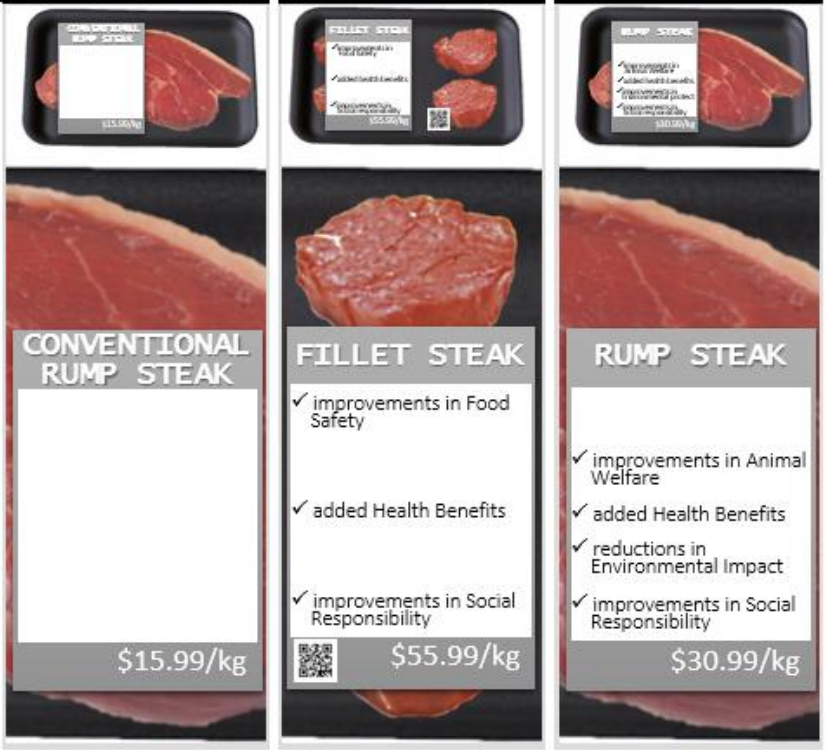
Set 1 of 7

Each **column** describes a New Zealand **meat product** where ✓ shows verification of an improvement. Which of the following products would you prefer? Select your choice **(Selection)** as you would be shopping, keeping in mind your normal grocery budget, and then click on >> below to continue to the next question.

	Conventional Meat C	Meat Product B	Meat Product A	More Info
Food safety	-	✓ improvements in Food Safety	-	
Animal welfare	-	✓ improvements in Animal Welfare	-	
Health enhancing benefits	-	-	✓ added Health Benefits	
Environmental impact	-	✓ reductions in Environmental Impact	-	
Social responsibility	-	-	✓ improvements in Social Responsibility	
Product information (QR-code)	-	-		
Change in Price	0%	+25%	+75%	
Selection	○	○	○	>>

Set 1 of 7

Each **column** describes a New Zealand **beef steak product** where ✓ shows verification of an improvement. Which of the following products would you prefer? Select your choice **(Selection)** as you would be shopping, keeping in mind your normal grocery budget, and then click on >> below to continue to the next question.

	Conventional Beef Steak C	Beef Steak A	Beef Steak B	More Info
Product			
Selection	○	○	○	>>

Q69 In the previous choice sets which, if any, of the product attributes did you ignore when making your choice? Select as many as applicable.

- ❑ Food safety (1)
- ❑ Animal welfare (2)
- ❑ Health enhancing benefits (3)
- ❑ Environmental impact (4)
- ❑ Social responsibility (5)
- ❑ Product information (QR code) (6)
- ❑ Price (7)
- ❑ Did not ignore any attributes (0)

Q70 In the previous choice sets, did you understand the choice task that was presented to you?

- ❍ Not understandable at all0 (0)
- ❍ 1 (1)
- ❍ 2 (2)
- ❍ 3 (3)
- ❍ 4 (4)
- ❍ 5 (5)
- ❍ 6 (6)
- ❍ 7 (7)
- ❍ 8 (8)
- ❍ 9 (9)
- ❍ Easily understood10 (10)

Q71 In the previous choice sets, did you find the choices difficult to make?

- ❍ Very difficult0 (0)
- ❍ 1 (1)
- ❍ 2 (2)
- ❍ 3 (3)
- ❍ 4 (4)
- ❍ 5 (5)
- ❍ 6 (6)
- ❍ 7 (7)
- ❍ 8 (8)
- ❍ 9 (9)
- ❍ Very easy 10 (10)

Q72 In the previous choice sets, were you certain of the choices you made?

- ❍ Not certain at all0 (0)
- ❍ 1 (1)
- ❍ 2 (2)
- ❍ 3 (3)
- ❍ 4 (4)
- ❍ 5 (5)
- ❍ 6 (6)
- ❍ 7 (7)
- ❍ 8 (8)
- ❍ 9 (9)
- ❍ Very certain10 (10)

Q73 If you chose “Conventional" option in most or all choice sets, please indicate the main reason for doing so (tick one only)

- ❍ I can’t afford to pay more for my grocery shopping (1)
- ❍ I don’t want to pay more for any of these claims (2)
- ❍ I don’t trust these product claims (3)
- ❍ Not enough information was provided (4)
- ❍ I don’t think the other alternatives were realistic (5)
- ❍ I would not buy any of the given alternatives (6)
- ❍ Other reason, please specify (7) _____
- ❍ [ADDED AFTER SURVEY: ‘Did not choose Conventional’ (0)

Q20 How much of your monthly budget for food and beverages is used at the following types of retailers? Select all that apply and move the bar on each of those categories so that the total budget equals 100 per cent. If some category does not apply to your food and beverage budget, please place the marker as zero.

_____ Supermarket (1)
_____ Specialty stores (e.g. bakery, butchers, greengrocers, health stores) (2)
_____ Dairy, convenience stores (3)
_____ Farmers' market (4)
_____ Take-away food (including deliveries) (5)
_____ Other food delivery services (e.g. My Food Bag, Food Box) (6)
_____ Ethnic food stores (7)
_____ Restaurants (8)
_____ Other (9)

Q21 How often do you buy food and beverage products from the following retailer types? Select the one that describes your situation best.

	Never (1)	Less than once a month (2)	Monthly (3)	Fortnightly (4)	Weekly (5)	2-3 times a week (6)	Daily (7)	Don't know (0)
Supermarket (11)	❍	❍	❍	❍	❍	❍	❍	❍
Specialty stores (e.g. bakery, butchers, greengrocers, health stores) (12)	❍	❍	❍	❍	❍	❍	❍	❍
Dairy, convenience stores (13)	❍	❍	❍	❍	❍	❍	❍	❍
Farmers' market (14)	❍	❍	❍	❍	❍	❍	❍	❍
Take-away food (including deliveries) (15)	❍	❍	❍	❍	❍	❍	❍	❍
Other food delivery services (e.g. My Food Bag, Food Box) (16)	❍	❍	❍	❍	❍	❍	❍	❍
Ethnic food stores (17)	❍	❍	❍	❍	❍	❍	❍	❍
Restaurants (18)	❍	❍	❍	❍	❍	❍	❍	❍
Other (19)	❍	❍	❍	❍	❍	❍	❍	❍

Q22 Have you heard of “Food Box” programme, centralised local fresh food delivery service?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Don't know (3)

Answer If How often do you buy food and beverage products from the following retailer types? Select the on... Supermarket Is Greater Than 3

Q23 Considering the reasons why you purchase food and beverage products from Supermarkets, please indicate to what extent you agree or disagree with each reason:

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)	Don't know (0)
Close to home or "location" (1)	❍	❍	❍	❍	❍	❍
Competitive prices (2)	❍	❍	❍	❍	❍	❍
Good opening hours (3)	❍	❍	❍	❍	❍	❍
Loyalty programs (4)	❍	❍	❍	❍	❍	❍
Good range and availability of products (5)	❍	❍	❍	❍	❍	❍
High quality of products (6)	❍	❍	❍	❍	❍	❍
Good customer service and knowledge of the products (7)	❍	❍	❍	❍	❍	❍
Cleanliness of the shop (8)	❍	❍	❍	❍	❍	❍
The experience and/or meeting the retailer (9)	❍	❍	❍	❍	❍	❍
Good car parking (10)	❍	❍	❍	❍	❍	❍
Online shopping option available (11)	❍	❍	❍	❍	❍	❍
Other reason: please specify (12)	❍	❍	❍	❍	❍	❍

Answer If How often do you buy food and beverage products from the following retailer types? Select the on... Specialty stores (e.g. bakery, butchers, greengrocers, health stores) Is Greater Than 3

Q24 Considering the reasons why you purchase food and beverage products from Specialty stores (e.g. butchers, bakery, greengrocers, health stores), please indicate to what extent you agree or disagree with each reason:

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)	Don't know (0)
Close to home or "location" (1)	❍	❍	❍	❍	❍	❍
Competitive prices (2)	❍	❍	❍	❍	❍	❍
Good opening hours (3)	❍	❍	❍	❍	❍	❍
Loyalty programs (4)	❍	❍	❍	❍	❍	❍
Good range and availability of products (5)	❍	❍	❍	❍	❍	❍
High quality of products (6)	❍	❍	❍	❍	❍	❍
Good customer service and knowledge of the products (7)	❍	❍	❍	❍	❍	❍
Cleanliness of the shop (8)	❍	❍	❍	❍	❍	❍
The experience and/or meeting the retailer (9)	❍	❍	❍	❍	❍	❍
Good car parking (10)	❍	❍	❍	❍	❍	❍
Online shopping option available (11)	❍	❍	❍	❍	❍	❍
Other reason: please specify (12)	❍	❍	❍	❍	❍	❍

Answer If How often do you buy food and beverage products from the following retailer types? Select the on... Farmers' market Is Greater Than 3

Q25 Considering the reasons why you purchase food and beverage products from Farmers' Markets, please indicate to what extent you agree or disagree with each reason:

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)	Don't know (0)
Close to home or "location" (1)	❍	❍	❍	❍	❍	❍
Competitive prices (2)	❍	❍	❍	❍	❍	❍
Good opening hours (3)	❍	❍	❍	❍	❍	❍
Loyalty programs (4)	❍	❍	❍	❍	❍	❍
Good range and availability of products (5)	❍	❍	❍	❍	❍	❍
High quality of products (6)	❍	❍	❍	❍	❍	❍
Good customer service and knowledge of the products (7)	❍	❍	❍	❍	❍	❍
Cleanliness of the shop (8)	❍	❍	❍	❍	❍	❍
The experience and/or meeting the retailer (9)	❍	❍	❍	❍	❍	❍
Good car parking (10)	❍	❍	❍	❍	❍	❍
Online shopping option available (11)	❍	❍	❍	❍	❍	❍
Other reason: please specify (12)	❍	❍	❍	❍	❍	❍

Answer If How often do you buy food and beverage products from the following retailer types? Select the on... Other food delivery services (e.g. My Food Bag, Food Box) Is Greater Than 3

Q26 Considering the reasons why you purchase food and beverage products from Food delivery services excluding take-away (e.g. My Food Bag, Food Box programme), please indicate to what extent you agree or disagree with each reason:

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)	Don't know (0)
Close to home or "location" (1)	❍	❍	❍	❍	❍	❍
Competitive prices (2)	❍	❍	❍	❍	❍	❍
Good opening hours (3)	❍	❍	❍	❍	❍	❍
Loyalty programs (4)	❍	❍	❍	❍	❍	❍
Good range and availability of products (5)	❍	❍	❍	❍	❍	❍
High quality of products (6)	❍	❍	❍	❍	❍	❍
Good customer service and knowledge of the products (7)	❍	❍	❍	❍	❍	❍
Cleanliness of the shop (8)	❍	❍	❍	❍	❍	❍
The experience and/or meeting the retailer (9)	❍	❍	❍	❍	❍	❍
Good car parking (10)	❍	❍	❍	❍	❍	❍
Online shopping option available (11)	❍	❍	❍	❍	❍	❍
Other reason: please specify (12)	❍	❍	❍	❍	❍	❍

Answer If How often do you buy food and beverage products from the following retailer types? Select the on... Supermarket - Never Is Selected Or How often do you buy food and beverage products from the following retailer types? Select the on... Supermarket - Less than once a month Is Selected

Q28 Considering the reasons why you do NOT often purchase food and beverage products from Supermarkets, please indicate to what extent you agree or disagree with each reason:

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)	Don't know (0)
Not close to home or "location" (1)	❍	❍	❍	❍	❍	❍
I prefer other types of retailer (2)	❍	❍	❍	❍	❍	❍
High prices (3)	❍	❍	❍	❍	❍	❍
Opening hours are not convenient (4)	❍	❍	❍	❍	❍	❍
Range and availability of products is not satisfactory (5)	❍	❍	❍	❍	❍	❍
Quality of products is not satisfactory (6)	❍	❍	❍	❍	❍	❍
Customer service or knowledge of products are not satisfactory (7)	❍	❍	❍	❍	❍	❍
Unclean (8)	❍	❍	❍	❍	❍	❍
Lack of car parking (9)	❍	❍	❍	❍	❍	❍
Lack of online shopping option (10)	❍	❍	❍	❍	❍	❍
Other reason: please specify (11)	❍	❍	❍	❍	❍	❍

Answer If How often do you buy food and beverage products from the following retailer types? Select the on... Supermarket - Never Is Selected

Q30 Under what circumstances would you consider purchasing food and beverage products from Supermarkets, please indicate to what extent you agree or disagree with each reason:

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)	Don't know (0)
If the location was more convenient (1)	❍	❍	❍	❍	❍	❍
If there was better car parking (2)	❍	❍	❍	❍	❍	❍
If the prices were lower (3)	❍	❍	❍	❍	❍	❍
If the opening hours were more flexible (4)	❍	❍	❍	❍	❍	❍
If there was a better product range and availability (5)	❍	❍	❍	❍	❍	❍
If the quality of products improved (6)	❍	❍	❍	❍	❍	❍
If the customer service or knowledge of products improved (7)	❍	❍	❍	❍	❍	❍
If more information about the retailer was provided (8)	❍	❍	❍	❍	❍	❍
If there was an online shopping option (9)	❍	❍	❍	❍	❍	❍
Other reason: please specify (10)	❍	❍	❍	❍	❍	❍

Answer If How often do you buy food and beverage products from the following retailer types? Select the on... Specialty stores (e.g. bakery, butchers, greengrocers, health stores) - Never Is Selected And

How often do you buy food and beverage products from the following retailer types? Select the on... Specialty stores (e.g. bakery, butchers, greengrocers, health stores) - Less than once a month Is Selected

Q29 Considering the reasons why you do NOT often purchase food and beverage products from Specialty stores (e.g. butchers, bakery, greengrocers, health stores), please indicate to what extent you agree or disagree with each reason:

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)	Don't know (0)
Not close to home or "location" (1)	❍	❍	❍	❍	❍	❍
I prefer other types of retailer (2)	❍	❍	❍	❍	❍	❍
High prices (3)	❍	❍	❍	❍	❍	❍
Opening hours are not convenient (4)	❍	❍	❍	❍	❍	❍
Range and availability of products is not satisfactory (5)	❍	❍	❍	❍	❍	❍
Quality of products is not satisfactory (6)	❍	❍	❍	❍	❍	❍
Customer service or knowledge of products are not satisfactory (7)	❍	❍	❍	❍	❍	❍
Unclean (8)	❍	❍	❍	❍	❍	❍
Lack of car parking (9)	❍	❍	❍	❍	❍	❍
Lack of online shopping option (10)	❍	❍	❍	❍	❍	❍
Other reason: please specify (11)	❍	❍	❍	❍	❍	❍

Answer If How often do you buy food and beverage products from the following retailer types? Select the on... Specialty stores (e.g. bakery, butchers, greengrocers, health stores) - Never Is Selected

Q33 Under what circumstances would you consider purchasing food and beverage products from Specialty stores (e.g. butchers, bakery, greengrocers, health stores), please indicate to what extent you agree or disagree with each reason:

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)	Don't know (0)
If the location was more convenient (1)	❍	❍	❍	❍	❍	❍
If there was better car parking (2)	❍	❍	❍	❍	❍	❍
If the prices were lower (3)	❍	❍	❍	❍	❍	❍
If the opening hours were more flexible (4)	❍	❍	❍	❍	❍	❍
If there was a better product range and availability (5)	❍	❍	❍	❍	❍	❍
If the quality of products improved (6)	❍	❍	❍	❍	❍	❍
If the customer service or knowledge of products improved (7)	❍	❍	❍	❍	❍	❍
If more information about the retailer was provided (8)	❍	❍	❍	❍	❍	❍
If there was an online shopping option (9)	❍	❍	❍	❍	❍	❍
Other reason: please specify (10)	❍	❍	❍	❍	❍	❍

Answer If How often do you buy food and beverage products from the following retailer types? Select the on... Farmers' market - Never Is Selected Or How often do you buy food and beverage products from the following retailer types? Select the on... Farmers' market - Less than once a month Is Selected

Q34 Considering the reasons why you do NOT often purchase food and beverage products from Farmers' Markets, please indicate to what extent you agree or disagree with each reason:

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)	Don't know (0)
Not close to home or "location" (1)	❍	❍	❍	❍	❍	❍
I prefer other types of retailer (2)	❍	❍	❍	❍	❍	❍
High prices (3)	❍	❍	❍	❍	❍	❍
Opening hours are not convenient (4)	❍	❍	❍	❍	❍	❍
Range and availability of products is not satisfactory (5)	❍	❍	❍	❍	❍	❍
Quality of products is not satisfactory (6)	❍	❍	❍	❍	❍	❍
Customer service or knowledge of products are not satisfactory (7)	❍	❍	❍	❍	❍	❍
Unclean (8)	❍	❍	❍	❍	❍	❍
Lack of car parking (9)	❍	❍	❍	❍	❍	❍
Lack of online shopping option (10)	❍	❍	❍	❍	❍	❍
Other reason: please specify (11)	❍	❍	❍	❍	❍	❍

Answer If How often do you buy food and beverage products from the following retailer types? Select the on... Farmers' market - Never Is Selected

Q35 Under what circumstances would you consider purchasing food and beverage products from Farmers' Markets, please indicate to what extent you agree or disagree with each reason:

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)	Don't know (0)
If the location was more convenient (1)	❍	❍	❍	❍	❍	❍
If there was better car parking (2)	❍	❍	❍	❍	❍	❍
If the prices were lower (3)	❍	❍	❍	❍	❍	❍
If the opening hours were more flexible (4)	❍	❍	❍	❍	❍	❍
If there was a better product range and availability (5)	❍	❍	❍	❍	❍	❍
If the quality of products improved (6)	❍	❍	❍	❍	❍	❍
If the customer service or knowledge of products improved (7)	❍	❍	❍	❍	❍	❍
If more information about the retailer was provided (8)	❍	❍	❍	❍	❍	❍
If there was an online shopping option (9)	❍	❍	❍	❍	❍	❍
Other reason: please specify (10)	❍	❍	❍	❍	❍	❍

Answer If How often do you buy food and beverage products from the following retailer types? Select the on... Other food delivery services (e.g. My Food Bag, Food Box) - Never Is Selected Or How often do you buy food and beverage products from the following retailer types? Select the on... Other food delivery services (e.g. My Food Bag, Food Box) - Less than once a month Is Selected

Q31 Considering the reasons why you do NOT often purchase food and beverage products from Food delivery services excluding take-away (e.g. My Food Bag, Food Box), please indicate to what extent you agree or disagree with each reason:

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)	Don't know (0)
Not close to home or "location" (1)	❍	❍	❍	❍	❍	❍
I prefer other types of retailer (2)	❍	❍	❍	❍	❍	❍
High prices (3)	❍	❍	❍	❍	❍	❍
Opening hours are not convenient (4)	❍	❍	❍	❍	❍	❍
Range and availability of products is not satisfactory (5)	❍	❍	❍	❍	❍	❍
Quality of products is not satisfactory (6)	❍	❍	❍	❍	❍	❍
Customer service or knowledge of products are not satisfactory (7)	❍	❍	❍	❍	❍	❍
Unclean (8)	❍	❍	❍	❍	❍	❍
Lack of car parking (9)	❍	❍	❍	❍	❍	❍
Lack of online shopping option (10)	❍	❍	❍	❍	❍	❍
Other reason: please specify (11)	❍	❍	❍	❍	❍	❍

Answer If How often do you buy food and beverage products from the following retailer types? Select the on... Other food delivery services (e.g. My Food Bag, Food Box) - Never Is Selected

Q36 Under what circumstances would you consider purchasing food and beverage products from Food delivery services excluding take-away (e.g. My Food Bag, Food Box), please indicate to what extent you agree or disagree with each reason:

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly disagree (1)	Don't know (0)
If the location was more convenient (1)	❍	❍	❍	❍	❍	❍
If there was better car parking (2)	❍	❍	❍	❍	❍	❍
If the prices were lower (3)	❍	❍	❍	❍	❍	❍
If the opening hours were more flexible (4)	❍	❍	❍	❍	❍	❍
If there was a better product range and availability (5)	❍	❍	❍	❍	❍	❍
If the quality of products improved (6)	❍	❍	❍	❍	❍	❍
If the customer service or knowledge of products improved (7)	❍	❍	❍	❍	❍	❍
If more information about the retailer was provided (8)	❍	❍	❍	❍	❍	❍
If there was an online shopping option (9)	❍	❍	❍	❍	❍	❍
Other reason: please specify (10)	❍	❍	❍	❍	❍	❍

Q38 The next set of questions are about the use of digital media and smart technology for food and beverage shopping and information.

Q39 Do you use any of the following to search for information on food and beverages online?

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	All the time (5)	Don't know (0)
Social Media (1)	❍	❍	❍	❍	❍	❍
Food company web pages (2)	❍	❍	❍	❍	❍	❍
Food blogs (3)	❍	❍	❍	❍	❍	❍
Wikipedia (4)	❍	❍	❍	❍	❍	❍
Forums (5)	❍	❍	❍	❍	❍	❍
Google and/or other search engines (6)	❍	❍	❍	❍	❍	❍
Apps (7)	❍	❍	❍	❍	❍	❍
Other, please specify (8)	❍	❍	❍	❍	❍	❍

Q40 What percentage of your shopping is done online? Drag the bars across to indicate the percentage relevant to you.

_____ Food and beverage shopping (1)
_____ Other shopping (2)

Answer If What percentage of your shopping is done online? Drag the bars across to indicate the percentage relevant to you. Food and beverage shopping Is Greater Than or Equal to 5

Q41 What is the main reason for shopping for food and beverages online?

- ❍ Prices are generally lower online. (1)
- ❍ Comparisons of food and beverages are easier to make online. (2)
- ❍ The variety of food and beverages is greater online. (3)
- ❍ The quality of food and beverages is better online. (4)
- ❍ I like the convenience of having products delivered to my house. (5)
- ❍ I like being able to order food and beverages from overseas that are not available in New Zealand. (6)
- ❍ Other, please specify (7) _____

Answer If What is the main reason for shopping for food and beverages online? Prices are generally lower online. Is Not Displayed

Q42 What is the main reason for not shopping more often for food and beverages online?

- ❍ Prices are generally not lower online. (1)
- ❍ Comparisons of food and beverages are hard to make online. (2)
- ❍ The variety of food and beverages is limited online. (3)
- ❍ The quality of food and beverages is not satisfactory online. (4)
- ❍ I prefer not to buy food and beverage products online. (5)
- ❍ It is hard to find overseas food and beverage products online. (6)
- ❍ I am not familiar with the required technology. (7)
- ❍ Delivery is too expensive. (8)
- ❍ Other, please specify (9) _____

Q43 Have you ever used a mobile app to find out more about a food and/or beverage product?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Don't know (0)

Q44 Do you use your mobile device to purchase food and beverages?

- ❍ Never (1)
- ❍ Rarely (2)
- ❍ Sometimes (3)
- ❍ Often (4)
- ❍ All of the time (5)

Q45 Have you ever used your mobile device in conjunction with barcodes and/or QR codes for finding information about food and beverages? An example of a QR code:

- ❍ Yes (1)
- ❍ No (2)
- ❍ Don't know (0)

Q46 Have you ever used your mobile device in conjunction with barcodes and/or QR codes for purchasing food and beverages?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Don't know (0)

Q47 Have you ever used microchip reading technology? Examples of this technology include contactless smart card payment (e.g. MasterCard PayPass/Visa PayWave) or smartphone payment (e.g. Google Wallet). PayWave technology: Photo by Alpha / CC BY-NC

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	All the time (5)	Don't know (0)
Smart card (1)	❍	❍	❍	❍	❍	❍
Smartphone (2)	❍	❍	❍	❍	❍	❍
Other, please specify (3)	❍	❍	❍	❍	❍	❍

Q48 Do you currently verify a food and beverage product's credentials with any of the following:

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	All the time (5)
Barcode (1)	❍	❍	❍	❍	❍
QR code (2)	❍	❍	❍	❍	❍
Microchip reading technology (3)	❍	❍	❍	❍	❍
Other, please specify (4)	❍	❍	❍	❍	❍

Q49 If available, would you verify a food and beverage product's credentials with any of the following:

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	All the time (5)
Barcode (1)	❍	❍	❍	❍	❍
QR code (2)	❍	❍	❍	❍	❍
Microchip reading technology (3)	❍	❍	❍	❍	❍
Other, please specify (4)	❍	❍	❍	❍	❍

Q50 Demographics

The following questions will help us to compare our survey with the general population. Please remember that this is an anonymous survey, and that you cannot be identified from any information you provide.

Q51 Gender

- ❍ Male (1)
- ❍ Female (2)

Q52 Age

- ❍ 18-29 (1)
- ❍ 30-44 (2)
- ❍ 45-59 (3)
- ❍ 60-74 (4)
- ❍ 75+ (5)

Q53 Ethnicity, select as many as applies

- ❑ New Zealand European / European (1)
- ❑ Māori (2)
- ❑ Pacific Islander (3)
- ❑ Asian (4)
- ❑ Middle Eastern/Latin American/African (5)
- ❑ Other ethnicity (Please specify) (6) _____

Q54 Which type of area do you live in? Please select the one that best describes your situation.

- ❍ Urban (1)
- ❍ Suburban (2)
- ❍ Rural (3)

Q55 Please indicate which of the following best describes your household make-up:

- ❍ Single, no children (1)
- ❍ Single with children (2)
- ❍ Couple, no children (3)
- ❍ Couple with children (4)
- ❍ Live with unrelated people (e.g. flatting) (5)
- ❍ Other (Please specify) (6) _____

Answer If Please indicate which of the following best describes your household make-up: Single with children Is Selected Or Please indicate which of the following best describes your household make-up: Couple with children Is Selected

Q56 Please indicate how many of your children fall into the following age groups. Please select from the drop-down box.

	0 (0)	1 (1)	2 (2)	3+ (3)
0-4 years old (1)	❍	❍	❍	❍
5-12 years old (2)	❍	❍	❍	❍
13-17 years old (3)	❍	❍	❍	❍
18+ years old (4)	❍	❍	❍	❍

Q57 What is your highest level of education?

- ❍ Up to High School (1)
- ❍ High School qualification (e.g. Level 1, 2 or 3 certificate) (2)
- ❍ Tertiary qualification other than Degree (e.g. Level 4, 5 or 6 diploma) (3)
- ❍ Bachelor degree and/or Level 7 qualification (4)
- ❍ Post-graduate degree/diploma/certificate (e.g. Honours, Masters, Doctorate) (5)
- ❍ Other (Please specify) (6) _____

Appendix 2. Sample Demographics

Table A1-1. Summary demographics of survey participants, in per cent

		Sample	Census
Gender (b)	Female	55 per cent	51 per cent
	Male	45 per cent	49 per cent
Age (b)	18-29	15 per cent	7 per cent *(d)*
	30-44	25 per cent	20 per cent
	45-59	27 per cent	20 per cent
	60-74	25 per cent	14 per cent
	75 or older	8 per cent	6 per cent
Household Make-up	With children	36 per cent	N/A (g)
	No children	57 per cent	N/A (g)
	Other	8 per cent	N/A (g)
Education (b)	Up to High School	11 per cent	21 per cent
	High School qualification	24 per cent	33 per cent
	Tertiary qualification other than Degree	30 per cent	19 per cent
	Bachelor degree or similar	20 per cent	14 per cent
	Post-graduate degree/diploma/ certificate	15 per cent	6 per cent
	Other	0 per cent	7 per cent
Region (a)(f)	Northland	4 per cent	4 per cent
	Auckland	33 per cent	33 per cent
	Waikato	10 per cent	10 per cent
	Bay of Plenty	6 per cent	6 per cent
	Gisborne	1 per cent	1 per cent
	Hawke's Bay	4 per cent	4 per cent
	Taranaki	3 per cent	3 per cent
	Manawatu-Wanganui	5 per cent	5 per cent
	Wellington	11 per cent	11 per cent
	Tasman	1 per cent	1 per cent
	Nelson	1 per cent	1 per cent
	Marlborough	1 per cent	1 per cent
	West Coast	1 per cent	1 per cent
	Canterbury	13 per cent	13 per cent
	Otago	5 per cent	5 per cent
	Southland	2 per cent	2 per cent
Ethnicity (a) (e)	NZ European	90 per cent	
	Māori	5 per cent	15 per cent
	Pacific Islander	2 per cent	7 per cent
	Asian	8 per cent	12 per cent
	Middle Eastern/Latin American/African	1 per cent	1 per cent
	Other	4 per cent	3 per cent
Type Of Area	Urban	35 per cent	N/A (g)
	Suburban	47 per cent	N/A (g)
	Rural	18 per cent	N/A (g)
Income (household,	less than $10,000	2 per cent	3 per cent
	$10,001-$30,000	19 per cent	19 per cent

before taxes, past 12 months) (c)	$30,001 - $50,000	20 per cent	18 per cent
	$50,001 - $70,000	16 per cent	15 per cent
	$70,001 - $100,000	19 per cent	18 per cent
	$100,001 or more	25 per cent	28 per cent

Sources: (a) Statistics New Zealand (2013a); Statistics New Zealand. (2013b); (c) Statistics New Zealand (2013c)
Notes: (d) This category is for 20-24 years; (e) Census 2013 do not add to 100 per cent; (f) Regions show the same numbers in the survey and census as these were used in sampling; (g) N/A means non-applicable or no source found.

Appendix 3. Focus Group Sessions Summary

Focus Group 1

Focus Group 1 was conducted in order to acquire information on the perceptions and preferences of New Zealand consumers with respect to the attributes of food and beverage products that influence their purchasing behaviour, as well as the use of the digital media and smart technology in relation to food shopping. This group included ten participants (4 male and 6 female) who were diverse in terms of age, occupation and household make-up.

All participants usually purchased food and beverage products at the supermarket while some participants also purchased these products at speciality stores, dairies (local convenience stores), petrol stations, and farmers' markets. Only one respondent reported they often purchased food and beverage products online, while a few others did so sometimes or rarely. Half of the group members had used mobile devices for obtaining information about products and/or purchasing them online or in-store.

Participants were asked which attributes they considered important in their food and beverage choices, focusing on meat, dairy, fruit & vegetable and wine products. For all product categories, price and quality were the most frequently mentioned attributes by most group members. For meat products specifically, it was noted that there is quite a wide price range, ranging from cheaper cuts to premium products. For dairy products, the price of milk mattered in purchases because there was considered to be little difference in other product attributes. In contrast, when selecting specialty cheeses, participants indicated that they were willing to pay more in order to get a higher quality product. In fruit & vegetables, freshness was mentioned as a proxy for quality. Although price did not dictate wine product selections made by the participants, most selected the best value for money within some price range.

Other attributes that were mentioned less commonly included organic, animal welfare and free-range products (e.g. eggs), organic, nutrition or health related attributes (e.g. reduced fat content, added calcium and additives such as the sugar content of dairy products) (although generally people considered that a balanced diet meets nutrition requirements without the need for additives); strong support for local/New Zealand products; and brand in wine product choices.

Other factors mentioned in food choices were time considerations; wide product ranges; higher awareness of where food is produced and what it contains; a preference for buying meat products from a butcher rather than a supermarket; as well as the seasonality and availability in fruit and vegetable products.

The un-prompted discussion was followed by questions regarding the importance of selected credence attributes (based on the MER research programme).

- *Health-enhancing properties*: Group members did not appear to seek out "functional foods" or particular health-enhancing properties; a balanced diet may matter more than health-enhanced foods, which received some general agreement from participants. For example, additives in products were considered not to provide benefits unless the consumer has specific health needs. Another participant would rather avoid unsuitable food than seeking health-enhancing alternatives.
- *Food safety*: Little consideration was given to food safety when purchasing food and beverage products, although associations of recent health scares with imported frozen berries and

contaminated dairy products have made people a little more aware of food safety issues. In general, the aspects of concern included damaged packaging and evidence of a lack of hygiene.

- *Animal welfare/health*: While there was discussion of the recent issues in New Zealand dairy, concern for animal welfare influenced the purchasing behaviour of only one group member, whose decision to purchase organic meat where possible.
- *Environment*: The impact of production systems on the environment was not a key factor in the purchasing decisions of this group[9]. One group member actively avoided the purchase of products containing palm oil due to environmental concerns. One group member's decision to purchase organic products was motivated by a perception of lower environmental impact.
- *Social responsibility*: Some group members have made the decision to purchase products from local specialty food retailers, such as butchers, in part to support local business people and ensure their survival. The impacts of large-scale land clearing for agricultural production on indigenous peoples in developing countries was of concern to one group member, and was briefly discussed.
- *Country of origin*: Group members had a strong preference for purchasing New Zealand food and beverage products where possible, and were very supportive of country-of-origin labelling.

Information on attributes

The group was asked how they would like the information regarding the attributes of food and beverages to be presented, but no consensus was reached on this. For example, some participants mentioned that they purchase meat products from a butcher if they want to have more information about the products.

Participants commented that there should be more information provided on product packaging, but also that available space on labels is limited. For an alternative or complementary type, online information, barcodes and QR codes were all considered to be useful vehicles for conveying information by some and, for example, some participants have used a phone to compare prices while shopping.

There was some discussion regarding the best way to present information, with the general view being that information presented in graphic form conveys the strongest message. However, at least one participant mentioned that it is not always clear what some graphics (e.g. health tick) actually mean, but also that consumer knowledge is growing. The participants wanted to be able to trust the information (e.g. certified by a "trusted body").

Choice of retail outlets

Online purchases of food and beverage were seen as generally restricted to specialist products including wine or ethnic specialities. The main barriers for shopping online included the perception that New Zealanders like to see and examine the food they are buying (and other products at the same time) and a preference for visiting a retailer physically. A lack of buyer security was also considered to be a barrier to purchasing online, for example, from overseas retailers; one participant also mentioned being sceptical regarding online shopping and stated a lack of confidence in using the required equipment; and lastly, some commented they like to support local shops.

Group members recognised that online shopping will become more important to New Zealand consumers in the future, although free delivery may be required in order to encourage wider use initially. For example, one participant mentioned that they could use online shopping to order to purchase cultural

[9] Comment by the focus group facilitators: The lack of discussion about impacts on environmental quality by food/beverage production was surprising in the light of widespread concern in the environment generally, and water quality in particular.

items (i.e. from their home country outside of New Zealand). It was agreed that going to the supermarket is an important social interaction for some people, for whom the move to online shopping would increase social isolation. The group believed that the use of self-checkout systems in supermarkets has already reduced the number of jobs in that sector and that increasing online purchasing will have a negative impact on employment in New Zealand.

Farmers' markets were considered to be more a social experience (e.g. meeting friends, having a coffee and browsing specialty stores) than a main source of regular fruit and vegetable and other food shopping. Some group members considered shopping at local farmers' markets to be a way of supporting local producers, potentially find better quality products, and that it was possible to meet the producer directly. However, a downside was that farmers' markets could be considered inconvenient (e.g. compared to local vegetable shop), being open (mostly) only on the weekend and early in the morning.

A few comments were also made regarding other retailer types not mentioned above, including that larger supermarkets were seen as a convenient one-stop shop, with one participant stating that they sometimes buy products directly from growers.

The results from this focus group suggest that New Zealand consumers are interested in a wide range of issues relating to food production and sale, but confident that food in New Zealand is generally healthy, safe and produced using good agricultural practices. Consequently the key factors affecting food purchasing decisions are price, quality and country of origin.

Online shopping was not used extensively by members of this focus group, and overall, online shopping and related possibilities were seen still as a developing and limited system in New Zealand in comparison to overseas. However, it was recognised that the importance of online shopping, and the subsequent provision of information on food and beverage products, were becoming more important.

Focus Group 2

Focus Group 2 was subsequently held to test the selected survey questions including attitudinal questions, choice sets, alternative retailer types and reasons, and questions of smart tech use.

The focus group included nine participants (2 men and 7 women). The majority of the group members were part of households that comprised either one or two adults with school-aged children (high school or younger). Members of several households included individuals with a range of medical conditions (diabetes, intolerances and allergies) that affected food and beverage product choices. Overall, product quality, freshness and affordability were mentioned as the most important attributes.

Some observations of the attributes included that, with regards to animal welfare, participants were

- Not able to distinguish between animal health and animal welfare, or that they did not believe these to be different;

With regards to environmental condition, participants

- Did not interpret "environmental condition in food and beverages supply" as relating to the production of food and beverages, but rather to stages further along the supply chain. It was suggested that this should be changed to "production and supply" everywhere that it occurs.
- Considered that "Protecting endangered plants and animals" and "Protecting biodiversity", should be a single attribute; and there was some discussion but no consensus as to whether "Protecting wetlands" and "Protecting coastal and sea-life" should be a single attribute.

- Considered that, overall, there were too many options and too much differentiation in this question and that they considered that "environmentally sustainable" was as much detail as they required when purchasing food and beverage products.

Regarding social responsibility, participants

- Were unclear about the meaning of the term "social responsibility" until they observed the attribute list (i.e. factors).
- Considered this question to involve too many separate attributes, and "Fair Trade" was considered to encompass many of the other attributes.

Regarding traditional cultures, participants

- Were unsure of the meaning of "traditional cultures". Further attempts to understand the term led to discussions about whether this meant "something about the Treaty", or "multi-cultural – so ethnic foods": When buying "cultural food" only the ethnicity of the foods is considered i.e. "*you just go out and buy Indian or Thai or whatever*".
- Did not consider traditional culture as relevant to food and beverages except whether meat was "*halal slaughtered, or whether religious beliefs prohibited the consumption of specific products or combinations of products*";
- Did not consider this attribute as important or relevant to them. Although, one group member observed that if she knew that there were "iwi issues" in relation to salmon from the Marlborough Sounds she might not purchase these products, but others did not express any views on this.
- Did not consider that "family business", "care for future generations" and "traditional production processes" were cultural attributes.
- Engaged in a discussion about whether there is a need to know that ethnic foods are authentic.

Next, the group members were given a list of dietary conditions. As the group members were conscious of additional specific dietary requirements, either due to personal requirements or requirements of family members, this question was revised based on these comments.

Choice Experiment and choice sets

Testing the choice sets was a major objective of this focus group. The initial choice sets were generic and included the attributes *health-enhancing properties*, *food safety*, *animal health/welfare*, *environmental condition*, *social responsibility* and *country of origin*, which were presented in text-only format. These essentially replicated the choice sets from the overseas study (see Appendix 1 of Guenther et al., 2015). Participants had no difficulty in understanding the information preceding the choice sets, but all considered there to be far too much written content to read as part of a survey, and most felt they would proceed to the questions without reading all of the information. However, participants had some difficulty with the choice sets, in part because they had not read the information thoroughly and in part because they did not find the "Standard** product, ** Product A, ** Product B descriptors to be comprehensible. This feedback led to the development of study hypotheses in relation to specific and generic choice set formats (see Section 4.4.1).

The attributes themselves were easy to understand; these included food safety, health-enhancing benefits, environmental condition, animal welfare, social responsibility, quality and price. Regardless of whether or not the questionnaire they had answered described generic food and beverage products or those of New Zealand origin, all participants reported that they considered only products from New Zealand when answering these questions.

Alternative retailer and smart technology questions

Regarding the alternative retailer questions, the retailer categories included were discussed at some length and it was considered that the categories *take-away foods* and *restaurants* should be included for completeness. *Petrol stations* could be omitted from the list and respondents who did purchase foods and beverages from them could use the *other* category to specify this. None of the group members had heard of *food box programmes*, and several had thought this was specifically the My Food Bag programme. The list of retailers, particularly the online options, were revised based on these comments. In addition, with regards to the reasons why (or why not, as well as reasons for changing where) group members shopped in certain retailers, participants considered that there were too many separate response categories for these questions. Thus several statements were either combined or excluded as a result. Finally, the questions regarding digital media and smart technology use were considered to be straightforward and easy to answer.

Appendix 4. Attributes and Factors: Overseas Survey/NZ Survey

		Overseas survey	NZ survey
Food safety	Animal health	√	
	Animal welfare	√	√
	Country of origin		√
	Environmental condition	√	√
	Freshness	√	√
	GM-free food	√	√
	Hygiene standards	√	√
	Labelling of "use by date"	√	√
	Rates of contamination	√	√
	Reduced use of pesticides	√	√
	Traceability to origin	√	√
	Tamper proof packaging	√	√
	Trust in supply chain	√	√
Environmental condition	Air quality	√	√
	Greenhouse gas emissions	√	√
	Open spaces	√	
	Organic production	√	√
	Protecting biodiversity	√	√
	Protecting coastal and sea life	√	√
	Protecting endangered plants and animals	√	√
	Protecting wetlands	√	√
	Recycling	√	
	Waste management and recycling		√
	Water quality	√	√
	Wilderness	√	√
Animal welfare	Animals are well-fed	√	√
	Free of disease	√	√
	Free range	√	√
	GM-free food	√	√
	Good quality of life	√	√
	Good shelter and living conditions	√	√
	Humane slaughter	√	√
	Mainly pasture fed	√	√
	Natural conditions	√	√
	No cruelty	√	√
	Sustainably sourced inputs, especially feed	√	√
	Welfare veterinary plan	√	√

Human health-enhancing food	Baby health	√	√
	Blood nutrients	√	√
	Bone health	√	√
	Child health	√	√
	Digestive health	√	√
	Energy and endurance	√	√
	Heart and cholesterol health	√	√
	Immune system	√	√
	Memory/Brain health	√	√
	Mobility	√	√
	Skin health	√	√
	Weight management	√	√
Social responsibility	Equity	√	
	Fair Trade	√	√
	Fair prices to producers		√
	Fair wages	√	√
	Freedom from discrimination	√	√
	Freedom to join a trade union or other associations	√	√
	Good working conditions	√	√
	Investment of profits in community facilities	√	√
	Local food	√	√
	No child labour	√	√
	Paid annual leave	√	√
	Workplace safety	√	√
Traditional cultures (NZ: Māori culture)	Authenticity		√
	Care for future generations	√	√
	Connection with natural environment	√	√
	Cultural values	√	
	Equity and fairness	√	√
	Family business	√	
	Indigenous rights	√	√
	Native/indigenous values	√	
	Traditional harvesting		√
	Traditional healing and medicine	√	√
	Traditional production processes	√	√
	Traditional wisdom and knowledge	√	√

RESEARCH REPORT

314 A Review of Research on Economic Impacts of Climate Change
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Nuthall P 2009

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Saunders C, Kaye-Blake W and Turner J 2009

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Lambert S and Fairweather JR 2010

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325 An International Comparison of Models and Cultural and National Identity and their Implications for New Zealand Innovation
Rinne T and Fairweather J 2011

326 Publication cancelled.

327 The Cost of Psa-V to the New Zealand Kiwifruit Industry and the Wider Community
Greer G and Saunders C 2012

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Driver T and Saunders C 2012

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Miller S, Driver T, Velasquez N, and Saunders C 2014

333 Consumer Attitudes to New Zealand Food Product Attributes and Technology Use in Key International Markets
Saunders C, Guenther M, Driver T, Tait P, Dalziel, P and Rutherford P, 2014

334 Maximising Export Returns (MER): Communicating New Zealand's Credence Attributes to International Consumers
Lees N, Saunders C 2015

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Guenther M, Saunders C, Dalziel P, Rutherford P, Driver T 2015

337 Maximising Export Returns: The use of digital media and smart technology in shopping and information gathering for food and beverages in markets relevant to New Zealand
Driver T, Saunders C, Guenther M, Dalziel P, Rutherford P 2015

338 A Socio-Economic Research Plan for Evaluating Possible Interventions in New Zealand's Biosecurity Networks
Dalziel P, Hulme, Philip E, 2016

339 The Land and the Brand
Saunders C, Dalziel P, Guenther M, Saunders J, Rutherford P 2016

340 International Trade Implications for Consumer Attitudes to New Zealand Food Attributes
Saunders JT, Driver T 2016

341 Modelling Agricultural Impacts of EU-NZ Trade Liberalisation
Saunders J, Saunders C, McLellan B, Obadovic I, Driver T 2016