Defining local food in New Zealand

A study in the Manawatu region

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Abstract

Local food is an emerging consumer trend in countries such as the United Kingdom, United States, and Japan (Knight, 2013; Kim□ra & Nishiyama, 2008). However, the definition of local food varies by context, and from country to country (Kneafsey, 2010). Variation in the definitions of local food and in the attributes associated with local food may lead to disjunctions between intentions and outcomes of local food initiatives, and cause miscommunications among social actors (DeLind, 2011). In order to respond to growing demand for local food, it is important to understand how consumers define local food within different social and demographic contexts.

While there is a substantial body of literature on local food internationally, limited research has been undertaken in the context of New Zealand. For the purpose of analysing how consumers define and understand local food in New Zealand, an exploratory study was conducted using a quantitative method based on self-administered questionnaires. A sample of 240 food shoppers was taken by convenience sampling in the Manawatu region of New Zealand. Data collection took place in different locations, including supermarkets, a farmers' market, and public places in and around Palmerston North City. The data were processed and analysed using the SPSS statistical package.

This study identified that a majority of the respondents considered that local food may be defined both as food that was produced and sold in New Zealand, and as food that was produced and sold in a more geographically constricted area. It also highlighted that support for community was the most important attribute associated with local food. The study further found that many of the respondents bought what they considered as local food from supermarkets, yet at the same time identified that local food was associated with a food supply system that is alternative to the mainstream food supply systems. Additionally, the study demonstrated that household income had a limited relationship with consumers' perceptions of local food.

This study provides a basis for further research into understandings of local food in New Zealand. It is suggested that further studies be undertaken to improve communication among different social actors with respect to demand and supply of local food.

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AOC	appellation d'origine contrôlée
CSA	community-supported agriculture
DEFRA	Department for Environment, Food and Rural Affairs of the United Kingdom
ERS	Economic Research Service
EU	European Union
GHG	greenhouse gas
GMO	genetically modified organism
MAFF	Ministry of Agriculture, Forestry and Fisheries of Japan
PDO	protected designation of origin
PGI	protected geographical indication
SFSC	short food supply chain
UK	United Kingdom
US	United States
USDA	Department of Agriculture of the United States

CHAPTER ONE

Introduction

1.1 Background

Local food is an emerging consumer trend in many industrialised countries such as the United Kingdom (UK), United States (US) and Japan (Feagan, 2007; Kimura & Nishiyama, 2008; Tregear, 2011). Due to an increase in demand, local food has also become of interest for food marketers as well as for policymakers, who see social and economic benefits in promoting local food (Knight, 2013). The growing public interest in local food has led to the rise of various local food movements (DeLind, 2011). However, the definition of the term local food varies by context, and from country to country (Kneafsey, 2010). In the context of New Zealand, limited research has been undertaken on the topic of local food (Mirosa & Lawson, 2012). Accordingly, the meaning of local food to consumers in New Zealand is yet to be studied.

1.1.1 Growth of local food movements

Since the 1990s, local food movements have developed in several parts of the world (DeLind, 2011; Knight, 2013). One example of these local food movements is activities based on the concept of food miles (Grebitus, Lusk, & Nayga, 2013; Kemp, Insch, Holdsworth, & Knight, 2010; McLaren, 2009; Mila i Canals, Cowell, Sim, & Basson, 2007). The food miles concept, which was initially proposed as an indicator for sustainable development in the UK in 1994, highlights distance travelled by foodstuffs from the point of production to the point of consumption (McLaren, 2009). It spread to other countries including US, Canada, and Japan, and has been widely used as an indicator of environmental impact of products (Feagan, 2007; Grebitus et al., 2013; Nakata, 2005). Other local food movements include the "locavore" activism sprouted in the US (DeLind, 2011), community-supported agriculture (CSA) being promoted by authorities in the US (Martinez, 2010), and the "*chisan-chisho*" movements in Japan (literally translated as "locally produced, locally consumed") (Kimura & Nishiyama, 2008).

1.1.2 Increased local food sales and related investments

The growth of interest in local food is reflected in estimates of sales. For example, sales of local food in the UK reportedly grew by 30% in the four years from 2003 to 2007 (Khan & Prior, 2010). In the US, estimated local food sales increased from 1 billion US dollars in 2005 to 4.8 billion in 2007, and to 7 billion in 2012 (Tropp, 2014). Local food has overtaken organic food as the most dynamic sector of the retail food market in the US (Ikerd, 2011). Although its share in the US agricultural production is still small, it is predicted to grow further (Martinez et al., 2010).

The growth has also been observed on the supply side of local food. There have been increased investments by governments and major food retailers to promote local food (Knight, 2013; Martinez et al., 2010; Maumbe & Brown, 2013). Wal-Mart, the world's largest grocer, announced in 2010 that they would double local sourcing of their produce in the US by 2015 (Clifford, 2010). Their plan of increasing local sourcing was part of their newly launched sustainability programme that aimed to reduce environmental impact (Clifford, 2010). Meanwhile, the US Congress has been encouraging establishment of farmers' markets nationwide where local farmers can sell produce directly to the consumers and gain a greater share of the retail price without having intermediaries to control their share (Woods, Velandia, Holcomb, Dunning, & Bendfeldt, 2013). The budget allocation to promotion of farmers' markets increased from 1 million US dollars for Fiscal Year 2008 to 5 million US dollars for Fiscal Years 2009 and 2010, then to 10 million US dollars for Fiscal Years 2011 and 2012 (Woods et al., 2013).

1.1.3 Motivations for supporting local food

The emergence of these food movements is considered to be a consequence of growing public and scientific concerns regarding food and the food system (Kneafsey, 2010). As Ericksen (2007) notes, the modern food system is significantly more complex than the traditional food system that had been defined as "a set of activities ranging from production through to consumption" (p. 1). Stages in the modern system from the suppliers of farm inputs through to the end consumer take place globally, involving numerous variables such as type of ingredients, processing methods, destination of final products, length of supply chains, social and natural environment (Ericksen, 2008; Schaffner, Schroder, & Earle, 1998).

Some of the concerns regarding food and the food system are primarily about the environment while others are about society and economic development. However, it is noteworthy that many of them are interrelated.

Environmental concerns include:

- Increased transportation and storage due to globalisation of the food systems, requiring more energy and chemicals to keep products fresh, resulting in an increase of resource use and emissions of pollutants (Dimech, Caputo, & Canavari, 2011; Kneafsey, 2010);
- Externalised costs of environmental degradation associated with life cycles of food production and consumption (Kneafsey, 2010; O'Hara & Stagl, 2001).

Social concerns include:

- Food safety concerns due to food-related diseases and uncertainties about genetically modified organisms (GMOs) (Kneafsey, 2010; Saito & Saito, 2013);
- Loss of credence of food due to asymmetric information and moral hazard (Dimech et al., 2011; Kimura & Nishiyama, 2008);
- Food regulations being increasingly tightened and complex in efforts to overcome consumers' distrust in food (Meyer, Coveney, Henderson, Ward, & Taylor, 2012);
- Health-related social issues such as heart disease, cancer, type 2 diabetes and obesity, caused by spread of low-cost diets that are rich in fat and sugar (Desjardins, MacRae, & Schumilas, 2010; Dimech et al., 2011);
- Loss of traditional food culture (Kimura & Nishiyama, 2008; Kneafsey, 2010);
- Displacement of community and loss of identity due to the physical and psychological displacement of production from consumption (Feagan, 2007; O'Hara & Stagl, 2001).

Economic concerns include:

- Community food security in the era of growing global population (Kneafsey, 2010);
- Loss of small-scale farmers, traditional knowledge, diversity and livelihoods associated with traditional farming as a result of increased competition from low-cost imports (Dimech et al., 2011; Feagan, 2007; Kneafsey, 2010).

1.1.4 Disjunctions between intentions and outcomes

As public concerns about current situations around food increased, different local food movements have emerged to tackle problems from different perspectives. A broad objective shared by local food movements is to construct food systems that are "environmentally sustainable, economically viable and socially just" (Allen, FitzSimmons, Goodman, & Warner, 2003, p. 61). However, individual local food movements may not necessarily lead to outcomes that are consistent with their respective intentions. For instance, environmental sustainability is one of the goals for many of the local food movements. Food miles is a tool developed with environmental sustainability in mind. However, the food miles indicator does not always identify more environmentally friendly food items, as it disregards other factors in the life cycle of food products that contribute to their environmental profiles (e.g. efficiency of energy use during production) (McLaren, 2009; Mila i Canals et al., 2007). Nonetheless, transport distance tends to have more significance in consumers' assessment of environmental friendliness of food products (Tobler, Visschers, & Siegrist, 2011). This means that consumers may make purchase decisions based on inaccurate understanding of environmental friendliness, and inadvertently act inconsistently with their intentions. If the intention of supporting local food is to achieve environmental sustainability by making more environmentally friendly choices, food items should be chosen using a holistic approach such as Life Cycle Assessment, that takes into account all environmental impacts associated with the life cycle of the food (McLaren, 2009; Mila i Canals et al., 2007).

Differences in motivations for supporting local food between consumers and the government may also result in a failure of government-led local food initiatives (Madgwick & Ravenscroft, 2011). In the case studied by Madgwick and Ravenscroft (2011), local food had been promoted by the government for the sake of enhancing community health. The government had assumed that the major barrier for older and less mobile consumers to buying locally produced fresh produce was the lack of transport. Therefore, to encourage daily consumption of local produce that would increase public health, the government subsidised transport and improved accessibility. However, the study identified that the consumers had perceived locally produced food as food to purchase for special occasions, and they tended to buy it for socio-cultural reasons such as connection with the shop owner, rather than health benefits. Therefore, Madgwick and Ravenscroft (2011) noted that improvements in transport would not directly

increase consumption of locally produced fresh produce or public health, although economic activities of the consumers might have been influenced.

Furthermore, two programmes that seemingly have a shared goal may actually interfere with each other. This is the case for the aforementioned examples from the US, the projected increase of local sourcing by Wal-Mart and the promotion of farmers' markets by the US government. They both claim to support local farmers by offering more market opportunities, and they both aim to increase environmental sustainability (Clifford, 2010; Tropp, 2014). However, the US government's objective of eliminating mediators in the supply chains to increase farmers' share of the retail price is at odds with the Wal-Mart's initiative that intends to increase its presence as a mediator of local food. Moreover, standardisation and consolidation of control over production and distribution are indispensable for large food corporations to ensure stable sourcing (Ikerd, 2011). This implies that small-scale producers who have contracted with large retailers may face pressures to consolidate into a large supplier of local food. There would also be an increased competition for small-scale producers of local food who wish to remain independent (Ikerd, 2011).

In addition, there is a risk that the meaning of local food may be twisted by marketers as valorisation of local food proceeds (DeLind, 2011). Some researchers note that the current trends around local food resemble what happened to organic food (DeLind, 2011; Ikerd, 2011). In the case of organic food, an increased consumer demand led to the establishment of certification systems around the world, and valorisation of organic food resulted in an increase of more specialised, industrialised production (Ikerd, 2011). The organic food produced on specialised large-scale farms can satisfy the demand of consumers whose interest is to have a guarantee of quality that are met either by the conventional certification system or the traditional on-trust system (Campbell & Liepins, 2001). However, it cannot meet the expectations of other consumers who are interested in the social benefits associated with organic food, such as supporting small-scale local farmers and securing jobs in the rural area (DeLind, 2011; Feagan, 2007; Seyfang, 2008). Some of the proponents of local food are those who searched for another way to express their needs and beliefs after multi-national agribusinesses had entered in the organic food industry (Paarlberg, 2010; Seyfang, 2008). As the term organic failed to communicate some of the key values of food that consumers had expected, different interpretations of the term local food are also at

risk of causing confusion and miscommunication of consumer needs (DeLind, 2011).

1.1.5 Differences in definitions of local food

Miscommunication among social actors and the disjunctions between intensions and outcomes arise from differences in understandings of the term local food (DeLind, 2011). The existing literature highlights a diversity of definitions of local food. Local food to some people means food that has been produced within a specific distance of their home, while it means to other people that it is food that has been produced in a particular locality regardless of how distant it is from their home (Khan & Prior, 2010). The specified distance between the place of production and the place of sale also varies with context (Hand & Martinez, 2010). For instance, the specified distance is 30 miles in the case of Stratford Farmers' Market in the UK (Holloway & Kneafsey, 2000), 100 miles for locavores in the US (Thilmany, Bond, & Bond, 2008) and Canada (Martinez, 2010), and 400 miles by a definition adopted by the US Congress (Martinez et al., 2010). Furthermore, some consumers consider that local food is food that is directly sold to them by the farmers (Hand & Martinez, 2010; Millar, 2012). In this case, the relationship between producers and consumers plays a central role in defining local food (Hinrichs, 2003). In addition, part of the local food concept is constructed in association with values of foodstuffs such as freshness, food safety, and benefits to society as mentioned earlier (Feagan, 2007). As Allen et al. (2003, p. 63) noted, "the local is not everywhere the same". Therefore, it is important to understand the meanings of local food to consumers within social and demographic contexts, in order to respond to the expectations of consumers that are expressed in a form of growing demand for local food (DeLind, 2011).

1.1.6 Local food in New Zealand

In New Zealand, a limited amount of research has been conducted on the topic of local food. One study identified consumers' expectations of locally produced meat in Dunedin and Wanaka (central South Island) (Millar, 2012). Some information about how consumers define local food was also obtained in the same study; however, it was not examined in detail as it was not the focus of the study. Mirosa and Lawson (2010) analysed the characteristics of consumers who were buying locally produced food, using the results of a national consumer lifestyle survey. They found differences in lifestyles between self-reported local food buyers and others. However, due to the fact that they had asked their respondents whether

they bought what they considered as locally produced food, it was not identified how individual respondents interpreted the phrase “locally produced food”. Other studies, including those on organic food (Campbell & Liepins, 2001) and farmers’ markets (Chalmers, Joseph, & Smithers, 2009; Guthrie, Guthrie, Lawson, & Cameron, 2006; Lawson, Guthrie, Cameron, & Fischer, 2008), also found some information related to local food. Nonetheless, New Zealand consumers’ definitions of local food are still unknown. Therefore, this study aims to identify and examine the meaning of local food to consumers in New Zealand, focussing on the Manawatu region (lower North Island, New Zealand).

1.2 Research aim and objectives

The aim of this research is to understand the meaning of local food to consumers in New Zealand, with a focus on the Manawatu region (lower North Island).

There are three research objectives:

- To identify how consumers define local food internationally and in New Zealand
- To examine the attributes that are associated with the local food concept in the Manawatu region of New Zealand
- To analyse and discuss how household income influences the understandings of local food in the Manawatu region of New Zealand

1.3 Structure of the thesis

This thesis consists of six chapters. Chapter One provides brief background information on local food, and states the research aim and objectives. Chapter Two reviews the literature on trends in food demand, definitions of local food, attributes associated with local food, and consumer characteristics related to local food. Chapter Three explains the methodological process followed in this study. Chapter Four presents, describes, and analyses the primary data collected for this research. Chapter Five discusses the findings of this study in relation to the findings from previous studies. Finally, Chapter Six summarises the findings of this research. It also evaluates the study, identifies implications of the study, and suggests some directions for further research.

CHAPTER TWO

Literature Review

2.1 Introduction

This chapter reviews the existing literature on understandings of local food. First of all, local food is mapped out in relation to trends in food demand. Then, this chapter discusses possible approaches to defining local food, attributes associated with local food, and consumer characteristics related to local food. As noted by Andrée, Dibden, Higgins, and Cocklin (2010), research on the topic of local food has been concentrated within Europe and North America. Therefore, this chapter mainly reviews studies in those contexts. Since research about local food has been limited in New Zealand, some New Zealand studies in related academic fields are also reviewed to gain some information about the people and the social contexts of New Zealand.

2.2 Trends in consumer demand for food

There are three distinctive patterns of food demand observed globally: increased consumption of animal proteins, shift of consumption towards increased convenience and variety, and increased focus on various roles of food other than as a source of nutrition (Fabiosa, 2011).

The first pattern is seen in low- to middle-income countries, where the consumption of high-value animal-protein-rich products substitute for carbohydrate-rich staple grains as the income level of consumers rises (Fabiosa, 2011). The second pattern is observed in forms of increased consumption of highly processed foods such as ready-to-eat foods and away-from-home foods (Fabiosa, 2011). Away-from-home foods include restaurant foods as well as foods provided by other types of facility for immediate consumption (Stewart, 2011). Preference for more convenience and variety is seen particularly in countries where the rate of female participation in the labour force is high (Fabiosa, 2011). Given that women have traditionally played a central role in preparing meals at home in many countries, increased participation of women in the workforce leads to a decrease in time available for cooking, while enabling them to afford convenience and variety of food (Fabiosa, 2011).

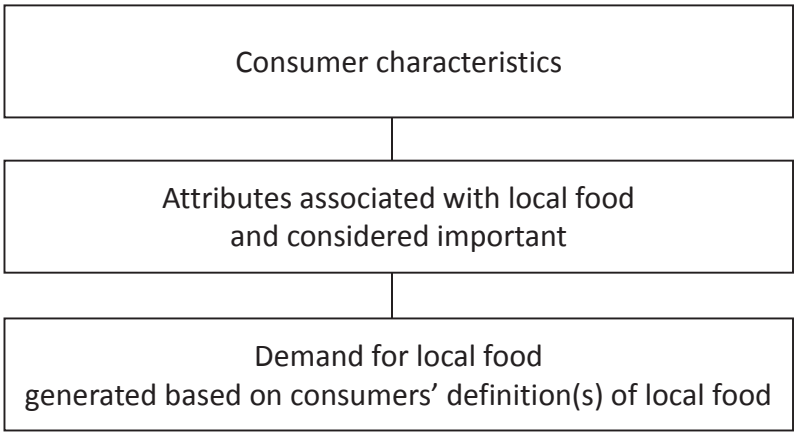
The third pattern is observed especially at a high income level, hence more in developed countries (Fabiosa, 2011). Consumers increasingly consider food as something more than a mere source of nutrition. This means that they pay more attention to ethics, food safety, health benefits, and geographical origin of food, when making p□rchase decisions (Albis□, Gracia, & Sanj□an, 2011; Fabiosa, 2011). Ethical issues related to food may be expressed through a focus on organic agriculture, fair trade (producer welfare), animal welfare, and impact on the environment (Albisu et al., 2011). Concerns regarding food safety include genetic modification and irradiation (Albisu et al., 2011). Local food is primarily related to consumer interest in geographical origin of food (Albisu et al., 2011). Additionally, it is also associated with ethics, food safety, and health benefits (Ikerd, 2011; Paarlberg, 2010).

While food consumption patterns have traditionally been analysed in terms of economic variables such as shifts in price, researchers now consider that food demand is also influenced by consumer characteristics (Albisu et al., 2011). Various demographic factors potentially influence consumers' perceptions of the value of food and purchasing decisions. Demographic factors include all personal defining characteristics such as age, gender, income, education, race/ethnicity, household size and composition, geographical distribution of population, and living place (Albisu et al., 2011).

In addition, consumers' lifestyles may also influence their attitudes towards quality aspects of food (Dimech et al., 2011). A novel concept of "neo-tribes", which groups consumers on the basis of demographics, has been discussed by some researchers (Weatherell, Tregear, & Allinson, 2003). "Consumers are re-grouping into specialised communities or 'neo-tribes', where members share values, lifestyles or self-images rather than demographic traits" (Weatherell et al., 2003, p. 234). An example of "neo-tribe" is a consumer group concerned about industrialised forms of food supply (Weatherell et al., 2003). Therefore, both demographic factors and lifestyle factors form consumer characteristics that are associated with consumers' perceptions of the value of food, which in turn are associated with consumption patterns and trends in food demand.

The relationship between consumer characteristics, consumers' perceptions of the value of food, and trends in food demand may be expressed using terms such as local food. The relationship can be illustrated as in Figure 2.1, based on the notion that the value of food perceived by consumers is a set of attributes the consumers have associated with the food and considered important.

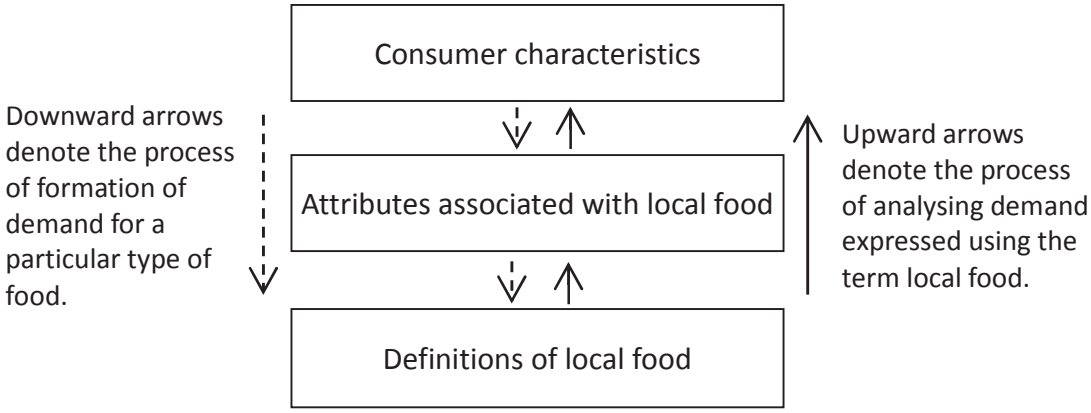
Figure 2.1 Relationship between consumer characteristics and trends in food demand



Source: Developed on the basis of studies by Albisu et al. (2011), DeLind (2011), Fabiosa (2011), and Weatherell et al. (2003).

In order to analyse the trend in food demand expressed in terms of local food, and understand what consumers expect from the food, consumers' definition(s) of local food needs to be identified. In other words, the process of analysing the local food concept for consumers is the reverse process of the development of a consumer trend. As Figure 2.2 illustrates, an analysis of demand for local food begins with identification of consumers' definitions of local food, followed by examination of attributes the consumers associate with local food. Finally, the characteristics of the consumers need to be studied to identify consumer segments for local food.

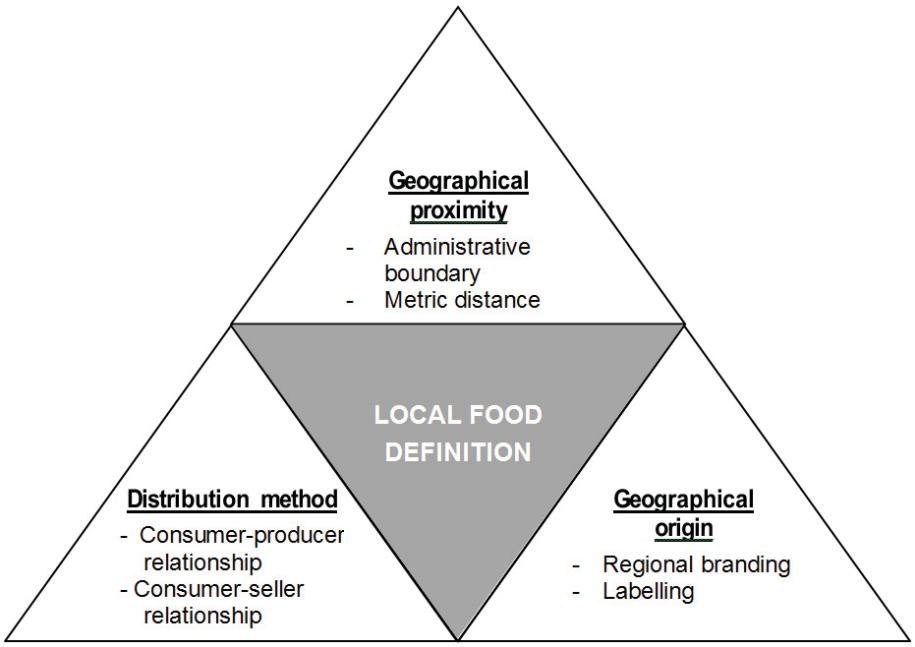
Figure 2.2 Process of analysing the local food concept



2.3 Definitions of local food

Local food can be defined from three different approaches: geographical proximity, geographical origin, and distribution method (Figure 2.3).

Figure 2.3 Three approaches to defining local food



Source: Developed based on studies by Knight (2013), Holloway, Kneafsey, Venn, Dowler, & Tuomainen (2007), Marsden et al. (2000), and Martinez et al. (2010).

Firstly, when the geographical proximity approach is adopted, local food is defined on the basis of the geographical location of production and the

geographical location of consumption (Darby, Batte, Ernst, & Roe, 2008). This can be done either in terms of administrative boundaries or metric distances. Secondly, local food can be defined on the basis of the distribution method that relates to the type of relationships consumers have with the producer and/or the seller of the foodstuff (Hand & Martinez, 2010; Marsden, Banks, & Bristow, 2000). Direct-sales to the consumer by the producer is an example of a close consumer-producer relationship that defines local food (Marsden et al., 2000), while sale of food at a local retailer is an example of defining local food based on a close relationship between the consumer and the seller (Hand & Martinez, 2010). Thirdly, indication of the geographical origin of food is also an approach to defining local food (Hinrichs, 2003). This approach means that local food can be consumed anywhere as long as it conveys information about its geographical origin (Woods et al., 2013). Local food that is defined using this approach may or may not be branded to be sold at a premium price (Kimura & Nishiyama, 2008). These three approaches to defining local food are further examined in the following sections, drawing on various local food definitions highlighted in the literature.

2.3.1 Geographical proximity

The geography of food production and consumption are most relevant in defining local food (Darby et al., 2008). The term local often refers to physically constructed spaces (Kneafsey, 2010). The scale of the space is measured in two ways: on the basis of administrative (political) boundaries, and in terms of distances in metrics (Knight, 2013). For example, the provincial government of Nova Scotia defines local food on the basis of administrative boundaries (Knight, 2013). They define local food as food that is produced and processed within the province of Nova Scotia for the government programme that promotes consumption of local food by residents and visitors (Knight, 2013). In comparison, local food is defined on the basis of distance in the case of Stratford Farmers' Market in the UK (Holloway & Kneafsey, 2000). According to the rules of Stratford Farmers' Market, products sold in the market are required to have been produced within 30 miles of the market (Holloway & Kneafsey, 2000).

It is known that the geographical scale of local food definitions vary in size (Martinez, 2010). With respect to local food definitions based on metric distances, a multitude of distances have been proposed, ranging from one mile to 400 miles (Desrochers & Shimizu, 2012; Knight, 2013; Martinez et al., 2010; McWilliams,

2009). As for administrative boundaries used to define local food, it can be a community, neighbourhood, city, town, region, state or province, or country (Kneafsey, 2010; Knight, 2013). As noted by Born and Purcell (2006, p. 198), geographical scale is a relational concept, and "the local scale is embedded in the national scale, which is embedded in the global scale". Kneafsey (2010) also found that terms such as local, regional and national were relational, and they were used in the literature to distinguish multiple levels of food governance, irrespective of geographical size. For instance, Lang (2009) applied the term local to Scotland and Canada, national to the UK, and regional to the whole of Europe (Kneafsey, 2010). In this case, the scoped area defined by the term local is not necessarily smaller in size than the area defined by the terms national and regional, as Canada is larger than the UK in geographical size (Kneafsey, 2010).

A variation in size of the geographical scale of local food definitions exists across countries, and also within the same country. In the UK, the National Association of Farmers' Markets recommends its members to use the term local when the food comes from a radius within 30-50 miles of the farmers' markets and/or a county boundary (Khan & Prior, 2010). Meanwhile, the definition adopted by farmers' markets in central Virginia in the US is a radius between 75-100 miles or a county boundary (Martinez, 2010). Furthermore, the US Congress defines local food in the 2008 Food, Conservation, and Energy Act (2008 Farm Act) as food that has travelled less than 400 miles from its origin and/or produced and sold within the same state (Martinez et al., 2010). However, a consumer survey that was conducted on a national scale in the US by Onozaka, Nurse, and McFadden (2010) identified that the most supported definition of the term local was a 50-mile radius, followed by a county boundary. According to their findings, some consumers considered that the local scale could be up to a 500-mile radius or the national boundary (i.e. the US), although the proportion of these consumers was less than 10 % of the respondents. In the case of the UK, the term local has not been defined by the national government (Khan & Prior, 2010). However, a national consumer survey conducted by the Food Standards Agency (2007) identified that a 10-mile radius was the most supported definition, followed by a county boundary and a regional boundary. This result was slightly different from the result of consumer research by the Institute of Grocery Distribution that reported that the county boundary was the main indication to consumers of what is actually local (Khan & Prior, 2010). The results of these empirical studies suggest that the maximal scale of local in terms of geography is a national boundary.

In addition, several food retail companies in the US have adopted various definitions to launch their own local food initiatives as shown in Table 2.1 (Clifford, 2010; Martinez, 2010; Woods et al., 2013).

Table 2.1 Definitions of local food adopted by retail companies in the US

Retail company	Definition of local food
Wal-Mart	Produced within the same state as a Wal-Mart store
Whole Foods	Travelled less than a day from farm to store (however, individual stores may adopt more strict definitions)
Earth Fare	Produced within a 100-mile radius of an Earth Fare store
Dorothy Lane Market	Produced within a 250-mile radius of the city where the stores are located (i.e. Dayton, Ohio, US)

Source: Developed based on studies by Martinez (2010) and Woods et al. (2013).

Born and Purcell (2006) discussed the scale of food systems in their study on the local trap, and criticised assumptions made in many of the studies on local food systems that the local scale was desirable. Their argument was based on their understanding of the local food concept as something that was necessarily constructed around geographical scale. Campbell, Khachatryan, Behe, Dennis, and Hall (2014) also considered that "decreased miles to transport" (p. 28) must always be one of the characteristics of local food, and discussed "misperceptions" (p. 21) of US and Canadian consumers.

2.3.2 Distribution method

The approach of defining local food on the basis of distribution method places a focus on increased interactions among participants of the supply chains (Marsden et al., 2000). This approach may be explained drawing on the concept of short food supply chain (SFSC) discussed by Marsden et al. (2000). The idea of SFSC is to bring actors in the supply chain closer together either physically or emotionally, and increase information flow (Hinrichs, 2003; Marsden et al., 2000). SFSCs may establish on the basis of geographical proximity of the place of production and the place of sale, and also on the basis of increased interactions among participants in the supply chains (Marsden et al., 2000). Increased interactions among participants of the supply chains can be expressed as a shortened emotional distance (Martinez et al., 2010). While SFSCs tend to involve

a small number of intermediaries in comparison with long and complex conventional commodity chains, interactions among participants of the supply chains may take place across great physical distances and rely heavily on large-scale communication and technology infrastructures such as the Internet (Hinrichs, 2003).

Direct sale by the producer to the consumer is one way of defining local food on the basis of distribution method (Hand & Martinez, 2010; Marsden et al., 2000; Thilmany et al., 2008). This includes direct-to-consumers services and direct-to-retail/foodservice arrangements (Hand & Martinez, 2010). Examples of direct-to-consumer marketing arrangements are sales at farmers' markets, on-farm sales, pick-your-own operations, and community-supported agriculture (CSA) operations (Martinez, 2010). CSA is a system where "local residents purchase shares in a farmers' expected harvest before planting, then receive weekly deliveries or pick up from the farm throughout the growing season" (Martinez, 2010, para. 15). Examples of direct-to-retail/foodservice arrangements include farm sales to schools and hospitals (Martinez et al, 2010). This approach of defining local food on the basis of marketing arrangements is well-recognised in the US, and it is adopted by the US Department of Agriculture (USDA) in their Economic Research Report on local foods (Martinez et al., 2010). Direct interaction between producer and consumer is considered to build a closer producer-consumer relationship as it provides more information about the food, the farm, and the farmer (Marsden et al., 2000; Tropp, 2008). In addition, as personal interactions may take place on-line besides face-to-face, Internet sale is also classified in this category (Martinez et al., 2010).

Food being distributed through local market channels can also be a definition of local food, along the lines of the SFSC approach (Madgwick & Ravenscroft, 2011; Marsden et al., 2000). Khan and Prior (2010) reported the result of their empirical study on urban consumers in the UK that one third of their respondents considered that local food meant food sold at local shop. Madgwick and Ravenscroft (2011) also found that local food may be perceived by consumers as food by local retailers, especially by consumers who associate the local food concept with tradition. They further noted that those consumers associated the local food concept with shopping experience, and considered that the sellers at local shops were trustworthy and knowledgeable about the origin of food. This means that the definition of local food as food sold at local shop constructs the

local food concept around how much information consumers receive about the origin of food (Hand & Martinez, 2010; Madgwick & Ravenscroft, 2011).

Related to the approach of defining local food with a focus on distribution, there are also concepts of a food-shed and a food hub. A food-shed is an idea drawn from a water shed, and is being explored from the perspective of environmental sustainability (Peters, Bills, Wilkins, & Fick, 2009). Focussing on the flow of food in the food system, it determines the area from which a locality derives its food supply (Hand & Martinez, 2010). Meanwhile, a food hub is a business model in which products from small- and medium-sized producers are aggregated in a distribution centre, i.e. a food hub, so as to enable a large volume supply to consumers and retailers (Woods et al., 2013). In the US, a growing number of food hubs are being established to increase distribution of locally produced products within specific regions (Woods et al., 2013).

2.3.3 Geographical origin

The approach to defining local food on the basis of the knowledge about its geographical origin is related to increasing information flow throughout the supply chains. Therefore, definitions of local food based on geographical origin may also be considered relevant to SFSCs (Marsden et al., 2000). Local food is increasingly defined this way in retail outlets where products are tagged with photos and short biographies of the producers (Kimura & Nishiyama, 2008; Woods et al., 2013). Woods et al. (2013, para. 6) note that definitions of local food based on geographical origin place "significant attention on preserving product identity throughout the supply chain, with the assumption that consumers will seek out and potentially pay more for foods that have a local identifier at point of sale". Institutional procurement of locally sourced foods (e.g. by schools and hospitals) is an action based on this approach, as it "emphasizes the value in known place origins of the food product" (Hinrichs, 2003, p. 39).

While labels that identify the place of origin "may 'embed' a product with a sense of place and trust" (Kimura & Nishiyama, 2008, p. 61), they do not necessarily assure quality or safety of the food. However, some local food labelling schemes used in Europe do assure quality of products (Feagan, 2007; Ilbery & Kneafsey, 2000). An example of such schemes is the French *appellation d'origine contrôlée* (AOC) (Feagan, 2007; Murdoch, Marsden, & Banks, 2000). AOC is a certification of authenticity of traditional products or traditional methods of

production to a particular area of the country (Murdoch et al., 2000). The concept of AOC is consistent with the French traditional term *terroir*, which refers "to an area or terrain, usually rather small, whose soil and micro-climate impart distinctive qualities to food products" (Feagan, 2007). Other labelling schemes that are used in the European Union (EU) for "marketing and cultural branding of food through its association with place" (Feagan, 2007, p. 26) include *protected designation of origin* (PDO) and *protected geographical indication* (PGI) (Ilbery & Kneafsey, 2000). Products labelled under these certification schemes can be sold anywhere in the world, and may still be considered as local food (Hinrichs, 2003; Murdoch et al., 2000). Even though this approach refers to the association of food to geography, the conceptualisation of local food is irrelevant to physical distances as the local food concept is constructed independently from the destination of the food.

According to Murdoch et al. (2000), quality certification schemes linked with traditions have long been existed in Europe, but not in any other parts of the world. However, Bowen and Mutersbaugh (2014) note that the idea of terroir that originated in Mediterranean Europe has spread to the rest of the globe, and is increasingly considered as economically important. For example, wine producers in the "New World" (Bowen & Mutersbaugh, 2014, p. 202), i.e. countries such as the US, Chile, Argentina, Australia, and New Zealand, strive to raise awareness towards wines' regions of origin as markers of quality. A large-scale study to explore opportunities in Africa, Asia, and Latin America to use the idea of terroir for development has recently been funded by the Food and Agriculture Organization of the United Nations (Bowen & Mutersbaugh, 2014). At a national level, discussion about development of certification systems to authenticate products that carry labels of origin has started in the US, but only recently (Woods et al., 2013). However, there has been growing interest in establishing regional brands and farm-estate brands (Woods et al., 2013). In Japan, the Ministry of Agriculture, Forestry and Fisheries (MAFF) notes that similar ideas to that of terrior exist (MAFF, 2012). Products that are produced in such areas are called *tokusan,* which literally means products of regional speciality (MAFF, 2012; Naito, 2007). Certification systems for tokusan products exist at various administrative levels, but not at the national level (MAFF, 2012). There are many tokusan products that are associated with regional brands, such as Kobe beef and Kyoto vegetables (MAFF, 2012; Naito, 2007). However, the names of tokusan products do not always contain the name of the area, unlike the labelling systems in the EU (MAFF, 2012).

Additionally, the UK government distinguishes products that are labelled under certification schemes such as PDO and PGI from local food, and describe them as regional food (Khan & Prior, 2010). According to the definition adopted by the Department for Environment, Food and Rural Affairs (DEFRA), regional food is "quality food with a specific geographical provenance" which could be marketed anywhere (DEFRA, 2004, p. 13). Meanwhile, local food is identified as food "produced and sold within limited areas" (DEFRA, 2004, p. 13), without necessarily having any distinctive quality (Khan & Prior, 2010). Nevertheless, in practice, it is acknowledged by DEFRA that the terms regional and local have overlapping meanings, and they are often used interchangeably by consumers, producers and traders (DEFRA, 2004, 2008).

In comparison, the Japanese government clearly states that their local food concept includes the idea of the UK government's regional food (MAFF, 2014). The government's initiatives take place on the basis of administrative boundaries in Japan, though there is no official definition of local food, and sale of local food outside the area of production is one of their objectives (MAFF, 2014). As for the US, the definitions adopted by the government refer to both the location of production and the location of consumption (Martinez et al., 2010). Therefore, the US government's concept of local food does not incorporate the UK government's regional food. With regard to the use of terms, the US government does not particularly distinguish local from regional (Martinez et al., 2010). It is indicated by the definition adopted by the US Congress in the 2008 Farm Act where it specifies the maximum of travel distance for "locally or regionally produced agricultural food product" (Martinez et al., 2010, p. 3).

One of the consequences of differences in definitions and associations of local food is the difficulty of comparing results of studies (Tregear, 2011). This is especially true for international comparisons, as governments' official reports on local food as well as individual academic studies are written based on different interpretation of the term local food. Furthermore, the US government refers to various definitions to describe the trend around local food in the US (Martinez, 2010; Tropp, 2014). For instance, the US Congress defines local food as food that is produced and sold within a 400-mile radius or within the same state (Martinez et al., 2010). However, definitions based on distribution channels, such as direct-to-consumer arrangements and direct-to-retailer/foodservice arrangements, are

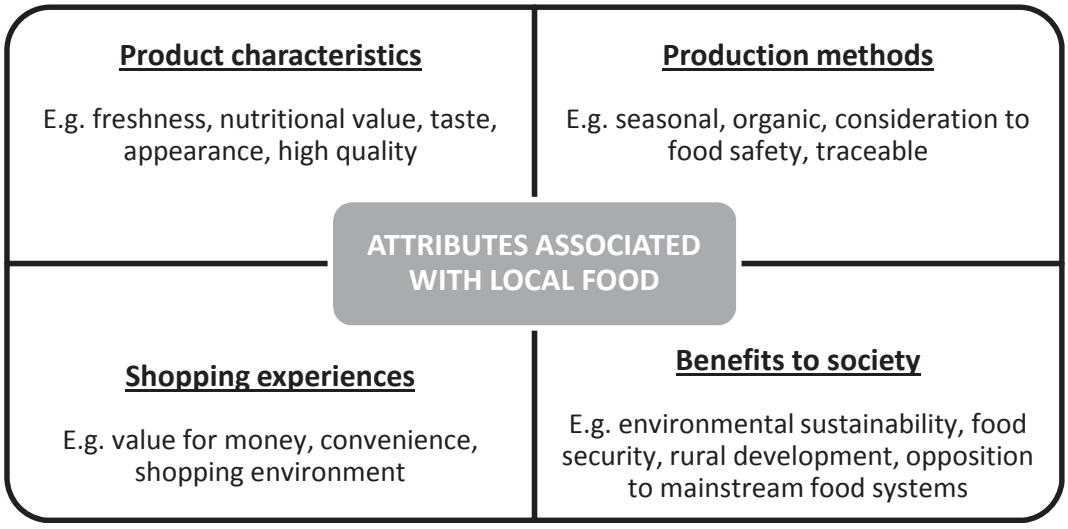
used in the Economic Research Service (ERS) reports published by the USDA (Martinez et al., 2010; Tropp, 2014). The definition of direct sales to consumers in the ERS reports also varies from what is used in the USDA 2007 Census of Agriculture (Martinez, 2010). Martinez (2010, para.15) gives an explanation:

> "Census figures on direct sales to consumers are not equivalent to the value of local direct-to-consumer marketing. For example, catalog and Internet sales are included in census's direct sales to consumers, but such customers are typically not local. On the other hand, local food systems include community gardening which does not involve commercial farming and so is not included in census data".

2.4 Attributes associated with local food

The concept of local food is constructed in association with various attributes (Knight, 2013). As shown in Figure 2.4, there are four categories of attributes that can be associated with local food: product characteristics, production methods, shopping experiences, and benefits to society. Some of the attributes associated with the term local food represent values of local food that consumers expect from it. Attributes of local food that are considered valuable relate to consumers' motivations for supporting local food (Onozaka et al., 2010).

Figure 2.4 Four categories of attributes associated with local food



Source: Developed based on studies by Dimech et al. (2011), Khan & Prior (2010), Knight (2013), Roheim et al. (2007), Tobler et al. (2011), and Saito & Saito (2013).

Associations with attributes alone do not define local food. However, the local food concept may not be complete without them. For instance, Severson (2009) who explored the limits of a geographical-proximity-based definition of local food states that local food may need to be produced by a locally owned producer. According to Severson (2009), many US consumers considered that potato chips that had been made in a local facility from potatoes grown in the neighbourhood of the place of sale were still not local food if the producing company was a multinational. In this case, giving back to society through purchase of the product was the value consumers had expected from locally produced potato chips. Therefore, consumers who understood foreign ownership as an indication that the profits from sales of the potato chips would predominantly leave the region disagreed to define the potato chips as local (Severson, 2009). How and by whom food is produced, distributed, and marketed may also be important in constructing the local food concept (Hand & Martinez, 2010).

2.4.1 Product characteristics

Attributes related to product characteristics of local food include freshness, nutritional values, taste, and appearance (Khan & Prior, 2010; MAFF, 2007; Roheim et al., 2007; Tobler et al., 2011). These attributes are sometimes expressed as health benefits and/or product quality (Desjardins et al., 2010; Madgwick & Ravenscroft, 2011; Onozaka et al., 2010).

Freshness is an attribute that consumers tend to associate with local food (DEFRA, 2008; MAFF, 2007; Roheim et al., 2007). A national study in the UK reported freshness, taste, and seasonality as key attributes valued by consumers (DEFRA, 2008). In the US, a national study found that freshness was the most important attribute of local food for consumers, along with eating quality, nutritional values, and food safety (Onozaka et al., 2010). Another study in the US also noted that freshness and quality were valued most by consumers in comparison with other attributes such as social benefits and food safety (Roheim et al., 2007). A national study in Japan also identified freshness as the most important attribute of local food, followed by taste, food safety, and connection with the farmer (MAFF, 2007).

When local food is perceived as fresh, a shortened transport distance and/or storage period is often assumed (Dimech et al., 2011; Kneafsey, 2010; Mirosa &

Lawson, 2012). It is further assumed that the loss of nutrients is minimised so that local food has higher nutritional values compared with its non-local counterpart (Dimech et al., 2011). The association between fresh local food and nutritional values are the main reason why local food is associated with health benefits, especially in countries such as the UK, Canada, and the US (Desjardins et al., 2010; Madgwick & Ravenscroft, 2011; Tropp, 2014). In the Japanese context, the association of local food with health benefits is additionally due to the type of diet local food is assumed to deliver (Kimura & Nishiyama, 2008). Consumption of locally produced products, either fresh or processed, often means to eat according to the traditional eating habits, which generally contain less fat and sugar (Kimura & Nishiyama, 2008). Therefore, the association of local food with health benefit is linked with definitions of local food based on travel distance and/or regional speciality.

In addition, many government-led local food initiatives around the globe aim for increasing quality of diet as well as regional food security, associating local food with benefits to public health (Desjardins et al., 2010; Madgwick & Ravenscroft, 2011; MAFF, 2014; Martinez et al., 2010). However, not enough empirical work has been conducted to determine whether access and availability of local food increases diet quality or regional food security (Martinez et al., 2010).

Local food may also be described as of superior in terms of taste (DEFRA, 2008; Khan & Prior, 2010; MAFF, 2007). In addition, some consumers consider that local food looks nice due to its colours and fresh appearance (Weatherell et al., 2003). However, some other consumers consider that local food may have an inferior appearance as it can be food that has failed to meet the standards of conventional retail chains (MAFF, 2007). The association between local food and appearance may therefore be related to the definition of local food on the basis of distribution method.

Freshness, taste, and appearance are sometimes referred to as product quality (Saito & Saito, 2013; Tobler et al., 2011; Weatherell et al., 2003). Previous studies have reported product quality as the most important factor to consumers in choosing food (Saito & Saito, 2013; Weatherell et al., 2003).

2.4.2 Production methods

Attributes related to production methods of local food include seasonality, food safety, traceable production processes, and organic farming (Dimech et al., 2011; Saito & Saito, 2013). These attributes are associated with the degree of trust consumers have in the production processes as well as the food itself (Madgwick & Ravenscroft, 2011; Meyer et al., 2012).

Local food is often associated with seasonal food production (Tobler et al., 2011; Tropp, 2014). Since production of crops that suit the climate and the conditions of the soil requires less energy and fewer chemicals, the association of local food with seasonality is considered as being friendly to the environment as well as producers and consumers (Desjardins et al., 2010; Dimech et al., 2011; Millar, 2012). The association of local food with seasonality therefore is related to definitions of local food based on the geographical location of production, i.e., either the approach of geographical proximity or the approach of geographical origin. In addition, seasonality of local food is often linked with better taste (Khan & Prior, 2010).

Food safety is another production method-related attribute associated with local food (Kimura & Nishiyama, 2008; Madgwick & Ravenscroft, 2011). Food safety is sometimes understood as a component of product quality (Murdoch et al., 2000). Some researchers explain the association between local food and food safety in terms of trust consumers have in the producers and/or the sellers of the food (Kimura & Nishiyama, 2008; Madgwick & Ravenscroft, 2011; Meyer et al., 2012). Meyer et al. (2012, p. 635) note that “trust in food production, regulations and safety is a means of assisting consumers to make choices about what to eat amidst the increasingly complex nature of food”, where “trust is a means of bridging knowledge and uncertainty”. If local food is perceived as safe based on the assumptions that local food conveys more knowledge about food, this perception is consistent with definition of local food on the basis of distribution method.

The fact that the perception of food safety is associated with the availability of information about the food and its production processes implies that part of the expectations for local food may potentially be met by a non-local food. This is because on-trust relationship may be replaced by a traceability system (Regattieri, Gamberi, & Manzini, 2007). A traceability system provides safety assurance by

solving the issues of information asymmetry and distrust among participants of the supply chains irrespective of the place of production or the length of supply chains (Dimech et al., 2011; Regattieri et al., 2007).

Related to safety assurance is an association of local food with organic agriculture. Organic food is considered to be safe, especially by those people who are concerned about uncertainties of GMOs (Dupuy, Botta-Genoulaz, & Guinet, 2005; Loftus, 2005; Verbeke, 2005). The association of local food with organic food may be relevant to adoption of local food definitions based administrative boundaries, since policies regarding trading and labelling of GMOs vary across national and state boundaries. Similarly, the association of local food with food safety may be related to support for local food definitions based on administrative boundaries as safety standards vary by administrative authorities.

In addition, it should be noted that supporters of local food and advocates of organic food overlap considerably (Adams & Salois, 2010; Campbell & Liepins, 2001; Ikerd, 2011; Tobler et al., 2011). Seyfang (2008) found that growing demand for organic food in the UK was associated with demand for local food. In the case of the UK, the Soil Association is partly responsible for the association between organic food and local food (Holloway & Kneafsey, 2000). According to Holloway and Kneafsey (2000), the Soil Association is an organisation that has a central role in promoting organic agriculture in the UK. It has economic and environmental lobbying function, including providing information and practical help, training and accreditation, raising fund and networking. This same organisation also took charge of setting out standardised rules for farmers' markets in the UK, which are widely recognised as places where local food is sold (Holloway & Kneafsey, 2000). As a result, the links between organic food, farmers' markets and local food are perceived strongly by consumers in the UK (Holloway & Kneafsey, 2000). For the same reason, support for local farmers and environmental sustainability are perceived as associated with organic food, hence, also with local food (Holloway & Kneafsey, 2000).

Meanwhile, in the US, one of the reasons behind the association between local food and organic food is because both organic food movements and local food movements emerged as an expression of opposition against modern food systems (Ikerd, 2011; McMichael, 2001; McWilliams, 2009; Paarlberg, 2010). Ikerd (2011) noted that local food was the next target of food activists who realized that

their expectations for organic food had been more than what multi-national agribusinesses could offer with products that were labelled as organic.

Additionally, in the context of Japan, the association between local food and organic food is due to the historical and cultural background of food movements. Chisan-chicho ("locally-produced, locally consumed") is a term that is most commonly used to represent local food movements in Japan (Kimura & Nishiyama, 2008). However, the term was originally proposed by advocates of organic farming who emphasised the importance of connecting human activities with the land and the natural cycles (Kashihara, 2004). Therefore, the concept of chisan-chisho is closely associated with traditional agriculture and the idea of minimalism (Kashihara, 2004; Toshi Nosangyoson Koryu Kasseika Kiko, 2012). Currently, the national government and large-scale farmer organisations use the term chisan-chisho as an independent concept from organic agriculture (Kimura & Nishiyama, 2008; MAFF, 2014). In practice, however, government programmes to support organic agriculture are understood as part of the chisan-chisho programmes by researchers (Japan Speciality Agriculture Products Association, n.d.; Kimura & Nishiyama, 2008; Nakata, 2005).

2.4.3 Shopping experiences

Attributes related to shopping experiences include value for money, availability, convenience, and social experiences (Khan & Prior, 2010; King, Gomez, & DiGiacomo, 2010; Kinight, 2013; MAFF, 2007; Madgwick & Ravenscroft, 2011).

Perceptions of local food in terms of value for money reported in the literature are inconsistent (Khan & Prior, 2010; King et al., 2010; Knight, 2013; MAFF, 2007). A Canadian study reported that some consumers considered being of good value for money was a characteristic of local food, while other consumers found cost was the barrier to buying local food (Knight, 2013). Two studies undertaken in the UK found that their respective respondents perceived local food as expensive (Khan & Prior, 2010; Madgwick & Ravenscroft, 2011). At odds with these studies, a national study conducted by the Food Standards Agency (2007) reported that one in ten consumers in the UK considered local food as cheaper.

The perception of the price of local food may be associated with the type of distribution method. In Japan, directly-sold produce is considered cheap, partly due to the fact that producers use marketing channel such as farm sales to sell products that have been disqualified to sell through intermediaries (MAFF, 2007). On the other hand, King et al. (2010) note that local food could be expensive due to the cost of supply chains in case of local sourcing by retailers. They note that the preferred sourcing method by distribution centres in the US is to have "large volumes of products from a relatively small number of suppliers to benefit from economies of scale in distribution" (King et al., 2010, para. 7). However, local sourcing generally requires handling of a large number of suppliers with no economies of scale to benefit from (King et al., 2010). Another reason why local food could be expensive is due to the cost suppliers have to bear, including costs of trade promotions and contributions to marketing development funds (King et al., 2010).

High availability and convenience have been considered as attributes of local food by consumers in the UK whose definition of local food was associated with retail chains such as supermarkets (Khan & Prior, 2010; Madgwick & Ravenscroft, 2011). In contrast, a national study in the US reported that many consumers in the US considered that local food was not highly available (Onozaka et al., 2010).

In addition, shopping for local food can be associated with positive social experiences in case where local food is defined with reference to distribution method (Kimura & Nishiyama, 2008). When local food is defined as food that is sold by the farmer or someone who knows well about the food, shopping experience involves communications with the producer and/or the seller, which some consumers enjoy (Madgwick & Ravenscroft, 2011; Tregear, 2011).

2.4.4 Benefits to society

Examples of benefits to society are environmental friendliness and support for community. Support for community includes support for rural economy, conservation of the land and culture, and building trust-based connection among people (Knight, 2013; Saito & Saito, 2013; Selfa, Jussaume, & Winter, 2008; Winter, 2003). Local food is also associated by some consumers with an expression of opposition against the mainstream food systems (Ikerd, 2011; Knight, 2013).

In particular, environmental friendliness is commonly associated with local food by consumers (Food Standards Agency, 2007; Roheim et al., 2007; Seyfang, 2008; Tobler et al., 2011). However, there is a variation in the perceived environmental friendliness of local food, which can be problematic in terms of consistency between intention and outcome. Selfa et al. (2008) note that consumers may consider local food as environmentally friendly due to one factor, and disregard other factors that offset the perceived environmental friendliness of the product. The environmentally friendly characteristics of local food that have been reported by consumers include lower carbon footprint, shorter transport distance, less pesticide residue, organic, non-GMO, seasonal, fresh, and unwrapped (Campbell et al., 2014; Selfa et al, 2008; Tobler et al., 2011). However, local food may not be an environmentally friendly choice if a consumer who evaluates environmental friendliness of food based on the distance food has travelled bought food that was produced in a greenhouse in his/her neighbourhood (Tobler et al., 2011).

Support for community is also an important social value of local food to consumers. The association of local food with support for community has been reported in several contexts, including Europe, the US, and Japan (Food Standards Agency, 2007; Tobler et al., 2011; Tropp, 2014). In Europe, the association of local food with support for community is closely related to the idea of rural development (Tregear, 2011). Rural development, in turn, is associated with conservation of the land, tradition, and quality of food, as well as keeping jobs in the area (Ilbery & Kneafsey, 2000; Murdoch, 2000). The association of local food with support for community also means supporting local economy, i.e. producers and retailers, through purchase of local food (DEFRA, 2008; Food Standards Agency, 2007; Kneafsey, 2010). Indeed, the agricultural policies and programmes of the EU are based on the conceptual links between local food, rural development, tradition and quality, and building trust among people (Feagan, 2007; Murdoch et al., 2000). The conceptual links around local food and support for community in Japan are similar to those in the UK (MAFF, 2014). It has been identified that Japanese consumers associate local food with rural development, support for small-scale farmers, building trust among people, and conserving traditional culture (Kimura & Nishiyama, 2008; MAFF, 2007).

The case of the US is slightly different from Europe and Japan in that there is no obvious link between conservation of tradition and support for community

through local food (Onozaka et al., 2010; Tropp, 2014). Nevertheless, the association of local food with support for community has been found related to supporting local farmers and small businesses in the US (Ikerd, 2011; Paarlberg, 2010; Roheim et al., 2007). In addition, community gardens and CSAs have been promoted by the governments at various levels for the purpose of enhancing trust-based relationship in the community as well as community food security (Feagan, 2007; Martinez, 2010). However, it is also noteworthy that a recent study by Pole and Gray (2013) reported that many of the members of CSAs had joint CSAs for the purpose of gaining access to fresh vegetables, and that they were not particularly interested in social values of the membership.

The differences in associations of local food with various attributes between Europe and North America may be explained in terms of differences in the form of place embeddedness. According to Harris (2009), a sense of place is embedded into either the food itself or the supply chains. The approach of embedding the food with a sense of geographical origin is more common in Europe, while the approach of embedding the supply chains is more wide-spread in North America (Harris, 2009). In the former approach, the food is perceived with the image of the place where it was produced in, thus its consumption is considered to support the place of its production. This type of local food, therefore, is associated with support for the area of production, including economic development, conservation of the land, and the tradition of making the food in the area (Harris, 2009). Harris's (2009) notion that this is the approach that is common in Europe is consistent with other studies that discuss local food in association with rural development (Ilbery & Kneafsey, 2000; Murdoch, 2000; Kneafsey, 2010; Tregear, 2011). In contrast, the approach of embedding supply chains with a sense of place is consistent with CSAs and direct-to-consumer types of distributions that are common in North America (Martinez, 2010). This approach associates local food with the characteristics of the flow of products and money. If this approach is common in North America as Harris (2009) notes, it explains why the North American literature discusses local food in association with support for small, but not necessarily rural or traditional, farmers and businesses.

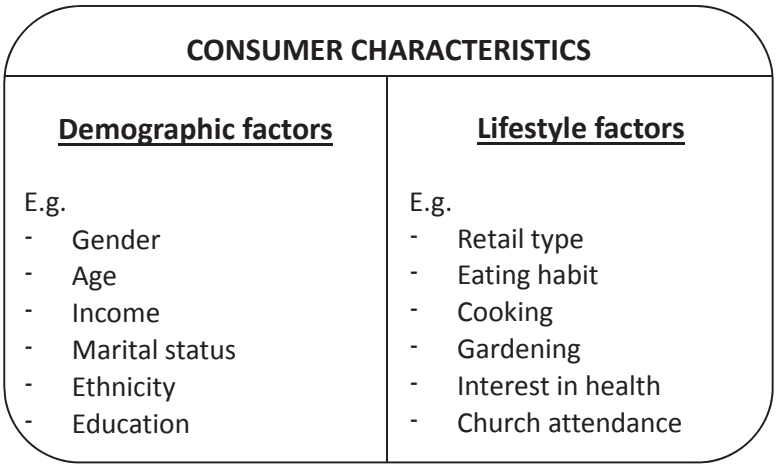
For some consumers, supporting local food is an expression of opposition against modern food systems (Ikerd, 2011; Knight, 2013). They understand local food in association with various attributes that modern food systems cannot offer, such as preservation of traditional agriculture that is not highly competitive in the global

market (Tregear, 2011). Focussing on the differences between local food and non-local food, local food is sometimes referred to as alternative food (Born & Purcell, 2006; DuPuis & Goodman, 2005; Feagan, 2007; Winter, 2003). The relationship between local food and alternative food is further explained in Appendix A. Alternativeness of local food is associated by some researchers with resistance to the modern food systems (Kneafsey, 2010). However, other researchers consider that local food may be alternative to food provided through modern food systems, but not necessarily oppositional to the modern food systems (Allen et al., 2003; Sonnino & Marsden, 2006). Local food may be distributed through mainstream food supply chains, in addition to alternative food systems such as farmers' markets (Feagan, 2007). Recent studies of local food that focus on up-scaling of local food production and increased supply of local food through conventional food supply systems are consistent with this stance that views local food as separate from a signal of resistance (Abatekassa & Peterson, 2011). It is assumed in these studies that the alternativeness of local food would not be affected by the means of distribution (King et al., 2010). This assumption resembles the logic behind the conventionalisation of organic food (Feagan, 2007; Lockie, Lyons, & Lawrence, 2000). Leaving aside the argument about whether or not local food represents resistance to the logic of capitalism, local food is distinguished from widely distributed food, thus considered as alternative.

2.5 Consumer characteristics

Attributes associated with local food and the relative importance of the attributes to consumers are influenced by consumer characteristics (Albisu et al., 2011; Weatherell, Tregear, & Allinson, 2003). Consumer characteristics include demographic factors and lifestyle factors (Figure 2.5) (Albisu et al., 2011; Weatherell et al., 2003). Demographic factors are characteristics that define consumers socially, such as age and gender (Albisu et al., 2011). Meanwhile lifestyle factors are about habits and preferences such as where they buy food from, and how much interest they have in cooking and eating (Selfa et al., 2008). These demographic factors and lifestyle factors also influence purchase decisions to some extent, although decision making is far more complex than a simple reflection of consumers' attitudes towards the value of food (Selfa et al., 2008).

Figure 2.5 Components of consumer characteristics



Source: Developed based on studies by Campbell et al. (2014), DEFRA (2008), Khan & Prior (2010), Selfa et al. (2008), and Weatherell et al. (2003).

2.5.1 Demographic factors

Gender is a demographic factor that influences consumer perceptions of local food (DEFRA, 2008). Females tend to have higher levels of support for locally grown food than males (Knight, 2013). This is considered due to traditional roles of women in family, with females being more likely to be the primary household grocery shopper, and more involved in food preparation than men (Knight, 2013). Gender difference was also found to affect purchasing of locally grown food (Khan & Prior, 2010). According to Khan and Prior (2010), more women bought local food than men in the UK. They noted that "this could have also been because women generally tend to do most grocery shopping than men overall" (Khan & Prior, 2010, p. 165). Gender difference was also reported by Campbell et al. (2014), who found that female Canadians associated local food with environmental benefits more than males.

Age is another factor associated with the degree of interest in local food (Khan & Prior, 2010). Khan and Prior (2010) found that younger respondents, aged 18-44 years, had relatively poor understanding of the term local food in their study in the UK. DEFRA (2008) also noted that older consumers in the UK were more aware of the regional provenance of food. Similar finding was reported by Campbell et al. (2014) whose study in the contexts of the US and Canada examined whether their sample "correctly perceives decreased miles to transport as a characteristics of local" (p. 26). Their results showed that older respondents understood the term

local food more accurately, i.e. as food that travels less distance. Furthermore, Campbell et al. (2014) found that younger US consumers associated local food with higher price. The perception of association between local food and taste also varied across age groups in the US, with older consumers finding stronger association (Campbell et al., 2014). In contrast, older US consumers were less likely to associate local food with environmental benefits (Campbell et al., 2014). In addition, younger, higher educated US consumers were more likely to perceive non-GMOs as local food (Campbell et al., 2014).

Related to the difference in understanding across age groups, Madgwick and Ravenscroft (2011) noted that the meaning of local food for older population, aged 50 years and above in their study, might be different from other age groups. Their notion was based on their results that the term local for older UK consumers meant "little more than a spatial referent along a continuum of shopping experiences" (p. 108).

With respect to purchasing of local food, DEFRA (2008) noted that older consumers in the UK tended to buy more of locally produced food, compared with younger consumers. Khan and Prior's (2010) finding was consistent with DEFRA (2008), with the age group 18-24 being least likely to purchase locally grown food, and the 55-64 age group being most likely to do so. Age difference in purchase of local food was also found by Selfa et al. (2008). Their finding was that older consumers over the age of 40 years in the US, especially those with lower education levels, were more interested in supporting local farmers through their purchases (Selfa et al., 2008).

Perhaps related to age, marital status has also been found associated with differences in local food perceptions, with married couples displaying more positive attitudes towards local foods than single people (Khan & Prior, 2010; DEFRA, 2008). In addition, DEFRA (2008) reported that the presence of children in the household did not have any real effect on actual buying behaviour.

Urban/rural residency has been reported as a significant demographic factor that influences consumers' perceptions and buying intentions of local food, especially in the context of the UK (Campbell et al., 2014; DEFRA, 2008; Weatherell et al., 2003). For example, the geographical distance perceived as local is shorter for rural consumers than urban consumers (DEFRA, 2008). Urban consumers are found to have a broader understanding of the term local, which could be regional

or even national (DEFRA, 2008). Khan and Prior (2010) noted considered that urban consumers were more confused about the term local, as the majority of urban consumers defined local food as food sold in their local shop. They also found a tendency that rural dwellers were more likely to buy local foods than urban dwellers. In addition, Campbell et al. (2014) reported that there was some difference between urban and rural consumers in the US. They found that association of local food with better taste was weaker for urban consumers compared to rural consumers. Campbell et al. (2014) also found that Canadian females living in rural areas had a tendency of considering local food as organic. In understanding the difference across urban/rural residency, Weatherell et al. (2003, p. 242) considered "as rural based consumers are closer to sources of food production and have more contact with the communities engaged in this production, their awareness and concern for wider socio-economic issues surrounding agro-food systems is greater".

Influence of ethnicity and educational level on perceptions of local food has been inconsistent. According to the study by Campbell et al. (2014), differences existed between Caucasian and non-Caucasian in the case of US, with Caucasian demonstrating more knowledge about local food. However, there was no such difference found in Canada (Campbell et al., 2014). With respect to education, it was found positively related to local food consumption, with higher education levels leading to higher local food consumption (Knight, 2013). However, another study reported that higher education levels were not significantly related with more knowledge or interest in local food (Campbell et al., 2014; Selfa et al., 2008).

Income is another demographic factor that inconsistent findings have been reported on. While some researchers have reported income as an influential factor on perceptions of local food (Campbell et al., 2014), others argued whether it was significantly influential on purchasing of local food (Khan & Prior, 2010; DEFRA, 2008). Campbell et al. (2014) found that lower income consumers both in the US and Canada tended to associate decreased miles to transport with organic. They further noted that higher income US consumers considered local food as higher priced. Moreover, income was negatively associated with perceptions of local food as better tasting in the US (Campbell et al., 2014). In Canada, association of local food with nutrition increased with income (Campbell et al., 2014). Khan and Prior (2010) commented on the situation in the UK, and

stated that the knowledge about local food was fairly consistent across income levels.

With respect to actual buying behaviour, UK consumers with higher income levels have been found to buy more locally produced food (Khan & Prior, 2010; DEFRA, 2008). However, the relationship between income and local food consumption has also been described as inconsistent (Knight, 2013). Nie and Zepeda (2011) argued that people with high income fall into two consumer groups: one group regularly purchases local foods and the other group does not. Furthermore, Selfa et al. (2008) found that income levels were negatively associated with the degree of interest in making environmentally friendly purchases. It was noted that consumers with lower income were no less willing to support environment, as they tended to take environmental friendliness of products into consideration when making purchasing decisions more than consumers with higher income (Selfa et al., 2008).

A study in the US further noted that motivations for purchasing local food varied across different income groups (Roheim et al., 2007). According to this study, while freshness and quality were the most important reason across all income groups, respondents from the highest income group were more likely to rank these attributes as most important (Roheim et al., 2007). Concomitantly, the lower medium income group tended to buy local food in search for a better price, and the higher income groups placed more importance on supporting small businesses and local economy (Roheim et al., 2007).

Theoretically, income level is associated with consumers' ability to reflect their perceptions of food on actual purchasing. This is because consumers with higher income would have more flexibility with their food choice (Weatherell et al., 2003). Purchase decisions are made based on considerations of various trade-offs between perceived benefits of food and barriers to buying it (Selfa et al., 2008; Weatherell et al., 2003). Although price still plays a significant role irrespective of affluence of consumers (Weatherell et al., 2003), consumers with high income who are able to afford the trade-offs between costs and perceived benefits have more opportunities to express their perceptions of benefits through purchase behaviours.

2.5.2 Lifestyle factors

Lifestyles and habitual behaviours also characterise consumer perceptions of local food (Selfa et al., 2008). For instance, frequency of purchasing locally grown food in the US had a positive influence on association of local food with nutritional value and better taste (Campbell et al., 2014). In the UK, people who garden, attend church services regularly, and are acquainted with farmers are found to consider purchase of locally grown food as important (Selfa et al., 2008). Furthermore, US consumers who had recycling habits as well as environmental knowledge (e.g. having heard of the term sustainable or eco-friendly) tended to consider that local food was food with decreased miles to transport (Campbell et al., 2014). However, environmental concern has been identified to have a negative influence on buying behaviour of locally grown food in the context of UK (DEFRA, 2008). In addition, willingness to support local economy was reported as a positively influential factor on buying intention of local food for UK consumers in the study by DEFRA (2008), but not in the study by Khan and Prior (2010).

Along the lines of considering lifestyles as an influential factor on perceptions and purchasing of local food, Selfa et al. (2008, p. 273) noted that consumers who are strongly in favour of policies to restrict non-agricultural development to maintain local family farms were likely to buy more locally grown food. The association of political attitude with support for local food was also cited in Winter's (2003) study. Additionally, UK consumers were found to have positive perceptions about local food being not branded, and they bought more of non-branded local food when eating out (DEFRA, 2008).

2.6 Studies in New Zealand

In New Zealand, research on the concept of local food has been limited in volume. Although some studies about consumers' food choice and their lifestyles have identified definitions of local food that are not simply about geographical proximity (Millar, 2012; Mirosa & Lawson, 2012), definitions and perceptions of the term local food were not the central focus of those studies. Therefore, these studies have left room for further investigation of the topic.

2.6.1 Definitions of local food

Research has identified that consumers in New Zealand have several ways of defining the term local food (Millar, 2012; Mirosa & Lawson, 2012). Locally produced food is a common definition of local food with a focus on geographical proximity. However, the geographical size of the perceived local area is inconsistent (Mirosa & Lawson, 2012). Millar (2012) found that some of the consumers he interviewed in the Otago region (central South Island) considered local meat as meat that came from within the South Island. This means that consumers in the South Island may consider the whole of the South Island as local. One interviewee in Millar's (2012) study further commented that the term local could be interpreted as the Otago region, the South Island, or the whole of New Zealand. Millar's findings were also supported by a study by Mirosa and Lawson (2012) that identified that the local area perceived by consumers in the South Island may also include the North Island, depending on the situation.

Mirosa and Lawson (2012) noted that the geographical scales used to define local food may vary depending on what products are being discussed. In the South Island where the climate is suitable for growing apples but not for oranges, oranges that were grown and transported from the North Island would be perceived by consumers as local, but that apples would have to be from within the South Island in order to be considered as local (Mirosa & Lawson, 2012). This finding implies that geographical proximity represented by the term local food is a relational concept that varies across regions with different climate, and foodstuffs perceived as local food are influenced by what food can be grown in the region.

In concomitance with the climate and the availability of products, what is happening in the environment may have influence on consumers' understandings of local food. For example, the term local is frequently used to mean domestic in New Zealand (Millar, 2012). The phrase "made from local and imported ingredients" is commonly found on food packages (Millar, 2012). However, the use of the term local on the packaging is not due to specifications by authorities. The meaning of the term local is not defined in the Australia New Zealand Food Standards Code, and labelling of the country of origin is not mandatory in New Zealand (Millar, 2012). In comparison, in Canada where the use of the term "local" has been regulated, "local" cannot be used on labels to indicate the national boundary (Canadian Food Inspection Agency, 2014). A statement such as "made from domestic and imported ingredients" would be an equivalent for the New

Zealand “made from local and imported ingredients” statement in Canada. Therefore, the spread of the phrase “made from local and imported ingredients” in New Zealand may influence consumers in a way that leads to unique perceptions of the term local in New Zealand.

Additionally, the type of promotional programmes for local food consumption may also influence consumers’ perceptions of local food. The New Zealand national government ran a campaign named the Buy Kiwi Made programme between 2007 and 2009. The Buy Kiwi Made programme aimed at raising awareness and consideration of buying New Zealand made goods, which included but was not limited to foodstuffs, by increasing use and recognition of New Zealand origin branding and labelling (Ministry of Economic Development, 2009). The definition of New Zealand-made was based on the Fair Trading Act case law, which excluded products manufactured offshore from New Zealand raw materials using New Zealand design (Ministry of Economic Development, 2009). The programme encouraged consumers to feel good about supporting the national economy through purchase of domestically made products, even though it had been developed in a way that would not discriminate against imported products in consideration of New Zealand’s commitments under World Trade Organisation and other trade agreements (Ministry of Economic Development, 2009). As promotional programmes for local food consumption in other countries such as the US and Japan have been administered by various organisations and authorities (Japan Speciality Agriculture Products Association, n.d.; Martinez et al., 2010), the fact that there have not been similar initiatives led by the government at a regional level in New Zealand (Millar, 2012) may be unique. National campaigns such as the Buy Kiwi Made programme may therefore have influenced consumers’ attitudes regarding what unit of community to support through their purchase decisions.

Some consumers in New Zealand understand local food as food that is directly sold by the farmer. Millar (2012) found this in his study of consumers and food service providers in the red meat sector in the Otago region. This finding is consistent with the definition of local food based on marketing arrangements as discussed by Martinez et al. (2010) in the US context. Furthermore, some New Zealand researchers have discussed farmers’ markets as one of the distribution channels of local food in New Zealand (Guthrie et al., 2006; Millar, 2012), defining farmers’ markets as markets where producers sell their products directly to consumers (Lawson et al., 2008). The association of local food with farmers’

markets is also supported by the media (Chalmers et al., 2009). Farmers' markets have a relatively short history in New Zealand compared with countries such as the UK and the US where they have existed for centuries (Lawson et al., 2008). Therefore, farmers' markets may be less integrated into the tradition and the custom of food shopping in New Zealand compared with the situations in the UK and the US. It is worth noting that local and regional authorities in New Zealand have been supporting establishments of farmers' markets (Guthrie et al., 2006). The growth in number of farmers' markets may mean that the demand for local food is growing (Millar, 2012). However, Guthrie et al. (2006) consider that the development of farmers' markets in New Zealand have been driven by factors from the supply side, rather than from the consumer side. Moreover, it has not been explored if farmers' markets would be associated by consumers with local food in terms of the directness of the exchange between producers and consumers, or due to the geographical proximity of the point of sale from the point of production.

In New Zealand, marketing channels for direct sales of foodstuffs include farmers' markets, farmgate shops, box schemes (i.e. subscription-based periodical delivery service), and internet sales. In the case of internet sales, foodstuffs may travel up to a few hundred kilometres from the producer to the consumer. For example, Riverside Orchards, a grower of fruit and vegetables in the Manawatu region of the North Island, sell their produce at their farmgate shop, do delivery to customers in the neighbourhood, and receive orders on their online store from consumers from all over the North Island (Riverside Orchards, n.d.) Hawkes Bay Seafoods, a vertically integrated seafood company that handles from fishing to retailing, also run an online shop through which they sell their products nationwide, in addition to selling through their on-site outlet in Napier of the North Island (Hawkes Bay Seafoods, n.d.). Meadow Farms based in Dunedin o the South Island also accepts orders from nationwide and sends out their meat products in a frozen form (Meadow Farms, n.d.). Previous studies in New Zealand have not identified whether consumers consider foodstuffs sold through websites of the producer as local food.

In addition, some people understands local food as food that represents a locality in New Zealand (Mirosa & Lawson, 2012). Millar (2012, p. 32) calls this approach as "fixing products to place". There is awareness on the side of producers and marketers that this approach is increasingly important for the

purpose of increasing marketability of products (Millar, 2012). Even though there are efforts to establish regional brands that can claim premium price, including examples in the wine industry, not many have been successful (Chalmers et al., 2009). Research has not yet explored if this approach of understanding the term local food is recognised by consumers.

2.6.2 Attributes associated with local food

Attributes of products that consumers associate with the local food concept have been studied in the red meat sector by Millar (2012). He found that freshness, taste, and animal welfare were important attributes of local meat. With respect to animal welfare, it was considered as important "not just because of the wellbeing of the animal but because the wellbeing of the animal affects the quality of the meat" (Millar, 2012, p. 23). Other key attributes demanded by consumers include traceability and supporting local economy (Millar, 2012). In addition, Millar (2012) reported environmental friendliness as a positive factor that motivates consumers to buy local food. According to him, the environmental friendliness of local food perceived by consumers was due to lower food miles and reduced packaging, and no water pollution. This indicates that consumers' perception of environmental friendliness of local food may not fully reflect a number of environmental concerns generally discussed in New Zealand, including soil degradation and reduction of genetic diversity associated with industrial agricultural practices (Millar, 2012).

The local food concept may be associated with positive perceptions of production methods that in turn are associated with administrative boundaries. Millar (2012) found that local meat was perceived by consumers as healthier and safer because of its perceived association with being chemical free. Local meat was further found associated with trustworthiness and with transparent operations (Millar, 2012). The association of local food with attributes of on-farm practices was also demonstrated in a comment recorded by Millar (2012) that was made by a foodservice owner: "What is locally produced – is it if you could walk to the animal from your place? New Zealand or South Island or Otago as local, New Zealand as a whole is pretty much free range, not high intensity farming, less chemicals put in so a local brand isn't going to be much different" (Millar, 2012, p. 21). This comment indicates an association between administrative boundaries used to define local food and on-farm practices. Since regulations and norms with respect to on-farm practices and other production methods vary across geography,

associations of local food with characteristics of production methods may partly explain the variation in geographical scales used to define local food.

The study by Mirosa and Lawson (2012) also found that buyers of local food are more conscious about health-related quality of food than non-buyers of local food. Consumers who buy local food valued quality of food more, looked more for fresh and unprocessed foods, showed support for organic and non-GMOs, and ate fewer of the convenience and snack items (Mirosa & Lawson, 2012). These findings are similar to the findings by Millar (2012) who identified differences in food choice between consumers shop at farmers' markets and consumers who do not. Millar (2012) found that consumers who visit farmers' markets place more importance on quality when making purchase decisions, and are less concerned about price and convenience than consumers who only shop at supermarkets. Quality of food perceived by those consumers who buy at farmers' markets included animal welfare, chemical usage, and knowledge of the source of the product, in addition to freshness and taste that were perceived as quality of food also by other consumers (Millar, 2012). Millar's (2012) findings are consistent with findings by Chalmers et al. (2009) who studied the local food concept in multimedia in New Zealand, in that local food sold at farmers' markets is perceived as locally grown food that is of high quality.

The association of local food and organic food in New Zealand has been reported previously by academic researchers (Campbell & Liepins, 2011). In addition, websites of existing food retailers also suggest perceived association of the term local and organic food. For example, Huckleberry Farm, an Auckland-based retailer of "natural, organic and gluten free" products (Huckleberry Farms, 2008) state on their website that "Huckleberry Farms buyers will always look to purchase locally first and many of our 200+ suppliers are very small businesses who couldn't dream of being able to supply regular supermarket chains". This website suggests that local sourcing is associated with the idea of organic food and of supporting small businesses. Similarly, Steve's Wholefoods in Palmerston North City is described by one of their suppliers as a store that sells "organic, gluten-free and natural products" where "a lot of organic, locally-grown produce" are available (Ecostore, 2013). This description also suggests closeness of the concept of organic food and locally-grown food.

Even though some people may associate the concept of local food with organic food, Chalmers et al. (2009) argue that local food has received more attention of the media than organic food (Chalmers et al., 2009). This may mean that benefits of local food perceived by food-related businesses, policy-makers, and consumers are greater than those of organic food in New Zealand.

2.6.3 Consumer characteristics

Due to limited knowledge about the local food concept for consumers in New Zealand, demographic and non-demographic factors that influence consumers' perceptions of local food are not yet clear. However, Mirosa and Lawson (2012) have found that lifestyles are associated with consumers' purchasing behaviours of local food. According to them, consumers who buy local food tend to have more general interest in food, including preparation and cooking, having dessert with dinner, a drink at the end of the day, and socialising over the home barbeque or a meal at a restaurant, in comparison with consumers who do not buy local food. It is important to note here that their study was based on the results of a national consumer lifestyles survey that included a single item question "I try to buy a lot of locally produced food". This means that local food they referred to in their study was food that was defined with respect to the place of production, although the geographical scope indicated by the terms locally produced was not specified. Nonetheless, the study showed that general interest in food has influence on purchasing local food.

With respect to food choice in general, a study in the UK reported that the size and type of retail outlet have influence on consumers' expectations of product characteristics (Millar, 2012). This is consistent with research in the New Zealand context, including Millar's (2012) findings about differences between shoppers at farmers' markets and other shoppers. Guthrie et al. (2006) also noted that the opportunity of shopping at farmers' markets influence consumers' food choice. However, while the number of farmers' markets is growing, regional and national supermarket chains are also increasing sourcing of high quality local produce (Millar, 2012). This means that consumers' food choice is potentially less dependent on the choice of retail outlets, as a greater range of products are becoming available through various types of outlets. As Millar (2012) noted, consumers who shop at farmers' markets also buy food from supermarkets. In fact, New Zealanders buy up to 70% of their food at supermarkets (Ministry of Health, 2012). Therefore, the availability of products at supermarkets may have a greater

influence on food choice than the accessibility to different types of retail outlets in New Zealand.

Food choice is also influenced by household income in various ways (Ministry of Health, 2012). First of all, income affects purchase decisions of the type and quantity of food (Ministry of Health, 2012). Socio-economically deprived households tend to have more nutritionally unbalanced diets, consuming more food that is rich in fats (Ministry of Health, 2012). Secondly, it affects availability of cooking and storage facilities in a household, which in turn influence what food to purchase (Ministry of Health, 2012). It also affects availability of time. Research found that low-income working mothers tend to buy more ready-made meals for their families due to lack of time to shop and cook (Ministry of Health, 2012). In addition, income is associated with daily transport. The households without access to a car comprise around 10% of the total households in New Zealand, and they are predominantly socioeconomically deprived households (Ministry of Health, 2012). Ministry of Health (2012) notes that households without a car may have limited choice of retail outlets to visit for grocery shopping, which in turn restrict choice of food.

Price and convenience are major determinants of food choice in New Zealand (Millar, 2012; Ministry of Health, 2012). Price is particularly important for low-income consumers, as well as for Maori and Pacific families (Ministry of Health, 2012). Farmers' markets can provide consumers with an opportunity to purchase lower-priced fresh produce (Ministry of Health, 2012). However, large-scale and industrialised retailers also have the potentials to provide high quality local food effectively and efficiently (Millar, 2012). Farmers' markets may be less convenient, and more difficult to be accessed by households without cars (Ministry of Health, 2012). Therefore, retail chains may be preferred by consumers who prioritise convenience (Millar, 2012).

Among the factors that influence dietary choices and eating patterns, household income appears to be associated with both the type of food consumers buy and the choice of food retail outlets they visit. Other factors that influence food choice include education, occupation, culture and ethnicity (Ministry of Health, 2012). In addition, research has found that low-income New Zealanders, as well as Maori and Pacific residents, are less likely to read labels on packages of foodstuffs (Ministry of Health, 2012). This indicates that they are less dependent on the

knowledge about the food such as the place of production and nutritional values, when making purchase decisions. Since potential components of the local food concept are associated with the place of production and/or consumption, distribution channels, and product quality, there is a possibility that household income influences perceptions of local food along with other factors that are related to income.

2.7 Summary

The literature review revealed that the term local food is used by different individuals to mean different things. Consequently, there are various ways to define the term: on the basis of geographical distance and/or administrative boundaries; with a focus on distribution channels; and based on the quality dimension. Local food is also associated with various attributes, including those regarding product characteristics such as freshness, and those regarding benefits to society such as environmental sustainability and support for local economy. In addition, the association between the local food concept and alternative agri-food networks requires attention. As the study of local food is still relatively new, there is no single theoretical framework that is used universally to analyse the concept multi-dimensionally. In order to understand the meaning of local food to consumers, it is important to consider different approaches to defining local food, as well as consumers' expectations of it when they make purchase decisions. Furthermore, consumers' understandings of local food have to be analysed within a geographical context, as research has identified differences across countries and regions.

It was outlined that there is a gap of knowledge about consumers' perceptions of local food in New Zealand. Even though studies have suggested a growth of interest in local food, it is not clear how the use of the term local food is perceived by consumers. Understanding the way consumers define local food and the attributes that are valued by consumers in association with local food is critical for producers and marketers who are seeking business opportunities in agri-food industry. Therefore, this study aims to identify the meaning of local food to consumers in New Zealand, and examine the attributes that are associated with the local food concept.

CHAPTER THREE

Methodology

3.1 Introduction

This chapter describes the research process followed in this study. It first identifies the research problem, as well as research aim and objectives. It then provides details of reviewing literature, research design, secondary data collection, primary data collection, data analysis, data description and discussion, and ethical considerations.

3.2 Research problem identification

While there is a growing awareness among food producers, marketers, and policymakers that the term local food is increasingly meaningful to consumers, definitions of local food are diverse (Feagan, 2007; Knight, 2013; Tregear, 2011). In order for food producers, marketers, and policymakers to communicate effectively with consumers, it is important to understand the language of consumers in terms of how they define local food and what attributes they associate with local food (DeLind, 2011).

The literature on local food illustrates how the concept of local food varies by context, from individual to individual, and across countries (Kneafsey, 2010; Martinez, 2010). However, research on local food has predominantly been conducted within the contexts of Europe and North America (Andrée et al., 2010). In New Zealand, research on local food has been limited (Millar, 2012). Even though a few studies have collected primary data from consumers in New Zealand regarding their interest in local food, specific definitions of local food had been provided to consumers in these studies (Millar, 2012; Mirosa & Lawson, 2010). Therefore, knowledge about the meaning of local food to consumers in New Zealand is still very limited.

3.3 Research aim and objectives

The aim of this research is to understand the meaning of local food to consumers in New Zealand, with a focus on the Manawatu region (lower North Island).

There are three research objectives:

- To identify how consumers define local food internationally and in New Zealand
- To examine the attributes that are associated with the local food concept in the Manawatu region of New Zealand
- To analyse and discuss how household income influences the understandings of local food in the Manawatu region of New Zealand

3.4 Reviewing literature

Reviewing literature refers to the process of examining previously published research relevant to the topic of interest (Robson, 2002). A literature review assists the researcher to obtain ideas on the topic of interest, identify what has already been studied by other researchers, learn about methodological ideas, and contextualises the research findings (Robson, 2002).

This study has reviewed the literature concerning trends in consumer demand that are described using the term local food, both in New Zealand and other countries. In particular, definitions of local food and attributes associated with local food have been reviewed. Based on the information obtained from the literature review, this study was designed and conducted.

3.5 Research design

3.5.1 Research approach

There are multiple philosophical approaches to the same research topic, such as positivism and interpretivism (Saunders, Lewis, & Thornhill, 2012). While the positivist paradigm takes the view that the world is external and objective to the researcher, the interpretive paradigm emphasises the view that the world is socially constructed and subjective (Veal, 2005). The choice of philosophical approach reflects the values of the researcher and some assumptions made in the study (Saunders et al., 2012). This study has adopted the interpretive approach. This is because the study is based on the idea that the concept of local food is socially constructed.

Research may use an inductive approach, a deductive approach, or combination of the two approaches (Saunders et al., 2012). Inductive research collects

information to build a theory, while deductive research involves testing of a theory (Saunders et al., 2012). This study is both inductive and deductive: it is inductive because it aims to collect information to explain the situation around local food in New Zealand, and it is deductive because it uses information from the existing body of knowledge to examine how much of it applies in the context of New Zealand.

Research can be exploratory, descriptive, and/or explanatory, depending on its purpose (Saunders et al., 2012). Exploratory research aims to better understand the phenomena in the situation (Sekaran & Bougie, 2010). Descriptive research is often conducted in addition to either an exploratory or an explanatory study, providing information that adds to a general picture of the phenomenon under study (Saunders et al., 2012). Explanatory research investigates causal relationships between variables (Saunders et al., 2012). When only a few studies have been conducted in a certain area, exploratory studies are useful (Sekaran & Bougie, 2010). Findings of an exploratory study that has been conducted as a preliminary work provide a basis for the development of theories and hypotheses which can be tested in subsequent studies (Ghauri & Grønhaug, 2005; Sekaran & Bougie, 2010). As this is a preliminary work that aims to understand what is happening on the topic of local food in New Zealand, it is an exploratory study.

3.5.2 Research strategy

There is a variety of research strategies that can be employed for exploratory research as well as other types of research (Saunders et al., 2012). The survey strategy is commonly used for exploratory research due to the ease of collecting a large amount of data in an economical and time-efficient way (Saunders et al., 2012). In this study, the survey strategy is used, following examples from previous empirical studies on local food, such as the UK study conducted by Khan and Prior (2010) and the Canadian study conducted by Knight (2013).

For collection of information that is qualitative in nature, qualitative and/or quantitative methods can be used (Veal, 2005). While qualitative methods are effective in collecting in-depth information, quantitative methods provide the ease of handling a large sample (Veal, 2005). In a case where the aim of the research is to analyse the variability and examine similarities and differences from the findings in previous studies, quantitative methods such as questionnaire-based survey are a useful approach (Veal, 2005). For this study, the information that needs to be collected is qualitative in nature. As this study has aimed to analyse

the variability of definitions of local food as well as compare the results to the existing body of knowledge, a quantitative approach was adopted.

Use of a self-administered questionnaire as a survey tool is effective for collection of quantitative data (Saunders et al., 2012). It also allows easy comparison of the collected data with previous findings (Saunders et al., 2012). Therefore, this study used the survey strategy that uses a self-administered questionnaire.

In addition, questionnaire-based surveys are most productive when the respondents are expected to be able to read and understand the questions (Denscombe, 2007). As the literacy rate of the population aged 15 and above in New Zealand is 99% (Central Intelligence Agency, n.d.), it was considered appropriate to use a self-administered questionnaire in this study.

Questionnaire-based surveys can be conducted through face-to-face interviews, postal mail, and online (either by e-mail or web-based) (Saunders, Kolandai, Greer, Kaye-Blake, & Sorensen, 2009). Postal and online questionnaires are advantageous in that potential respondents can be reached regardless of how dispersed the population is (Saunders et al., 2009). On the other hand, the disadvantage of postal and online questionnaires is that they contain risks that misunderstandings of the survey questions may not be detected (Robson, 2002). In comparison, face-to-face interviews provide opportunities to correct misunderstandings or to offer help with poor literacy (Oppenheim, 1992). Additional information may also be gathered through observations in case of face-to-face interviews (Oppenheim, 1992). However, disadvantages of face-to-face interviews are that they can be more expensive and time-consuming than postal or on-line surveys (Oppenheim, 1992). Nonetheless, the response rate is likely to be higher for face-to-face interviews compared with postal or online questionnaires (Saunders et al., 2009). In this study, questionnaires were distributed face-to-face to ensure a high response rate. The actual response rate in this study was not calculated, as the total number of potential respondents who happened to be at the survey venues were not recorded. However, the fact that 240 respondents were found in a total of 52 hours spent on survey venues indicate that one participant in every 13 minutes on average was being successfully recruited during the data collection.

There is always a risk of biases in data collection (Robson, 2002). Interview bias is one of them. Data may be affected by characteristics of the interviewers, such as personality, skills and ethnic background (Denscombe, 2007; Robson, 2002).

Interviewer bias may exist in postal and on-line surveys as well as in face-to-face interviews, because the respondents may create an image or a stereotype of the administrator of the survey while interacting with the questionnaire (Oppenheim, 1992). It is also important to note that there is likely to be a social desirability response bias, regardless of the types of questionnaires (Robson, 2002). This means that respondents may not report their true attitude or beliefs in order to present themselves in what they consider as an agreeable manner. In order to reduce the influence of the social desirability response bias, neutral expressions were used in the questionnaires for this study.

3.5.3 Sampling

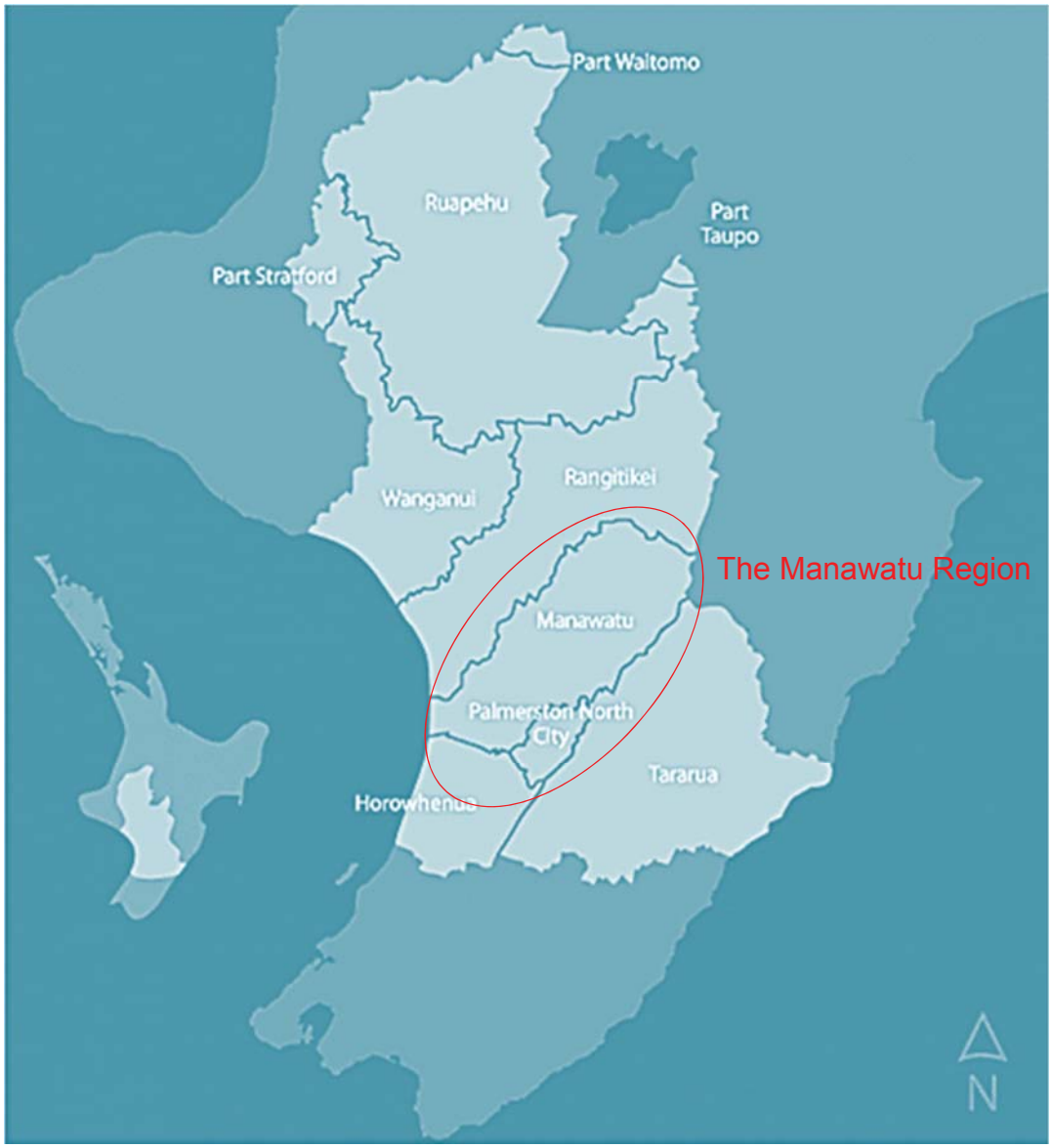
A sample is a selection from the population, where population refers to all the cases being under study (Robson, 2002). The term population does not only mean people (Robson, 2002). It also refers to situations in which someone might be interviewed, as well as times and locations (Robson, 2002). As it is not generally feasible to deal with the whole of a population in a survey, sampling is undertaken to choose a smaller set of cases to investigate in a study (Robson, 2002).

Sampling methods are categorised into two groups: probability sampling and non-probability sampling (Hair, 2003). A sample selected by probability sampling, such as simple random sampling, is more likely to be representative of the population, as every person or unit has an equal chance of being selected (Hair, 2003). In contrast, non-probability sampling such as convenience sampling may not produce a representative sample, as units are selected by experience, convenience or judgment of researchers (Hair, 2003). However, non-probability sampling is useful for an exploratory study, especially when speed and efficiency of collecting information are critical (Sekaran & Bougie, 2010). In a study previously conducted on local food in New Zealand, convenience sampling had been used (Millar, 2012). This study also used convenience sampling due to limited availability of time and budget.

Sampling concerns a selection of a location, as well as of situations of data collection and of individuals (Robson, 2002). It has been noted in previous New Zealand studies that consumer perceptions may need to be understood within the context of a region (Aerni, 2009; Fairweather, Rosin, Hunt, & Campbell, 2009). For this study, the Manawatu region was selected as a region to be focussed, from which participants of the survey were recruited. The Manawatu region was defined in this study as a combined area of Palmerston North City and the Manawatu District. The Manawatu region is not an officially registered

governmental region, although it is widely recognised as a region and is frequently referred to as "the Manawatu" (Destination Manawatu, n.d.). The Manawatu region comprises part of the officially-registered Manawatu-Wanganui region, and is located in lower North Island of New Zealand (Figure 3.1).

Figure 3.1 Map of lower North Island of New Zealand



Source: Horizons Regional Council (n.d.)

There were three key reasons for the selection of the Manawatu region. Firstly, the Manawatu region has both the characteristics of an increasingly urbanised city and the characteristics of a rural area (Destination Manawatu, n.d.). Of the 67 territorial authority areas (i.e. cities and districts) in New Zealand, Palmerston North City is the eighth largest territorial authority area in terms of population,

and the Manawatu District is the 37th largest likewise as of March 2013 (Statistics New Zealand, 2013). The selection of an area with no extreme characteristics (i.e. neither urban or rural) was considered appropriate as a starting point for this underdeveloped field of research. Secondly, the Manawatu region was convenient for the researcher in terms of transport. In order to efficiently recruit participants of the study within a given timeframe and budget, it was essential to secure easy access to survey venues. Thirdly, the Manawatu region is located within three hours drive of over one million people (i.e. one quarter of the national population), and is the central hub of the North Island (Destination Manawatu, n.d.). This means that research on consumers who visit the Manawatu region may provide implications for a number of businesses in and around the Manawatu region.

Places for conducting the survey were chosen in consideration of where food shoppers of various demographics gather in the Manawatu region. It is known that residents of the Manawatu region travel to Palmerston North City and Feilding on a daily basis to work, study, and shop. Nevertheless, in order to ensure that the sample includes both residents of Palmerston North City and those of the Manawatu District, participants were recruited in two localities: Palmerston North City and Feilding. Feilding is the town where Manawatu District Council is located, and is the second most populated locality after Palmerston North City in the Manawatu region (Palmerston North City Council, 2014; Manawatu District Council, n.d.).

As for sample size, a larger sample is more likely to reflect characteristics of the population under study (Robson, 2002). However, there is no universal rule for deciding an adequate sample size (Robson, 2002). Some researchers note that 30 can be considered as the minimal number of cases in a sample required for a quantitative study, and that a sample of over 100 cases is considered reasonably large for a quantitative analysis in social studies (Faherty, 2008). The population of the Manawatu region was 107,538 people as of March 2013, comprising 2.5% of the national population (Statistics New Zealand, 2013). For this study, the collected sample consisted of 240 people..

3.6 Secondary data collection

Secondary data, or data that have been collected for some other purposes, can be a useful source of information to a research project in answering the research question (Saunders et al., 2012). Secondary data include both raw data and published summaries, and they may or may not be publicly available (Saunders et

al., 2012). In this study, secondary data were obtained from data archives that were accessible through the university library, and also from those available to the public via the Internet. Some important data were collected from reports on research projects that had been commissioned and/or published by government departments, including Ministry of Agriculture and Forestry (New Zealand), Ministry of Health (New Zealand), Food Standards Agency (UK), DEFRA (UK), USDA (US), and MAFF (Japan). Other key secondary data were also obtained from published journal articles. In addition, the websites of Statistics New Zealand and of regional councils provided useful information about demographics and regional characteristics in New Zealand.

3.7 Primary data collection

Primary data are data collected specifically for the research being undertaken (Saunders et al., 2012). Primary data must be collected when there is limited source of information available to answer the research question (Robson, 2002). As there was limited information about consumers' understandings of local food in New Zealand, primary data were collected in this study.

3.7.1 Questionnaire design

A questionnaire-based survey works more efficiently with structured questions rather than open-ended questions (Veal, 2005). Structured questions are closed questions that provide respondents with alternatives to choose from. Meanwhile, open-ended questions ask respondents to state responses in their own words. Structured questions are more suited for a questionnaire-based survey due to the ease and accuracy of quantifying information (Veal, 2005). The questionnaire used in this study consisted of 18 questions, most of which were structured questions.

There were four sections to the questionnaire used in this study: (1) definitions of local food; (2) attributes associated with local food; (3) purchasing behaviours related to local food; and (4) demographics. The first section aimed at identifying a range of local food definitions that exist in New Zealand. This section comprised a list of definitions of local food drawn from the literature. The second section aimed at identifying attributes associated with local food and their relative significance to consumers. This section consisted of a set of attributes that are sometimes associated with the local food concept according to the literature. The third and the fourth sections of the questionnaire aimed to collect information about consumer characteristics. The third section was devised to understand consumers' purchasing behaviours related to local food, using multiple choice

questions. The questions included reasons for buying local food, type of retail outlets they visit to buy it, product category and frequency of purchase. In the fourth section, demographic information was collected using multiple choice questions. The questionnaire concluded with an optional question that requested respondents to provide any other comments regarding local food. A copy of the full questionnaire is found in Appendix B.

For the purpose of measuring attitude towards a statement, the Likert scale (the summated rating scale) is widely used in surveys (Robson, 2002). A Likert scale commonly has five fixed-alternative expressions (Robson, 2002). Many of previous studies on local food have used this method of attitude measurement (DEFRA, 2008; Mirosa & Lawson, 2012; Weatherell et al., 2003). A five-point Likert scale was also used in this study to measure respondents' attitudes towards statements in the first two sections of the questionnaire. The five alternatives were labelled "strongly disagree", "disagree", "neither agree or disagree", "agree" and "strongly agree", and numbers 5, 4, 3, 2, and 1 were assigned to these alternatives respectively. When presenting the results of the survey, "strongly disagree" and "disagree" were grouped as negative attitudes, and the alternatives "strongly agree" and "agree" were grouped as positive attitudes. The alternative "neither agree or disagree" was described as a neutral attitude.

3.7.2 Pilot surveys

Studies that use structured questionnaires should always be piloted on a small to make sure that the questionnaires function as intended (Oppenheim, 1992; Robson, 2002). Respondents in pilot studies should ideally be similar to those in the main study (Oppenheim, 1992). The questionnaire used in this study was developed over two months from mid-August 2013 to mid-October 2013. During this period, the process of modifying the questions and testing them with residents of the Manawatu region was iterated multiple times. In order to make sure that the questions and the directions in the questionnaire were interpreted as intended, the questionnaire was tested with a total of 21 people from different social groups. The respondents of the pilot surveys were recruited through the personal network of the researcher, and included residents who have lived in the Manawatu region for over twenty years as well as those who have newly migrated to the region, native English speakers and non-native English speakers, stay-at-home mothers and full-time workers, and academic staffs and students at tertiary institutions.

3.7.3 Main survey

Collection of a sample in the main survey was undertaken in three steps: selection of places to conduct survey, obtaining permission where necessary, and accessing to potential participants at those locations.

For finding potential respondents in a food study, food retail outlets such as supermarkets and open-air markets (i.e. farmers' markets and street/flea markets) are convenient places (Millar, 2012). Millar's (2012) study on New Zealanders' local food consumption also used food retail outlets for recruiting participants. Following previous studies, supermarkets and open-air markets were mainly chosen as survey venues for this study. In addition, consumers from a wide range of social groups may also be recruited in other public places such as community centres (Khan & Prior, 2010). In this study, some participants were also recruited at public places such as schools and parks where public events were being held.

Collection of a sample also concerns negotiation of access to potential respondents (Robson, 2002). It is often necessary to formally request permission from organisations or individuals that administer access to consumers and/or the venues (Robson, 2002). In this study, a list of contact details of food retail outlets in the Manawatu region were obtained from the online business directory published by Yellow Pages Group Limited (http://help.yellow.co.nz), as well as from the Palmerston North City Council and the Manawatu District Council through telephone calls. Then, the managers or the organisers of the retailers and markets, as well as of other event venues, were contacted and provided with the outline of the study. An effort was made to include places from different geographical parts of the selected localities. When permissions were obtained, date and time for carrying out the survey were further discussed with the contact persons.

The main survey of this study was conducted between 18 October 2013 and 19 November 2013 at 16 places including 5 supermarkets and 3 open-air markets. A list of these locations is found in Appendix C. The researcher visited the survey locations on a prearranged date and time, stood in the pathway with a sign up that read "local food survey", and asked for help from shoppers that walked by. When consumers had stopped at the researcher, they were shown the information sheet and were asked to fill out the questionnaire. Participants spent between 3 minutes to 20 minutes to answer all of the questions. Lollies were provided as a token of appreciation for participation in the survey, however, around one third of the participants did not take them. The collected sample comprised 240 cases.

3.8 Data analysis

3.8.1 Data processing

Statistical Package for Social Sciences (SPSS) is a software that allows a large amount of numerical data to be interpreted (Miller, 2002). In this study, data processing as well as analysis was conducted using SPSS Version 21. The collected data were coded and entered into SPSS manually, and were double-checked to avoid mistakes. The data were then analysed using functions such as descriptive analysis and crosstabulations, followed by non-parametric tests.

The type of data in terms of levels of measurement is key information that must be entered into SPSS (Miller, 2002). There are three levels of measurement for quantitative data: nominal, ordinal, and interval/ratio (Faherty, 2008). Distinction between the types of data is important as there are various statistical tests for examining the relationships between pairs of variables, and some are suitable particular types of data than others (Faherty, 2008). Nominal data is the lowest level of measurement as it contains less information compared to other levels of measurement (Miller, 2002). Nominal variables, such as gender, differentiate between categories within the variables, e.g. male and female (Faherty, 2008). Ordinal data further contain information about the order of the categories (Miller, 2002). For example, attitudes measured on a five-point Likert scale provide ordinal data (Faherty, 2008). Interval/ratio is the highest level of measurement as it provides information about the precise distance between categories (Miller, 2002). An example of this type of data is weight, and data must be measured on continuous scales to allow calculation of mean values and standard deviation (Miller, 2002).

The data collected in this study consisted of nominal data and ordinal data. Respondents' attitudes towards various definitions of local food and statements about attributes associated with local food were measured on Likert scales, providing ordinal data. Demographic variables were mainly treated as nominal data. Some variables such as age and income were treated as ordinal data, although they are continuous by nature. This is because information about age and income in this study was collected using multiple-choice based on age groups and income groups.

Participants of a study may sometimes provide invalid responses (Miller, 2002). Invalid responses include skipping the question, providing illegible answers, and providing multiple answers when only one is required (Miller, 2002). These

invalid responses should be assigned a special code in order to make a record of them as well as distinguish them from valid responses (Miller, 2002). Unless analysis of cause of missing is central to the research, all types of missing data irrespective of cause are normally dealt with in the same manner (Miller, 2002). In this study, missing values were assigned a single code and were omitted from analysis of respective questions. This did not mean that respondents who provided invalid responses to one or more questions were excluded from the overall study. These respondents were still included in the sample where they provided valid responses. As a consequence, the total count of responses varied from question to question. This is consistent with how missing values were dealt with in the Census in New Zealand (Statistics New Zealand, 2006).

3.8.2 Independent variable

A statistical analysis assists in examining the relationships between variables (Faherty, 2008). When the relationship of two variables are being examined, the significance of the influence of one variable (independent variable) on the other variable (dependent variable) can be evaluated (Faherty, 2008).

In this study, annual household income was used as an independent variable. Household income was chosen as an independent variable because the literature review for this study identified that income is considered in New Zealand to affect many aspects of food-related choices including eating patterns, the type of food retail outlets to visit, access to transport, time to cook, and access to cooking and storage facilities. Some of the previous studies on local food in other countries have also analysed the influence of income on consumers' understandings of local food, reporting inconsistent findings (Campbell et al., 2014; Khan & Prior, 2010). The use of household income as an independent variable could provide information for a comparison with previous findings.

Three categories were developed for the variable of household income in this study at the point of analysis. These categories were labelled low, middle, and high. The low income category denoted an annual household income of less than $40,000 in New Zealand dollars. The middle income category was for an annual household income between $40,000 and $69,999. The high income category represented an annual household income of $70,000 and above.

The official statistics of income level in New Zealand provided useful information for the development of the three categories of annual household income used in this study. The statistics of annual household income in the Manawatu region were

not available. However, it could be estimated that the level of annual household income in the Manawatu region would be slightly below that of the national level. This is because the results of the Census in 2006, which were the most recent data available at the point of the analysis, reported that median individual income was $23,100 in Palmerston North City and $24,200 in Manawatu District, compared with $24,400 for all of New Zealand (Statistics New Zealand, n.d.). As for annual household income, the median of the whole of New Zealand was $68,211 as of June 2012 (Bascand, 2012). Since the income level tended to be lower in the Manawatu region in case of individual income, household income was also expected to be lower in the Manawatu region compared with the national level.

3.8.3 Statistical tests

Non-parametric tests are statistical tests devised for analysis of nominal and ordinal data, while parametric tests serve to analyse interval/ratio data (Faherty, 2008). These tests are undertaken to examine the relationships of two variables at a time (Faherty, 2008). In this study, non-parametric tests were conducted as collected data were nominal and ordinal. The types of non-parametric tests used in this study are chi-square test, Cramer's V test, Kruskal-Wallis test, and Dunn-Bonferroni test.

For all non-parametric tests conducted in this study, statistical significance was determined at 95% confidence interval. This means that it was determined in this study that a relationship between variables exists when a statistic provided a p-value of less than or equal to 0.05, where a p-value of 0.05 signifies a probability that the relationship existed by chance. When a p-value of less than or equal to 0.05 was generated, the relationship was considered to exist due to a reason.

Chi-square tests have two requirements to be applicable: two variables have to be measured at an ordinal or nominal level, and the variables need to consist of two or more independent categories (Miller, 2002). Crosstabulation tables are created to conduct chi-square tests, with the independent variable in the column and the dependent variable in the row (Miller, 2002). A chi-squre test provides information about how likely the variables are associated by analysing the differences between the pattern of expected frequencies and the pattern of observed frequencies (Miller, 2002). In this study, chi-square tests were used to examine the influence of household income on other demographic variables and on lifestyle factors, i.e. purchasing behaviours of local food.

While chi-square values show statistical significance of association between two variables, information about strength of the association between the variables is provided by Phi and Cramer's V tests (Miller, 2002). Phi is used when a crosstabulation table is 2 by 2 (i.e. both dependent and independent variables comprise two categories each), while Cramer's V is appropriate for crosstabulation tables larger than 2 by 2 (Miller, 2002). Phi and Cramer's V values fall in the range of 0 to 1, where 0 corresponds to no association and 1 to complete association (Miller, 2002). In this study, Cramer's V was used since the independent variable comprised three categories, making crosstabulations tables larger than 2 by 2.

When an association between two variables is indicated by a chi-square, analysis of adjusted standardized residuals can be undertaken to identify the pair or pairs of categories within the variables that are responsible for the significant chi-square statistic (Miller, 2002). A signifier for identifying the pair/pairs of categories is the adjusted standardized residual, i.e. the difference between the observed frequency and the expected frequency that has been converted to a z-score (Miller, 2002). At 95% confidence interval, the critical value of z-score is +/-1.96. Therefore, when the absolute value of the adjusted standardised residual for a category was greater than 1.96, the category was considered to be responsible for the identified significant chi-squire statistic in this study.

Kruskal-Wallis test and Mann-Whitney U test are appropriate statistical tests for analysis of ordinal data, besides chi-square test (Faherty, 2008). Kruskal-Wallis test and Mann-Whitney U test can be used when an ordinal dependent variable is analysed against a nominal independent variable (Faherty, 2008). Kruskal-Wallis is suitable when the independent variable consists of three or more categories, while Mann-Whitney U test is used when the independent variable consists of two categories (Faherty, 2008). In Kruskal-Wallis test and Mann-Whitney U test, responses are ranked in the order of values, and mean ranks are calculated for each category of the independent variable (Faherty, 2008). Then, differences between the mean ranks are examined, and the result is presented in a form of H-score with a p-value (Faherty, 2008). This study used Kruskal-Wallis test to analyse measurements on Likert scales, as the independent variable (i.e. household income) consisted of three categories.

While Kruskal-Wallis test shows if there is a significant difference across categories of the independent variable, it does not identify where the difference lies. In order to determine which category has characteristics that are significantly

different from another category, SPSS allows to conduct Dunn's test with the Bonferroni correction (Dunn-Bonferroni test) (IBM, 2014). The effect of Dunn's test is consistent with conducting multiple Mann-Whitney U tests on each pair of categorical groups. The Bonferroni correction adjusts the statistical significance of the results of Dunn's test by multiplying the p-values by the number of pairs of categorical groups (i.e. the number of Mann-Whitney U tests conducted). In this study, the Dunn-Bonferroni test was used to support interpretations of the Kruskal-Wallis test results.

3.9 Data description and discussion

Based on the analysis of the primary data collected for this study, a description of the results was created. The results were further examined in comparison with the collected secondary data to generate discussion about the interpretation of the findings in this study.

3.10 Ethical considerations

Ethical issues in research that concerns human subjects require particular considerations, in addition to other ethical concerns such as those regarding plagiarism and honesty in reporting of results (Veal, 2005). Ethical conduct of the research was considered in this study, as it involved collection of personal information of the respondents, i.e. demographics. However, the questionnaire used in this study was anonymous, and it did not include information that would identify individuals. The research project was evaluated by peer review and judged to be low risk. Therefore, the process of reviewing by the Massey University's Human Ethics Committees was omitted.

During data collection, the ethical conduct of the survey was ensured by two steps. Firstly, an information sheet (Appendix B) that described the outline of the research was presented to potential respondents. It was stated in the information sheet that the survey was anonymous and voluntary, and that their responses would be strictly confidential. The information sheet also provided the contact information of the author as well as that of the Research Ethics office. A copy of the questionnaire was handed to the participants when they had agreed to take part in the survey. Lastly, the participants were reminded of their right to decline from the survey at the end of the questionnaire and that their consent for the survey would be implied by submitting the completed questionnaire.

Confidentiality of the data also needs to be considered with respect to presentation of the results in written works (Lee & Hume-Pratuch, 2013). When names are not available, it is appropriate to use other identifiers such as age (Lee & Hume-Pratuch, 2013). Therefore, in this study where comments provided by the respondents are discussed, the participants have been referred to using gender and age group.

3.11 Summary

This study aims to understand the meaning of local food to consumers in the Manawatu region in New Zealand, using an exploratory approach. Quantitative methodology has been employed, using a questionnaire-based survey. Self-administered questionnaires were distributed face-to-face in Palmerston North City and Feilding. A sample of 240 respondents was collected by convenience sampling mainly from food retail outlets. The information collected through questionnaires included respondents' attitudes towards various definitions of local food, attitudes towards attributes associated with local food, purchasing behaviours related to local food, as well as demographics. The data were processed using the SPSS statistical package Version 21, and the results were described and analysed.

CHAPTER FOUR

Results

4.1 Introduction

This chapter presents the results of the survey undertaken in this study. First, it describes demographic characteristics of the sampled consumers. Then, it presents descriptive results of the respondents' attitudes towards various definitions of local food, followed by the respondents' attitudes towards associations of local food with various attributes. Finally, purchasing behaviours of the respondents related to local food are explained.

4.2 Demographic factors

This section describes the demographics of the sample, including household income, residential area, age group and level of education.

4.2.1 Household income

Data on annual household income, which was used as an independent variable in this study, were collected as part of the demographic information of the sample. The total number of collected questionnaires was 240, of which 210 (80%) provided information on their annual household income. The three categories of household income, i.e. low, middle, and high, comprised 33%, 31%, and 36% of the sample respectively (Table 4.1).

Table 4.1 Annual household income

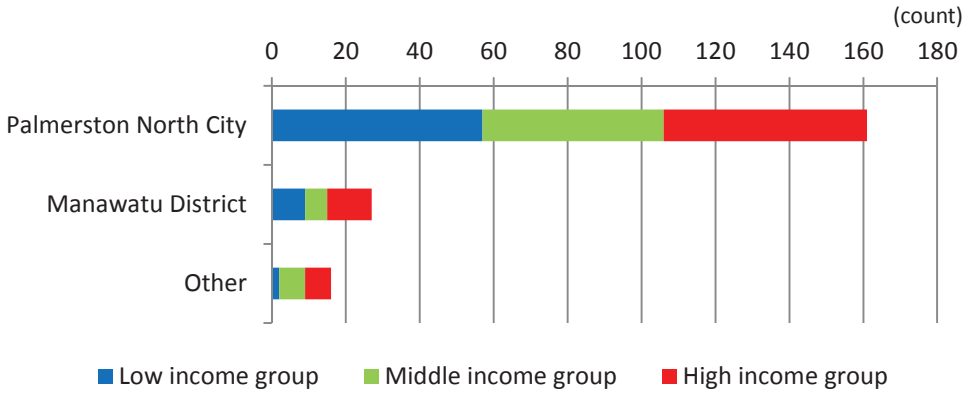
	Count	%
Low (<$39.999)	70	33
Middle ($40,000-69,999)	65	31
High ($70,000+)	75	36
Total	210	100

Notes: The percentage is that of the participants who provided a response. These data are rounded to nearest whole numbers.

4.2.2 Residential area

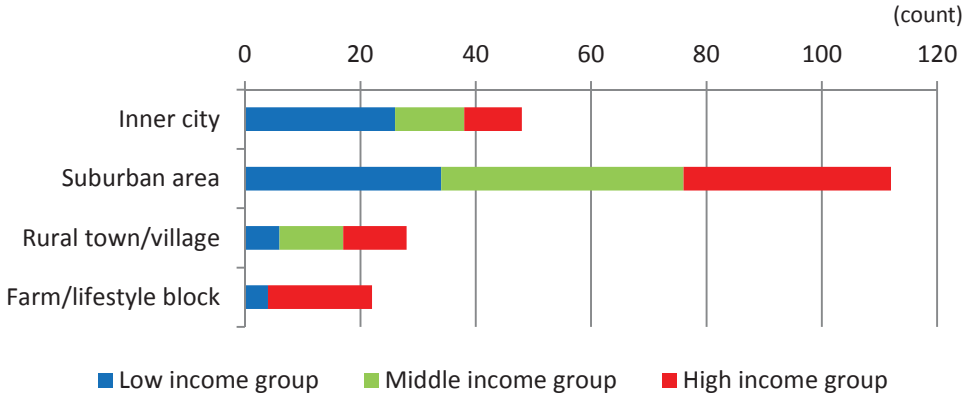
A total of 86% of the respondents lived either in Palmerston North City or Feilding, where data collection was undertaken. A majority of the sample (79%, 161 respondents) were residents of Palmerston North City (Figure 4.1). A further 13% (27 respondents) resided in the Manawatu District, including those who lived in Feilding (8%). The remaining 7% of the sample (16 respondents) were residents of localities outside the Manawatu region. In addition, the localities of residence did not differ significantly across income groups (see Appendix D for details).

Figure 4.1 Residence of the respondents



In the questionnaire, respondents were asked further to choose a description for their residential area from four alternatives: “inner city”, “suburban area”, “rural town/village” or “farm/lifestyle block”. Figure 4.2 illustrates the results of the responses. Around half of the respondents (53%) considered they lived in a suburban area, nearly a quarter of the respondents stated they lived in inner city (23%), and the remaining quarter lived in either rural town/village (13%) or farm/lifestyle block (11%). The influence of household income on the type of residential area was statistically significant ($X^2(6, N=210)=35.361$, $p<.001$) (Appendix D). More respondents from the low income group lived in inner city (with an adjusted standardised residual of 3.5 as presented in Appendix D) and more respondents from the high income group lived on a farm/lifestyle block (with an adjusted standardised residual of 4.8). The middle income group consisted more of residents from suburban area (with an adjusted standardised residual of 2.2) and less of residents from farm/lifestyle block (with an adjusted standardised residual of -3.3).

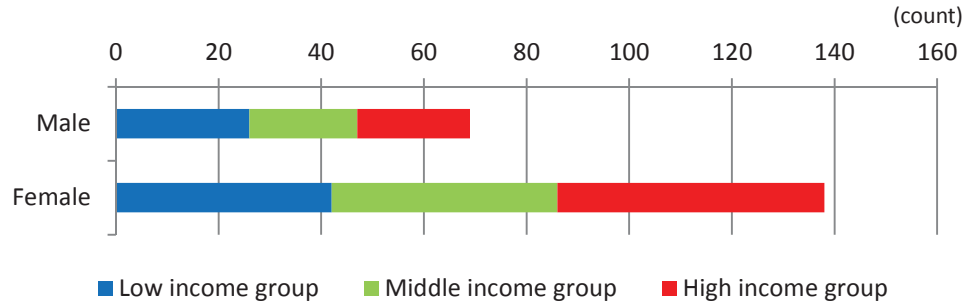
Figure 4.2 Type of residential area



4.2.3 Gender

Two thirds of the respondents were female and one third were male (Figure 4.3). The spread of gender did not differ significantly across income groups (Appendix D).

Figure 4.3 Gender

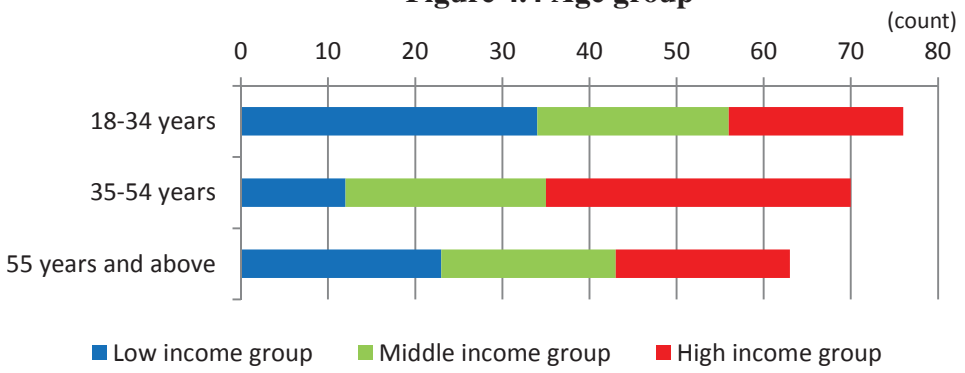


In addition, it was observed during the data collection that when couples and families were asked to fill out questionnaires, the adults would split roles. Quite often the female adult would fill out the questionnaire as a representative of the household, while the male adult pushed the shopping trolley back to their car in the car park, as many of the respondents preferred to participate in the survey after shopping rather than before.

4.2.4 Age group

Figure 4.4 shows the spread of the sample in terms of age group. Respondents aged between 18 and 34 years comprised 35% of the sample. A further 33% were in the range of 35 to 54 years old, and the remaining 32% aged 55 years old and above. The influence of household income on age group was statistically significant ($X^2(10, N=209)=25.267$, $p=.005$) (Appendix D). The low income group consisted of significantly more respondents aged 18-34 years (with an adjusted standardised residual of 2.7 as presented in Appendix D) and less respondents aged 35-54 years (with an adjusted standardised residual of -3.5) in comparison with the high income group. The high income group consisted of significantly less respondents aged 18-34 years (with an adjusted standardised residual of -2.2) and more respondents aged 35-54 years (with an adjusted standardised residual of 3.0). The middle income group did not significantly differ from either of the low and high income groups in terms of age.

Figure 4.4 Age group

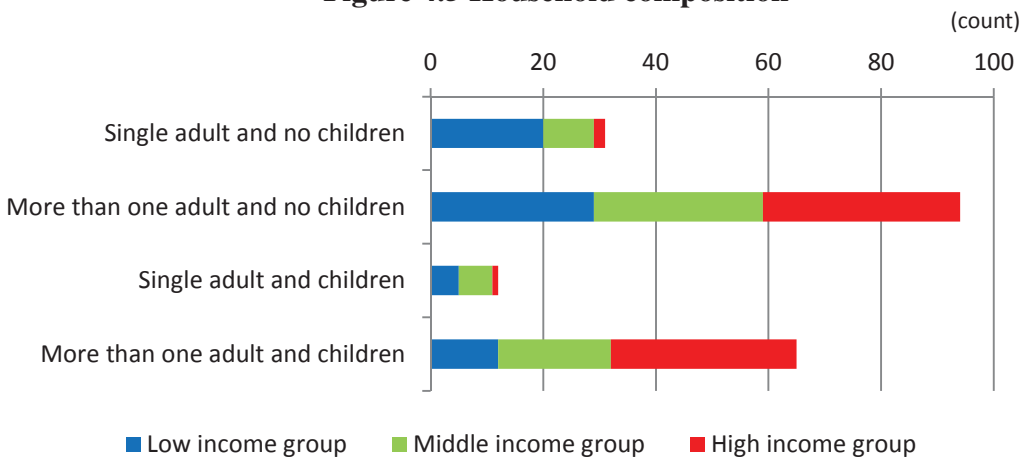


4.2.5 Household composition

Nearly half (47%) of the sample were households with more than one adult and no children, buying food on a regular basis for adults only (Figure 4.5). A further 32% regularly bought food for more than one adult and children. Single adult households without children comprised 15% of the sample, and the remaining 6% were households of single adults with children. The low income group mainly consisted of households without children irrespective of the number of adults (74% of the respondents from the low income group), while the middle and the high income groups were represented by households with more than one adult irrespective of the number of children (77% and 96% of the middle and the high

income groups respectively). The differences between the low income group and the high income group were particularly significant (see Appendix D for details).

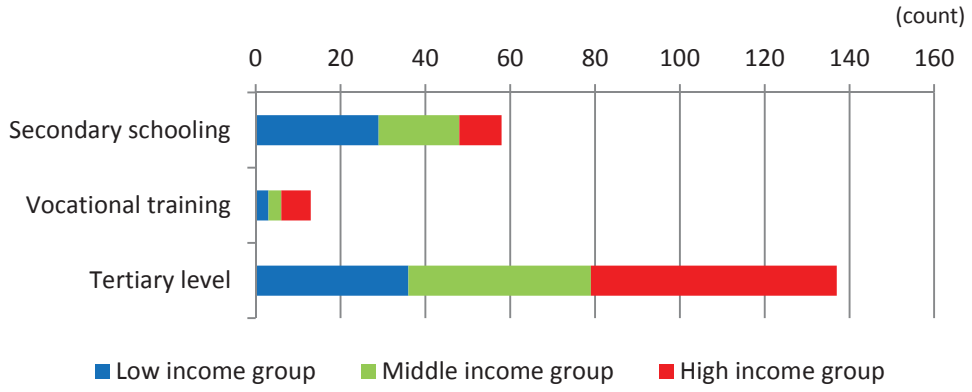
Figure 4.5 Household composition



4.2.6 Education

Figure 4.6 illustrates the level of highest completed education of the respondents. Two thirds (137) of the respondents had completed education at tertiary level (16 years or more of education in compliance with the New Zealand education system according to Ministry of Education, 2014). A further 6% (11 respondents) had attained vocational qualifications (over 11 years of education), and the remaining 28% (58 respondents) had completed secondary schooling (generally 11-13 years of education). There were some statistically significant differences across income groups in terms of education ($X^2(4, N=208)=16.061$, $p=.003$). Respondents who completed a high level of education tended to have a higher income (see Appendix D for details).

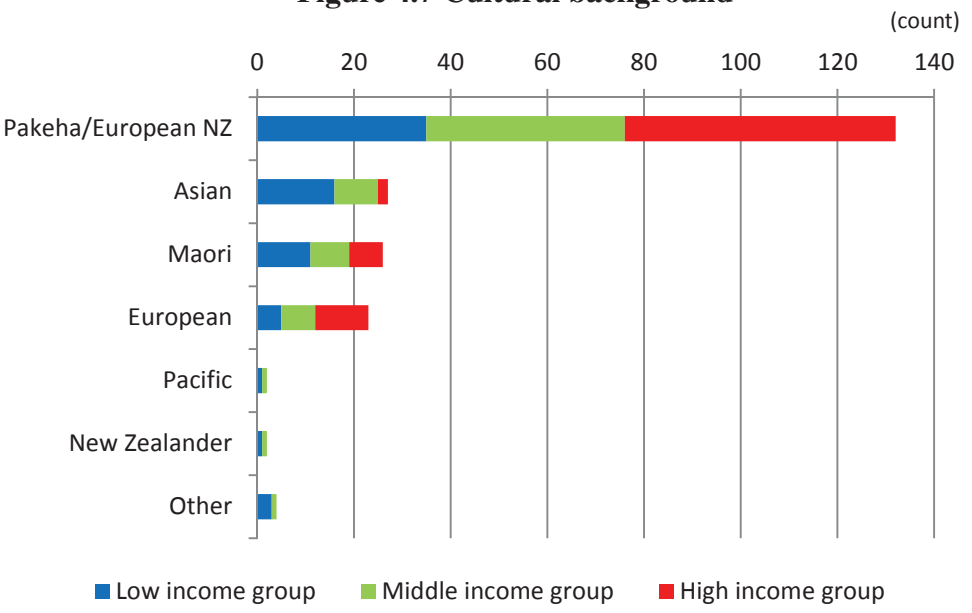
Figure 4.6 Education



4.2.7 Cultural background

Figure 4.7 illustrates the spread of the cultural background of the respondents. More than half (64%) of the sample had a Pakeha/European New Zealander (hereafter referred to as Pakeha) influence as part of their cultural background.

Figure 4.7 Cultural background



Notes: As multiple responses were counted, sum of the counts is greater than the number of respondents. E.g. a respondent with Pakeha and Maori background would be counted twice if she/he selected two categories. "New Zealander" is a category created by two individual respondents who considered describing their cultural background using the given categories was inappropriate.

Pakeha background ($X^2(2, N=207)=8.984$, $p=.011$) and Asian background ($X^2(2, N=207)=13.467$, $p=.001$) had statistically significant associations with household income (Appendix D). The low income group consisted significantly more of respondents with Asian background (with an adjusted standardised residual of 3.1) and less of respondents with Pakeha background (with an adjusted standardised residual of -2.8) in comparison with the high income group. The high income group, on the other hand, consisted more of respondents with Pakeha background (with an adjusted standardised residual of 2.5) and less of respondents with Asian background (with an adjusted standardised residual of -3.3). The middle income group did not differ significantly from either of the other income groups. Other cultural background such as Maori did not have a statistically significant influence on household income (Appendix D).

In addition, it may be noteworthy that there is a known bias in New Zealand that Maori and Pacific residents tend to be underrepresented in any survey work, due to a lower response rate regardless of the method of surveys (Ministry of Health, 2012).

4.3 Definitions of local food

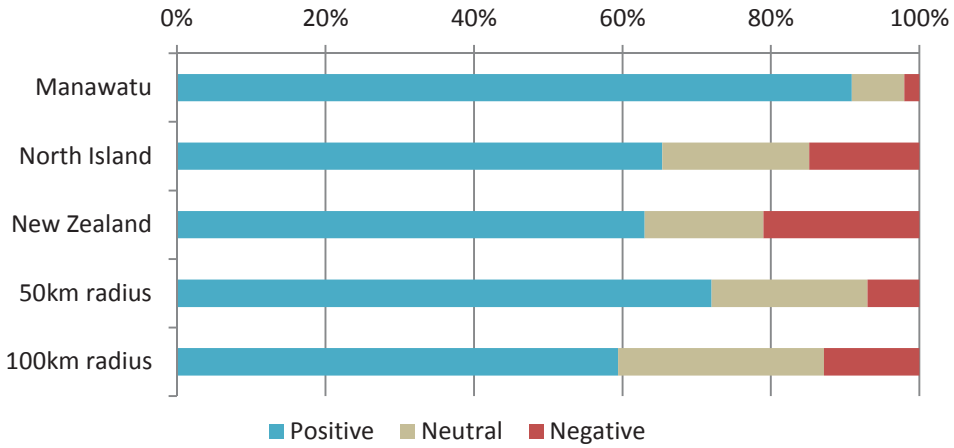
This section describes how the sample defined local food. It presents respondents attitudes towards each of the eight definitions listed in the questionnaire used in this study.

4.3.1 Geographical proximity

Five definitions of local food on the basis of geographical proximity between the place of production and the place of sale were examined in this study. These included three definitions that used administrative boundaries (i.e. the Manawatu region, North Island, and New Zealand) and two definitions that used metric distances (i.e. a 50 km radius and a 100 km radius).

All of the five definitions based on geographical proximity were supported by over half of the sample (Figure 4.8). As one of the respondents commented, *"'local' is a vague word in New Zealand. Can be region or district or country"* (male respondent from age group 45-54 years).

Figure 4.8 Attitudes towards definitions based on geographical proximity



Notes: Each bar represents a definition of term local. E.g. "Manawatu" indicates the definition of local food as food that was produced and sold within the Manawatu region.

The definition of local food as food that was produced and sold within the Manawatu region was the most supported definition among the five definitions based on geographical proximity. This is a finding that was demonstrated in two ways. Firstly, the proportion of the respondents who had positive attitudes (i.e. either "strongly agree" or "agree") towards this definition was the largest (90% of the respondents, compared to 60-72% for the other four definitions). Secondly, the positive attitudes towards this definition were predominantly due to respondents who strongly agreed with the definition. In fact, the definition based on the administrative boundary of the Manawatu region was the only one among the five definitions based on geographical proximity with which more than half (63%) of the sample showed strong agreement rather than moderate agreement (see Appendix E for the composition of positive attitudes).

The other two definitions based on administrative boundaries, i.e. North Island and New Zealand, were also supported by a majority of the sample (66% and 63% respectively). However, the composition of the positive attitudes towards these definitions were predominantly due to respondents in moderate agreement, rather than strong agreement, with respective definitions (see Appendix E for details).

The definition of local food as food that was produced and sold within a 50km radius was the second most supported among the five definitions based on geographical proximity. It was supported by a total of 72% of the sample. Slightly over half of these respondents who supported this definition (71 out of 136

respondents) were those in strong agreement with the definition (Appendix E).

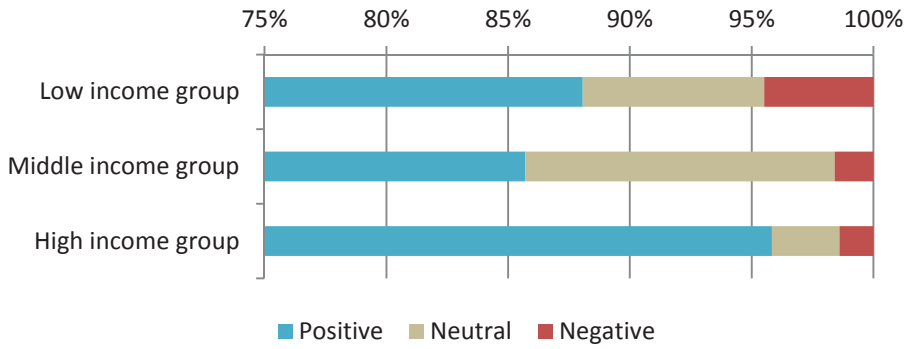
The other definition based on metric distances, i.e. a 100km radius, was supported by 60% of the sample. In common with the definitions based on the boundaries of North Island and New Zealand, the positive attitudes towards this definition were mainly due to respondents who moderately agreed with the definition rather than those who strongly agreed with it (Appendix E).

In addition, the attitudes towards the definition that local food was food produced and sold within New Zealand were more polarised in comparison with the definition that local food was produced and sold within a 100 km radius. More respondents showed positive attitudes towards the definition of local food based on the New Zealand boundary (63% of the sample) in comparison with the definition of local food based on a 100km radius (supported by 60% of the sample). Concomitantly, there were more respondents who had negative attitudes towards the definition of local food based on the New Zealand boundary (22%) than towards the definition based on a 100km radius (12%).

With respect to the influence of household income on the attitudes towards definitions based on geographical proximity, statistically significant differences were found in the attitudes towards two of the five definitions: the Manawatu region and New Zealand (Appendix F).

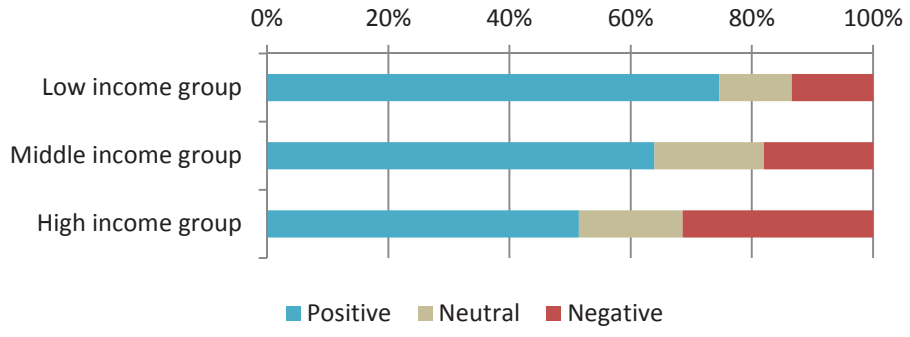
The attitudes towards the definition of local food as food that was produced and sold within the Manawatu region significantly varied across income groups ($H(2)=9.699$, $p=.008$), with a mean rank of 90.92 for the low income group, 96.26 for the middle income group, and 115.93 for the high income group. The significant difference lied between the high income group and the low income group, with the high income group showing a more positive attitude than the low income group ($z=25.01$, $p<.05$) (Figure 4.9). The middle income group did not differ significantly from other income groups (see Appendix F for details).

Figure 4.9 Attitudes towards the definition based on the Manawatu region



Concomitantly, there was a statistically significant difference across income groups in the respondents' attitude towards the definition of local food as food that was produced and sold within New Zealand ($H(2)=8.886$, $p=.012$), with a mean rank of 110.97 for the low income group, 104.44 for the middle income group, and 84.21 for the high income group. The significant difference lied between the high income group and the low income group, with the high income group showing a more negative attitude than the low income group ($z=26.756$, $p<.05$) (Figure 4.10). The middle income group did not differ significantly from other income groups (see Appendix F for details).

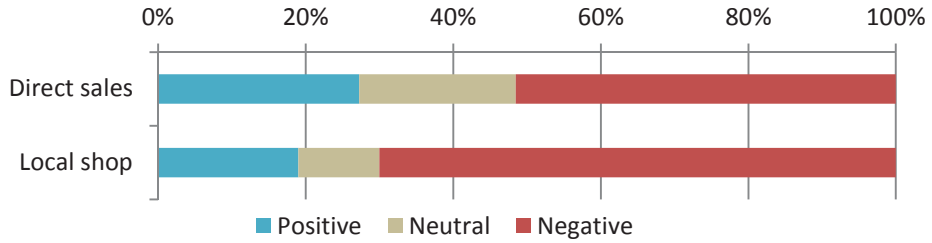
Figure 4.10 Attitudes towards the definition based on New Zealand



4.3.2 Distribution method

Direct sales by the farmer and sales in local shop/supermarket were the two definitions of local food based on distribution methods that were included in the questionnaire. A majority of the sample were against these definitions based on distribution methods (Figure 4.11).

Figure 4.11 Attitudes towards definitions based on distribution method



Notes: Each bar represents a definition of term local. E.g. "Direct sales" indicates the definition of local food as food that was directly sold by the farmer.

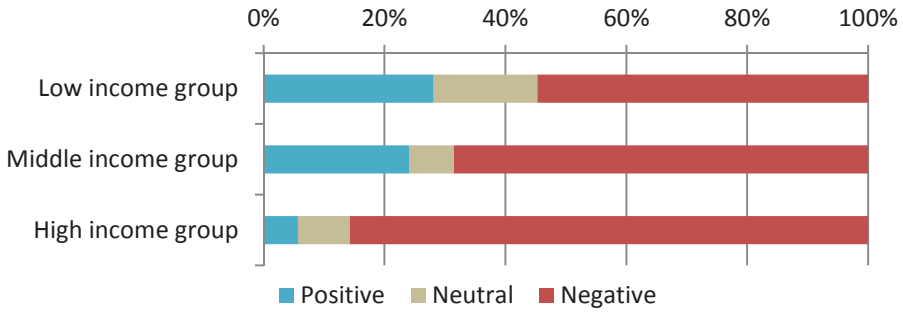
Among the 96 respondents (52% of the sample) who showed negative attitudes towards the definition of local food as food that was directly sold by the producer irrespective of the place of production, more respondents showed moderate disagreement with the definition (32% of the sample) rather than strong disagreement (20%). Similarly, the 51 respondents who had positive attitudes towards this definition consisted more of those who moderately agreed (18% of the sample) than of those who strongly agreed (10%). This means that the respondents' attitudes towards this definition were concentrated towards the centre of the Likert scale (see Appendix E for details).

The definition of local food as food that was sold at a local shop/supermarket showed a spectrum that heavily skewed towards negative attitudes. It was 70% of the sample who had negative attitudes towards this definition, and the number of respondents who strongly disagreed with the definition was same as the number of respondents who disagreed, each comprising 35% of the sample. There were a total of 35 respondents (19% of the sample) who had positive attitudes towards this definition, of which 22 were in moderate agreement with the definition while 13 were in strong agreement with it (see Appendix E for details).

In addition, the influence of household income on the attitudes towards definitions based on distribution method was statistically significant only for the definition of local food as food sold at local shop/supermarket (Figure 4.12, Appendix F). In the respondents' attitude towards the definition of local food as food that was sold at local shop/supermarket, there was a statistically significant difference across income groups ($H(2)=14.333$, $p=.001$), with a mean rank of 113.01 for the low income group, 92.45 for the middle income group, and 79.16 for the high income group. The significant difference lied between the high income group and the low

income group, with the high income group showing a more negative attitude than the low income group (z=33.851, p<.05). The middle income group did not differ significantly from other income groups (see Appendix F for details).

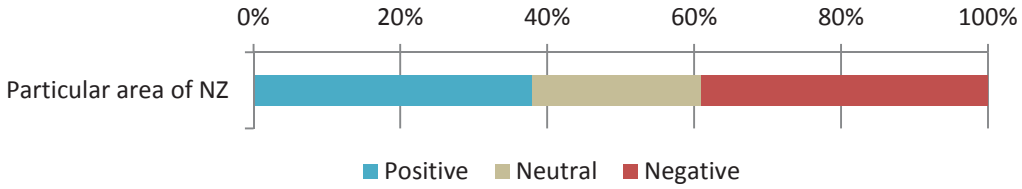
Figure 4.12 Attitudes towards the definition based on local shop/supermarket



4.3.3 Geographical origin

The respondents had conflicting views on the approach to defining local food based on geographical origin. The respondents' attitudes towards this definition that local food was food produced in a particular area of New Zealand and sold irrespective of the place of production were polarised between positive and negative (Figure 4.13).

Figure 4.13 Attitudes towards definition based on geographical origin



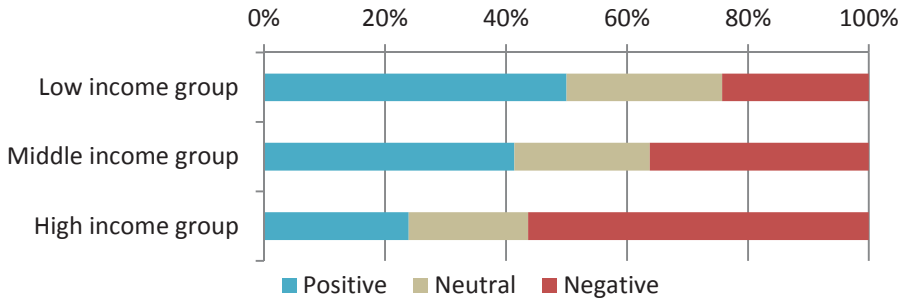
Notes: "Particular area of NZ" indicates the definition of local food as food that was produced in a particular area of New Zealand and sold anywhere.

The respondents who had positive attitudes towards this definition comprised 38% of the sample (74 respondents), and those who had negative attitudes towards the same definition comprised 40% (77 respondents). The remaining 23% of the sample (44 respondents) had neutral attitudes towards this definition.

The attitudes towards the definition based on geographical origin were influenced significantly by household income (H(2)=14.459, p=.001). The mean rank was

113.75 for the low income group, 103.30 for the middle income group, and 79.03 for the high income group. The significant differences lied between the high income group and the low income group ($z=34.722$, $p<.05$), as well as between the high income group and the middle income group ($z=24.274$, $p<.05$). The high income group showed significantly more negative attitudes, while the low and the middle income groups showed more positive attitudes (Figure 4.14). The low income group and the middle income group did not differ from each other significantly (see Appendix F for details).

Figure 4.14 Attitudes towards the definition based on a particular area of New Zealand



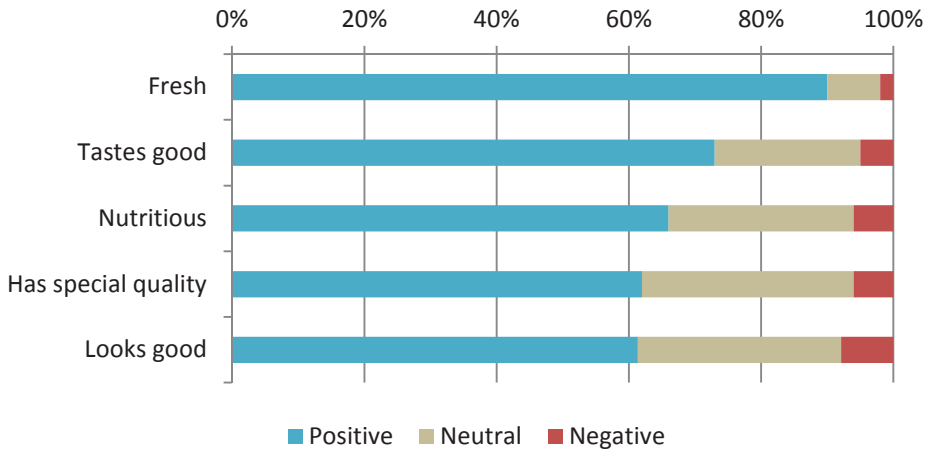
4.4 Attributes associated with local food

This section describes the respondents' attitudes towards each of the twenty-two statements about various attributes that were listed in four sub-sections in the questionnaire used in this study. This section explains what attributes the sample associated with local food, as well as their relative importance to consumers.

4.4.1 Product characteristics

Figure 4.15 illustrates an overview of the respondents' attitudes towards associations of local food with attributes related to product characteristics. All of the five attributes, i.e., freshness, good taste, nutritional value, special quality derived from its place of production, and good appearance, were supported by a majority (62-90%) of the respondents. Concomitantly, the proportion of the respondents who had negative attitudes towards these associations was small (2-8% of the sample).

Figure 4.15 Attitudes towards associations with product characteristics

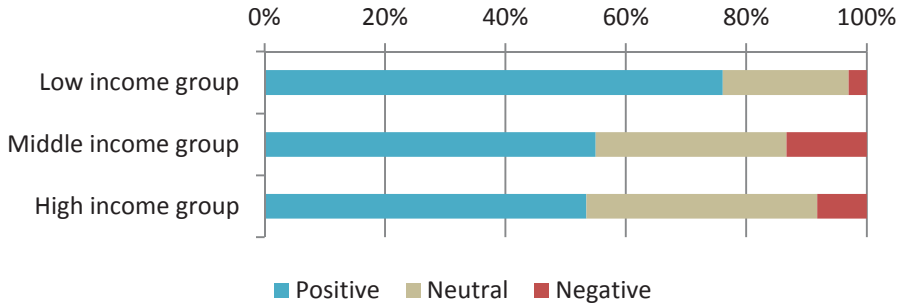


Notes: Each bar represents a description of local food. E.g. "Fresh" indicates a statement that local food is fresh.

In particular, an association between local food and freshness was supported by 90% of the respondents. Most of the respondents who considered local food was fresh were those in strong agreement with the association (127 out of 187 respondents who had positive attitudes). In comparison, other four attributes related to product characteristics were associated with local food by between 62% and 73% of the sample. The associations of local food with these four attributes were supported by the respondents who moderately agreed with the associations more than those who strongly agreed with the associations (see Appendix G for details). The results indicated that, as an attribute of local food, the importance of freshness to consumers was especially high relative to other attributes related to product characteristics.

There was a limited influence of household income on the respondents' attitudes towards associations of local food with attributes related to product characteristics. Statistically significant differences across income groups were found only in attitudes towards the association between local food and good appearance ($H(2)=6.853$, $p=.033$) (Figure 4.16). The low income group had significantly more positive attitudes (mean rank of 114.80) than the middle income group (mean rank of 92.67) and the high income group (mean rank of 93.82). The middle income group and the high income group did not differ significantly from one another (see Appendix H for details).

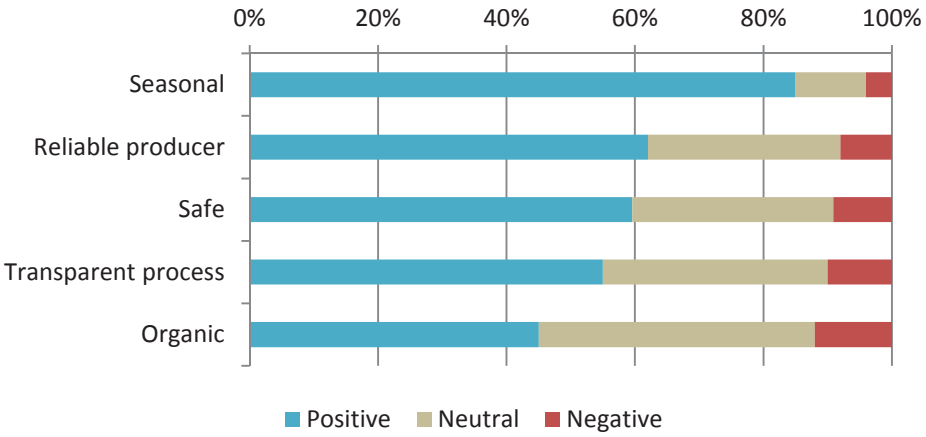
Figure 4.16 Attitudes towards association with good appearance



4.4.2 Production methods

Figure 4.17 illustrates an overview of the respondents' attitudes towards associations of local food with attributes related to production methods. Seasonality, reliability of producer, safety, and transparency of production processes were considered associated with local food by more than half (55-85%) of the sample. The association of local food with organic agriculture was supported by 45% of the respondents. Overall, the proportion of the respondents who had negative attitudes towards these associations was small (5-12% of the sample).

Figure 4.17 Attitudes towards associations with production methods



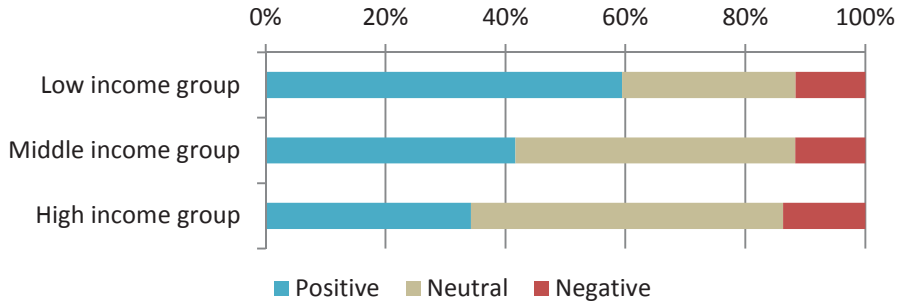
Notes: Each bar represents a description of local food. E.g. "Seasonal" a statement that local food is seasonal.

The association between local food and seasonality was supported by a particularly large proportion (85%) of the sample. Furthermore, more than half (94 out of 172) of the respondents who had positive attitudes towards the association between local food and seasonality were in strong agreement with the association. Meanwhile, the positive attitudes towards associations of local food with reliability of producer, safety, and transparency of production processes were due to the respondents who moderately agreed with the associations more than those who strongly agreed with the associations (see Appendix G for details). The results indicated that seasonality was a particularly important attribute of local food to the respondents, relative to other attributes related to production methods that were associated with local food.

As for the association of local food with organic agriculture, the proportion of the respondents who had positive attitudes (45%) was similar to the proportion of the respondents who had neutral attitudes (43%). In comparison, the proportion of the respondents who had negative attitudes (12%) was much smaller. During the data collection, some of the respondents who had neutral attitudes towards this association commented that local food was not any more likely to be organic than non-local food, but local food would be more preferable if it was *"organic and GM free"* (male respondent from age group 55-64 years).

Additionally, a statistically significant influence of household income was identified on the association of local food with organic agriculture ($H(2)=7.159$, $p=.028$) (Figure 4.18). The low income group had significantly more positive attitudes (mean rank of 115.86) than the high income group (mean rank of 92.69). The middle income group did not differ significantly from either the low or the high income groups (see Appendix H for details). Household income did not influence significantly on associations of local food with other attributes related to production methods.

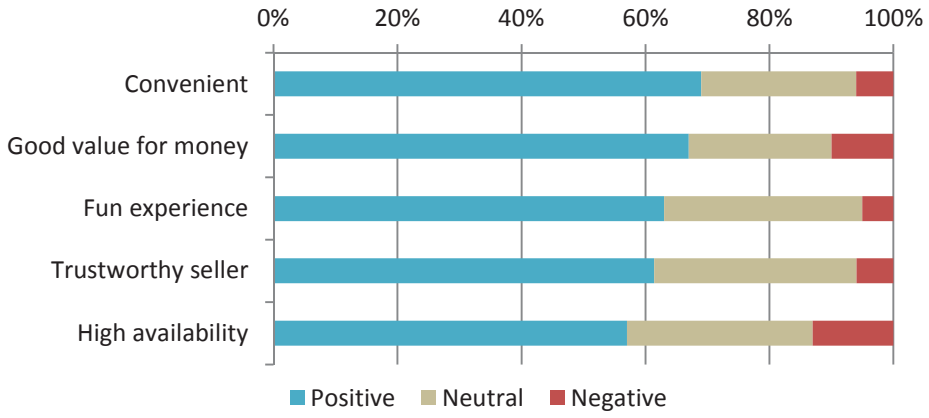
Figure 4.18 Attitudes towards association with organic agriculture



4.4.3 Shopping experiences

Figure 4.19 illustrates an overview of the respondents' attitudes towards associations of local food with attributes related to shopping experience. All of the five attributes, i.e. convenience, good value for money, fun experience, trustworthiness of the seller, and high availability, were considered associated with local food by a majority (57-69%) of the sample. Concomitantly, the proportion of the respondents who had negative attitudes towards these associations was small (5-12%).

Figure 4.19 Attitudes towards associations with shopping experiences



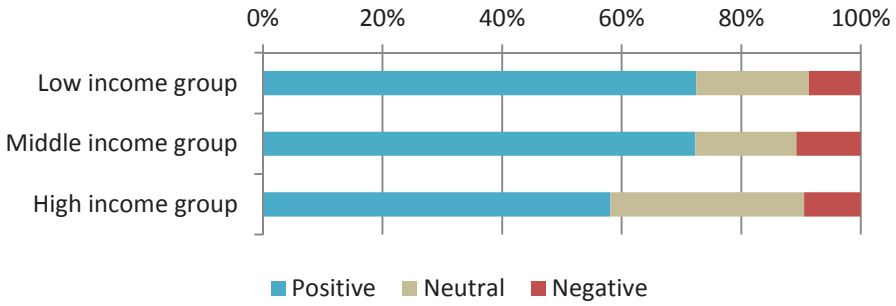
Notes: Each row in the table represents a description of local food. E.g. "Good value for money" indicates a statement that local food is good value for money.

The positive attitudes towards the associations of local food with these attributes related to shopping experience were relatively weak. More than half of the respondents who had positive attitudes were those who moderately agreed with the associations of food with these attributes, ranging between 36% and 49% of

the sample (Appendix G). In fact, the proportions of the respondents who strongly agreed with the associations (20-28%) were similar to the proportions of the respondents who had neutral attitudes (i.e. neither agreed or disagreed) towards the associations (23-33%) (see Appendix G for details).

The influence of household income on the associations of local food with attributes related to shopping experience was limited. Statistically significant differences across income groups were identified only with respect to the association of local food with good value for money ($H(2)=8.012$, $p=.018$) (Appendix H). The significant differences existed between the high income group (mean rank of 89.42) and the middle income group (113.79), with the high income group showing more negative attitudes than the middle income group (Figure 4.20). There were no significant differences between the low income group and the middle income group, nor between the low income group and the high income group (see Appendix H for details).

Figure 4.20 Attitudes towards association with good value for money

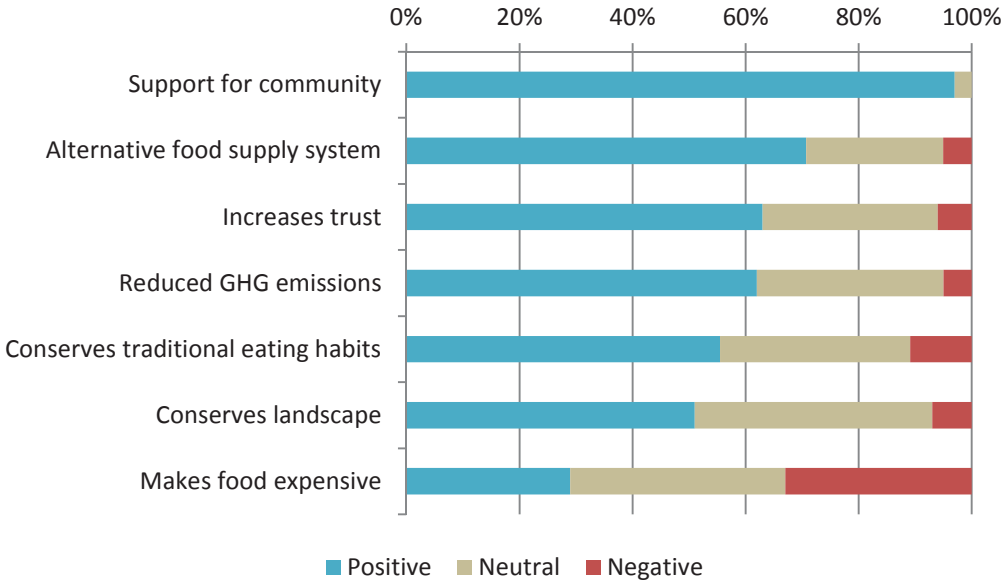


In addition, it is noteworthy that, for local food to be considered as good value for money, the price could be either cheap (i.e. acceptable quality for low price) or expensive (i.e. outstanding quality for high price). Some respondents considered local food *"cheaper"* (female respondent aged between 25-34 years), while others bought local food although they considered it *"expensive"* (male respondent aged between 55-64 years).

4.4.4 Benefits to society

Figure 4.21 illustrates an overview of the respondents' attitudes towards associations of local food with attributes related to social benefits. Over half (51-97%) of the sample considered that local food was associated with six out of seven attributes listed in the questionnaire. These six attributes were support for community, alternative food supply system, increase in trust, reduced greenhouse gas (GHG) emissions, conservation of traditional eating habits, and conservation of landscape. In comparison, having impact on food price in general was only considered as an attribute of local food by 29% of the sample. The proportion of the respondents who had negative attitudes towards the associations of local food with the attributes related to social benefits ranged between 0% and 34%.

Figure 4.21 Attitude towards associations with benefits to society



Notes: Each bar represents a description of local food. E.g. "Support for community" indicates a statement that local food is associated with support for community.

A vast majority of the respondents (97%) associated local food with support for community. Indeed, many of those (126 out of 202 respondents who had positive attitudes) strongly agreed with the association between local food and support for community. Only 3% showed neutral attitudes and none had negative attitudes towards the association.

Alternative food supply system and increase in trust among people were considered associated with local food by 70% and 63% of the sample respectively. In addition, 62% of the sample considered reduced GHG emissions as an attribute of local food. In spite of the total percentages of the respondents who had positive attitudes towards these associations, the number of respondents who strongly supported the association between local food and reduction in GHG emissions (32% of the sample) was greater than the number of respondents who strongly agreed with the associations of local food with alternative food system or with increase in trust among people (26% and 16% of the sample respectively) (Appendix G). This means that the association between local food and reduced GHG emissions was relatively more profound compared with alternative food supply system and increase in trust among people.

Conservation of traditional eating habits and conservation of landscape were also considered associated with local food by more than half of the respondents (57% and 51% of the sample respectively). The positive attitudes towards these associations were mainly from respondents in moderate agreement with the association (see Appendix G for details).

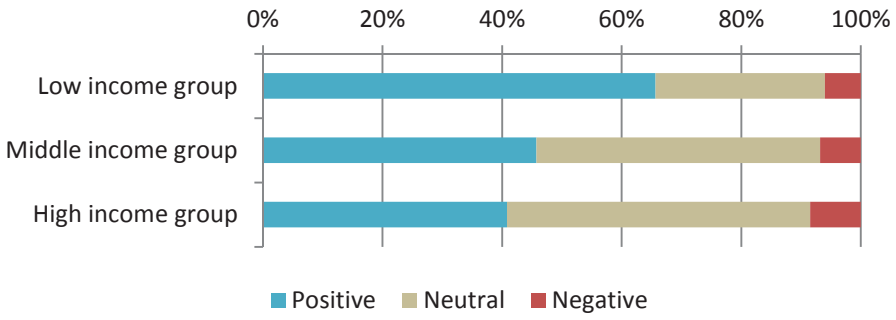
As for the association of local food with the impact on the food price in general (i.e. “making food expensive” as presented in the questionnaire), the respondents had conflicting views. Only 29% of the sample associated local food with a rise in food prices. Noting that 70% of the sample considered local food was associated with an alternative food supply system, the respondents who associated local food with a rise in food prices may have thought that supporting food that was not supplied through the conventional food supply system would reduce cost-efficiency of food supply, and affect food prices. However, neutral attitudes (38% of the sample) and negative attitudes (34%) dominated over positive attitudes towards the association between local food and a rise in food prices. This indicates that more respondents considered that supporting local food did not necessarily lead to a rise in food prices.

In considering the relative importance of the attributes associated with local food, support for community was by far the more important attribute of local food to a majority of the respondents. In comparison, other social benefits associated with local food were less significant to the respondents. The results also indicated that the phrase “support for community” was associated with various social benefits.

In other words, support for community did not simply mean to increase trust among people, or to reduce GHG emissions, or to conserve culture and landscape.

Additionally, the influence of household income on the associations of local food with social benefits was limited. Statistically significant differences across income groups were identified only with respect to the association of local food with conservation of landscape (H(2)=7.22, p=.027) (Appendix, H). The significant differences existed between the low income group (mean rank of 113.13) and the high income group (89.85), with the low income group showing significantly more positive attitudes than the high income group (Figure 4.22). The middle income group did not differ from either of the other income groups significantly (see Appendix H for details).

Figure 4.22 Attitudes towards association with conservation of landscape



4.5 Lifestyle factors: buying behaviours related to local food

This section describes the respondents' buying behaviours related to local food in three sub-sections: type of retail outlets to buy local food from; frequency of buying local food; and reasons and barriers related to buying local food.

4.5.1 Retail outlets

A vast majority of the respondents (95% of the sample, 199 respondents) stated that they bought local food (Appendix I). No significant difference in the results was found across different income groups (Figure 4.23). The responses were based on the respondents' own definitions of local food.

Figure 4.23 Do you buy local food?

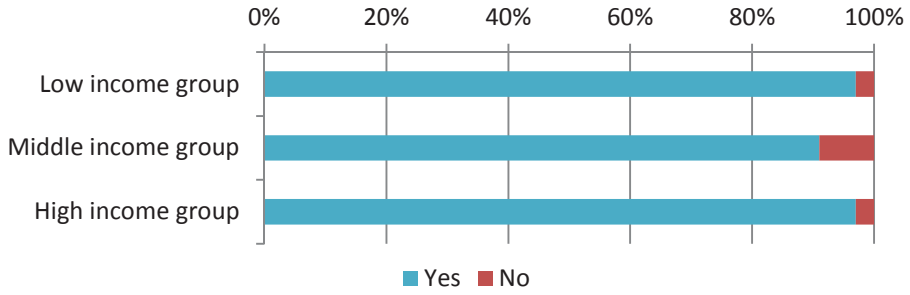
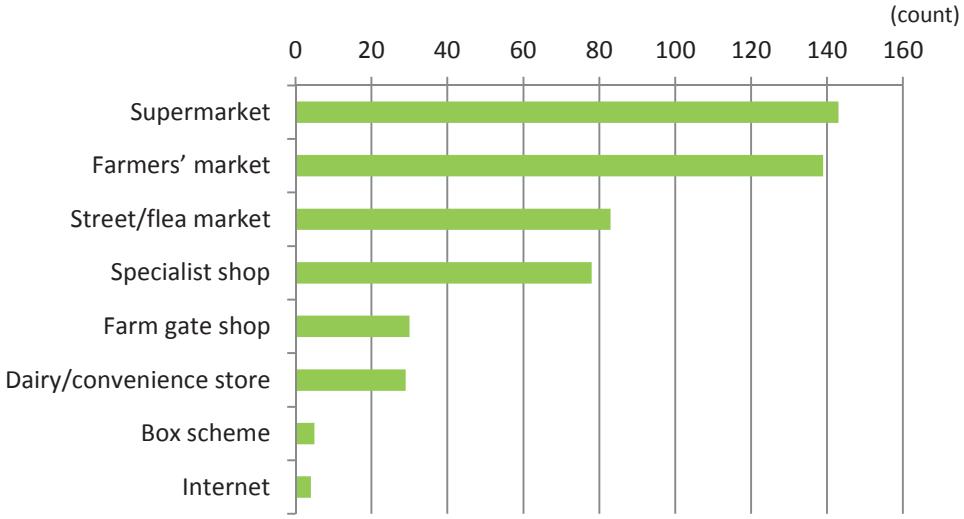


Figure 4.24 shows the result of a multiple-choice question about the type of food outlets the respondents visited to buy local food. Multiple responses were counted for this question.

Figure 4.24 Type of retail outlets to visit for buying local food



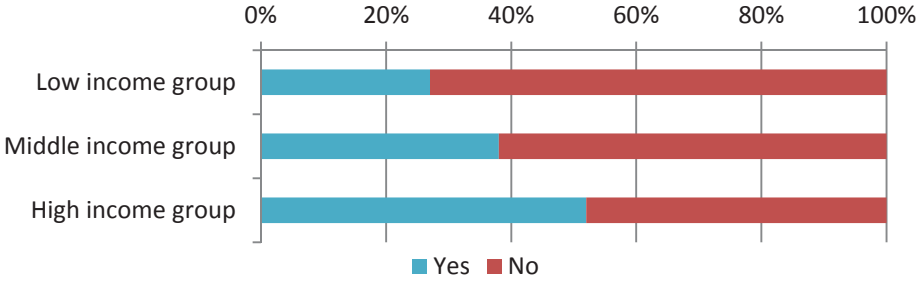
Notes: As multiple responses were counted, sum of the counts is greater than the number of respondents.

The most common type of retail outlets respondents visited to buy local food was supermarkets, being selected by 72% of the respondents. The remaining 28% of the respondents who chose not to buy local food from supermarkets may be those respondents whose definition of local food excluded food sold at supermarkets: *"[My definition of local food is) little transport, not supermarket."* (female respondent from age group 35-44 years). It is also noteworthy that some respondents stated they were unsure if they were buying local food from supermarkets: *"Often hard to know if food is local unless you buy from a farmers' market. Not often labelled in supermarkets or grocery stores."* (female respondent aged between 45-54 years). The responses might have depended on which supermarkets respondents were used to visit: *"Pak'nSave [i.e. one of the supermarkets in Palmerston North City] has good signage of where food comes from"* (female respondent aged between 55-64 years).

The second most common type of retail outlets for shopping for local food was farmers' markets (70%), followed by flea/street markets (42%). The respondents who visited farmers' markets to buy local food included those who defined local food as food sold at *"farmers' market"* (male respondent from age group 45-54 years).

Specialist shops were the fourth most common retail outlet for purchasing local food, selected by 39% of the respondents. The results, however, contained significant differences across income groups (X^2 (2, N=199)=9.724, p=.008) (Appendix I). More respondents from the high income group bought local food from specialist shops (52% of the high income group) in comparison with respondents from the middle income group (38% of the middle income group) and the low income group (27% of the low income group) (Figure 4.25). With respect to other retail outlets, there was no significant difference across income groups (Appendix I).

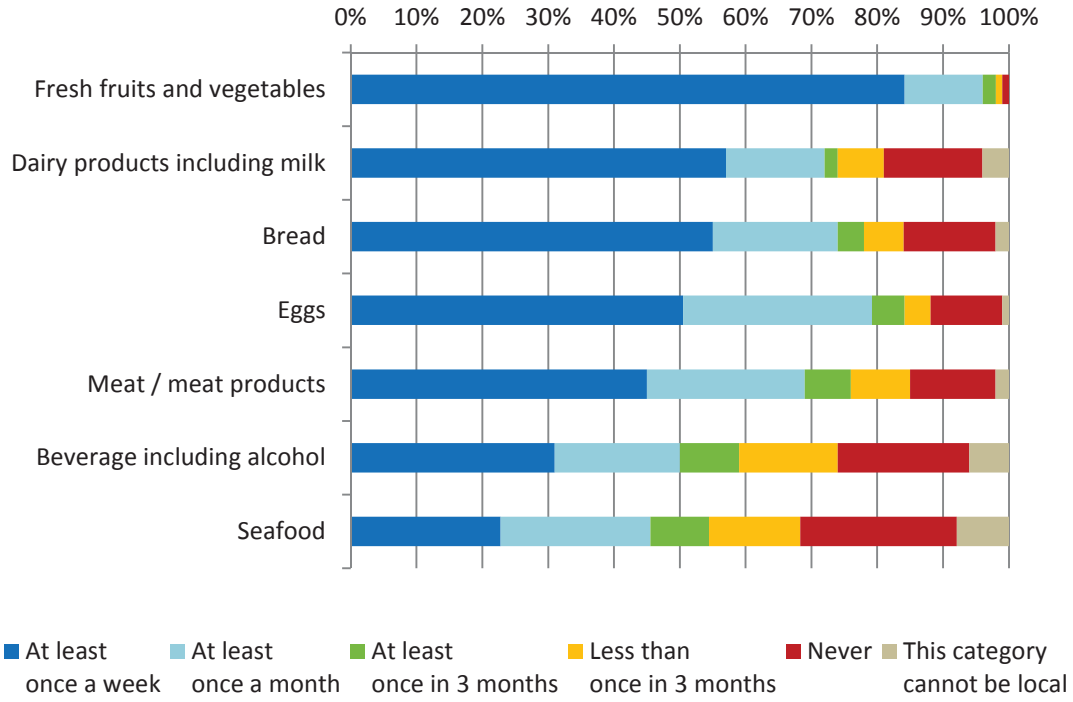
Figure 4.25 Do you buy local food from specialist shop?



4.5.2 Frequency of purchase

Figure 4.26 illustrates how frequently the respondents were buying local food in each of the listed food categories. As a whole, the results about frequency of buying local food in different product categories showed that a majority of the respondents were regularly buying what they considered as local food, and that application of the term local food was not limited to particular product categories. In addition, there was no significant difference across income groups in terms of frequency of buying local food in any of the listed product categories (see Appendix J for details).

Figure 4.26 Frequency of buying local food



The results showed that 85% (168) of the respondents bought local fresh fruits and vegetables at least once a week. A further 12% did so at least once a month. None of the respondents considered that this product category could not be local. This means that all the respondents had considered fresh fruits and vegetables while responding to the questions regarding local food in this survey.

Fifty-seven percent of the respondents bought local dairy products every week, and a further 15% did so at least once a month. It is noteworthy that another 15%

stated they never bought local milk and a further 4% considered that the category of dairy products could not be local. One of the reasons why some respondents considered local dairy products were not available was because dairy products sold in New Zealand, especially liquid milk, tend to only indicate the country of production: *"If labelled, I'd buy milk made in North Island, but it isn't the case (though it is NZ made)"* (male respondent aged between 18-24 years). The limited information on labels about the origin of products is related to the fact that the New Zealand dairy industry is dominated by a small number of large-scale companies such as the Fonterra Co-operative Group Ltd that collects raw milk from dairy farms all around the country (Conforte, Garnevska, Kilgour, Locke, & Scrimgeour, 2008). Nonetheless, even if labels on dairy products only indicated the country of production, respondents who had defined local food as domestically produced food would consider the dairy products as local food.

In addition, 55% (106) of the respondents stated that they bought local bread on a weekly basis. These respondents presumably paid attention to the location or the person involved in the processing of the products when they defined local food. On the contrary, some respondents, including the 4 respondents who considered that bread could not be a local food in New Zealand, were concerned with the origin of ingredients: *"Local means ingredients are not imported"* (female respondent from age group of 25-34 years).

Respondents who bought local eggs every week comprised 51% of the local food shoppers, and respondents who bought local meat or meat products at least once a week comprised 45% of the local food shoppers. In common with dairy products, there were some respondents who felt unsure if the eggs and meat they purchased were local due to a lack of information: *"For eggs, dairy products, and meat, don't know if I'm buying local."* (female respondent aged between 45-54 years). There were also respondents who did not buy local eggs or local meat because they had their own supply: *"Have own supply of eggs and meat"* (female respondent aged between 45-54 years). This means that the volume of self-production and food supplies from personal networks had influence on the volume and frequency of local food purchase.

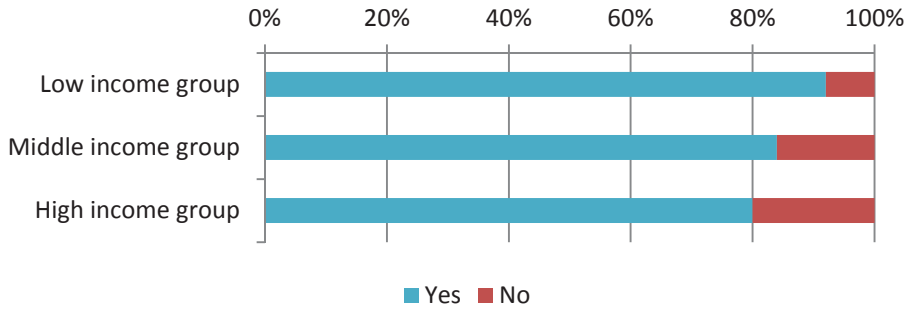
A total of 50% of the respondents bought local beverages (including alcohol) at least once a month. Meanwhile, a total of 55% of the respondents bought local seafood at least once in three months. Even though the frequency of buying local food in the product categories of beverages and seafood was relatively low

compared with other product categories listed in the questionnaire, these results indicated that a majority of the respondents had considered these product categories as categories that could potentially be local.

It is important to note that the respondents stated the frequency of buying local food based on their own definitions of local food. This means that respondents who stated that they bought local food on a weekly basis might have meant that they bought domestically produced food, or that they bought directly from a farmer at a farmers' market. Even though the definition of local food varied from respondent to respondent, the results showed that the distinction between local food and non-local food might be most important for fresh fruits and vegetables from the viewpoint of self-reported local food shoppers.

In addition, the fact that only a fraction ranging between 1-8% of the respondents excluded some product categories from their local food concept (i.e. they chose the alternative "this category cannot be local") indicated that a majority of the respondents considered that the term local food applied to all of the listed product categories. This implies that, even if the frequency of buying local food in certain product category was currently low, the respondents may potentially increase their purchase depending on situations. Indeed, 85% of the current local food shoppers (162 respondents) were willing to buy more local food (Appendix J). Willingness to increase local food purchase did not vary significantly across income groups (Figure 4.27).

Figure 4.27 Do you wish to buy more local food?

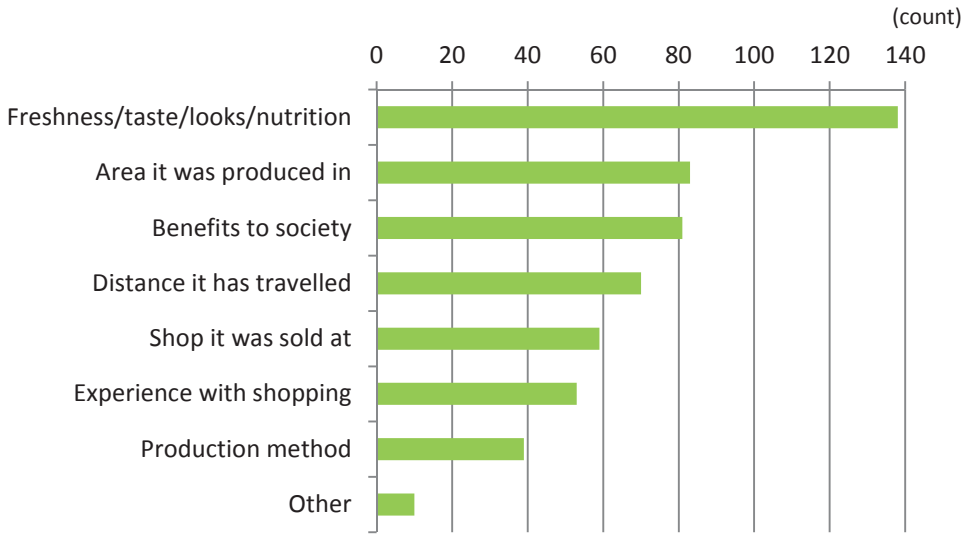


4.5.3 Reasons and barriers

In order to identify motivations for buying local food as well as potential barriers to increasing local food purchase, all respondents were asked to provide related information.

Figure 4.28 shows the result of a multiple-choice question about reasons for buying local food. Multiple responses were counted for this question.

Figure 4.28 Reasons for buying local food



Notes: As multiple responses were counted, sum of the counts is greater than the number of respondents.

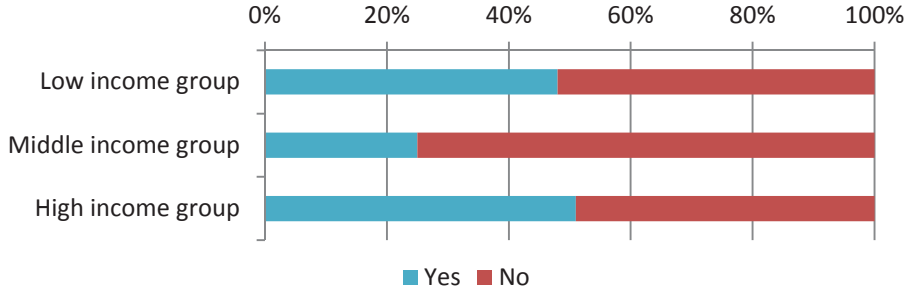
Characteristics of the food product (i.e. freshness, taste, appearance, and nutritional value) were the key motivation for 72% (138) of the current local food shoppers to buy local food. The area in which the food was produced was important for 83 respondents (43%). Eighty-one respondents (42%) stated benefits to society as their reason for buying local food. In addition, 70 respondents (37%) considered distance the food had travelled when buying local food (see Appendix K for details).

It is noteworthy that the area in which the food was produced and the distance the food had travelled were the key components of definitions of local food based on geographical proximity that were supported by a majority of the sample in this study. The results that the area in which the food was produced in was valued by more of the respondents compared with the distance the food had travelled were in line with the finding that the definition of local food based on the boundary of

the Manawatu region was more strongly supported than the definition of local food based on the metric distance of 50km.

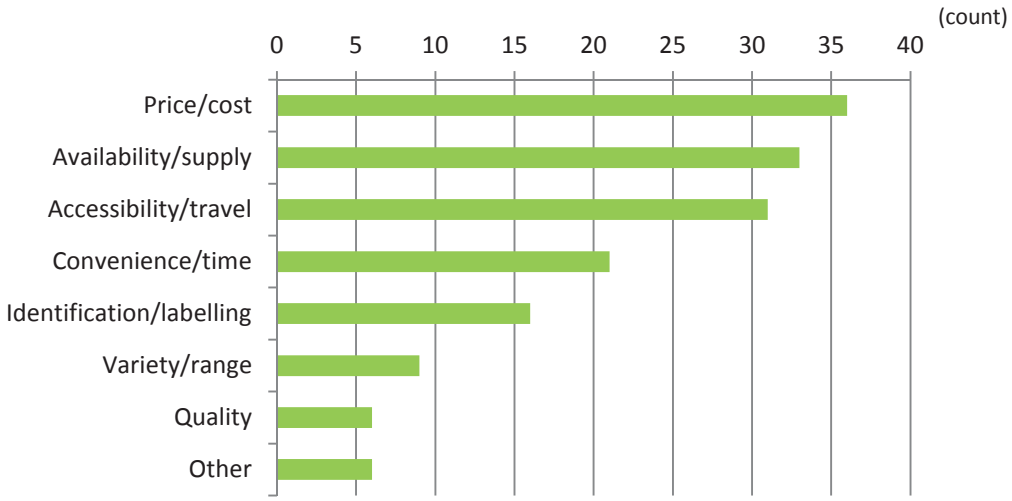
There were statistically significant differences across income groups with regard to whether "benefits to society" was chosen as a main reason for buying local food (X^2 (2, N=192)=10.519, p=.005). Significantly fewer respondents from the middle income group took benefits to society into consideration when buying local food, compared to respondents from the low and the high income groups (Figure 4.29). The influence of household income on other motivations for buying local food was not statistically significant (see Appendix K for details).

Figure 4.29 Are benefits to society important when buying local food?



On the other hand, the barriers for the current local food shoppers to buying more local food were as presented in Figure 4.30.

Figure 4.30 Barriers to buying more local food

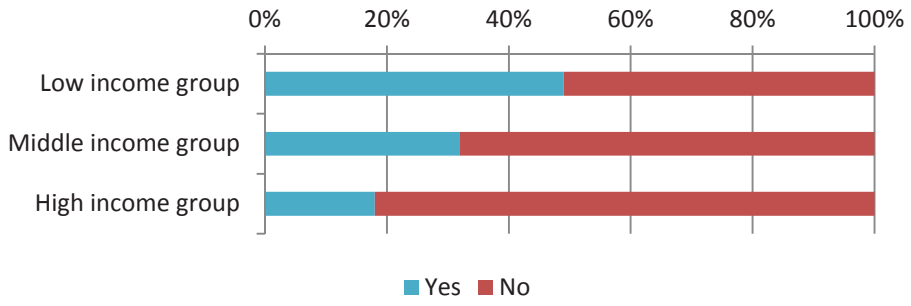


Notes: As multiple responses were counted, sum of the counts is greater than the number of respondents.

The price and the cost related to shopping for local food were the barrier selected by 33 % (36) of the current local food shoppers, followed by availability (33 respondents), accessibility (31 respondents), and convenience (21 respondents). Some respondents noted that availability, accessibility and convenience were inter-related barriers. A lack of availability in single retail outlet meant inconvenience, and consumers would have to travel more to access local food: *"More available in supermarkets would make it easier so you didn't have to go to specialist shops or markets - less time needed."* (female respondent aged between 45-54 years). The issue of accessibility included access to transport: *"I have no car [to travel to markets]"* (male respondent aged between 25-34 years). Hours of operation also added to inconvenience: *"The barrier is convenience – i.e. Flea market is great but only on once a week, Supermarket is open 7/7."* (male respondent aged between 25-34 years).

Additionally, significant differences across income groups were found with respect to two barriers: price/cost (X^2 (2, N=110)=9.033, p=.011) and convenience/time (X^2 (2, N=110)=11.926, p=.003). As for price/cost, respondents from a lower income group tended to find it as a great barrier to increasing local food purchase (Figure 4.31). The significant difference lied between the low income group and the high income group, with the low income group consisting of more respondents that found price/cost as a barrier (49% of the low income group) compared with the high income group (18% of the high income group) (see Appendix K for details).

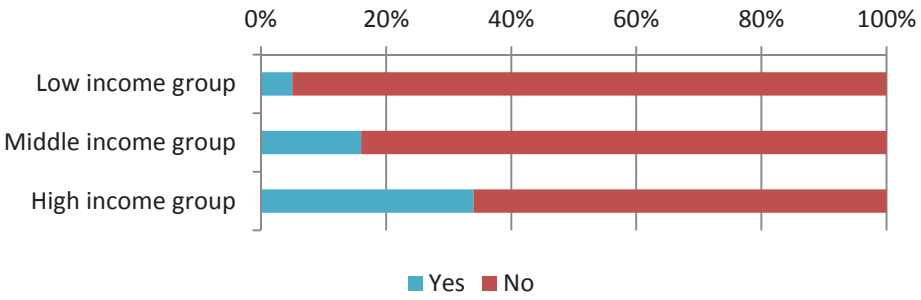
Figure 4.31 Is price/cost a major barrier?



In comparison, respondents from a higher income group tended to find convenience/time as a major barrier to buying more local food (Figure 4.32). The

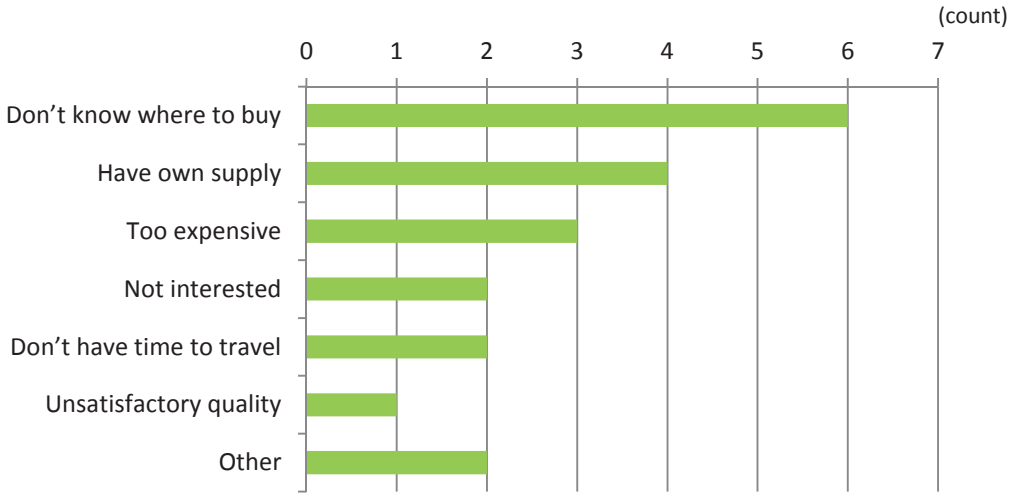
difference between the high income group and the low income group was statistically significant, where significantly more respondents from the high income group stated convenience/time as a key barrier (34% of the high income group) in comparison with the low income group (5% of the low income group) (see Appendix K for details).

Figure 4.32 Is convenience/time a major barrier?



In addition, the respondents who were not current shoppers of local food stated their reasons for not buying local food. These reasons were, in other words, barriers for them to buying local food. The results provided limited information as there were only 10 respondents who did not buy local food (5% of the sample), and 9 of them provided a response to this question. The results are presented in Figure 4.33.

Figure 4.33 Reasons for not buying local food



Notes: As multiple responses were counted, sum of the counts is greater than the number of respondents.

A lack of knowledge about where to find local food was the top reason for not buying local food, selected by 6 respondents. Having their own sources of local food, including self-production, was a reason for 4 respondents for not buying local food. Three respondents stated that they found local food too expensive, and two did not have time to travel to find local food. These reasons, or the barriers the respondents selected were similar to the barriers that current local food shoppers mentioned. In fact, only two out of 9 non-shoppers of local food who provided a reason for not buying local food were uninterested in local food. This indicated that many of the respondents who were not currently buying local food may potentially buy local food if the situations suited their needs.

CHAPTER FIVE

Discussion

5.1 Introduction

This study identified how consumers defined and understood local food in the Manawatu region. This chapter contextualises the findings of this research in relation to previous studies about local food. It first compares and examines definitions of local food, then discusses attributes associated with local food. The influence of household income on how consumers define and understand local food is also explored.

5.2 Definitions of local food compared with international studies

A review of the literature identified three types of approaches to defining local food: geographical proximity, distribution method, and geographical origin (Knight, 2013; Holloway et al., 2007; Marsden et al., 2000; Martinez et al., 2010).

Definitions of local food found in previous studies are summarised in Table 5.1 alongside the findings in this study. They are discussed in more detail in Sections 5.2.1 to 5.2.3.

Table 5.1 Acknowledged definitions of local food

Approach to defining local food	Country / region			
	Europe	North America	Japan	The Manawatu region, New Zealand
Geographical proximity	Based on boundaries of county, state/province, nation, as well as 10-50 mile radius. In the UK, 10 mile radius is the most supported, followed by a county boundary.	Based on boundaries of county, state/province, federal state, 50 - 400 mile radius. In the US, 50 mile radius is the most supported, followed by a county boundary.	Based on boundaries of city, prefecture, and nation. Prefectural boundary is the most supported, followed by a city boundary.	Based on boundaries of Manawatu region (90%), North Island (66%), and New Zealand (63%), and on radii of 50km (72%) and 100km (60%).
Distribution method	Farmers' markets, farm shops, local specialist shops, local retailers.	Farmers' markets, farm shops, CSAs, direct-to-consumer/institution sales including online sales, food hub, food-shed.	Farmers' markets, farm shops, direct-to-consumer/institution sales.	Direct sales (28%) and sale at local shops/supermarkets (19%).
Geographical origin	Certification under AOC, PDO, and PGI.	Regional brands, labelling of the place of origin.	*Tokusan* regional specialities, labelling of the place of origin.	Indication of a particular area of New Zealand as the place of production (38%).
Note: See Chapter Two, Section 2.3 for details of individual definitions found in previous studies.	Source: Food Standards Agency (2007), Holloway & Kneafsey (2010), Ilbery & Kneafsey (2000), Khan & Prior (2010), and Murdoch et al. (2000).	Source: Bowen & Mutersbaugh (2014), Hand & Martinez (2010), Hinrichs (2003), Martinez (2010), Onozaka et al. (2010), Peters et al. (2009), and Woods et al. (2013).	Source: Kimura & Nishiyama (2008), MAFF (2012), Naito (2007), and Saito & Saito (2013).	Source: This study Note: The percentages in brackets are those of the sample who supported respective definitions.

5.2.1 Geographical proximity

This study identified that the use of geographical proximity was the most common approach to defining local food among the sampled consumers in the Manawatu region, New Zealand. This result was consistent with findings from previous empirical studies on local food in other countries, including the UK (Food Standards Agency, 2007), US (Onozaka et al., 2010), and Japan (Saito & Saito, 2013).

Most common approach to defining local food

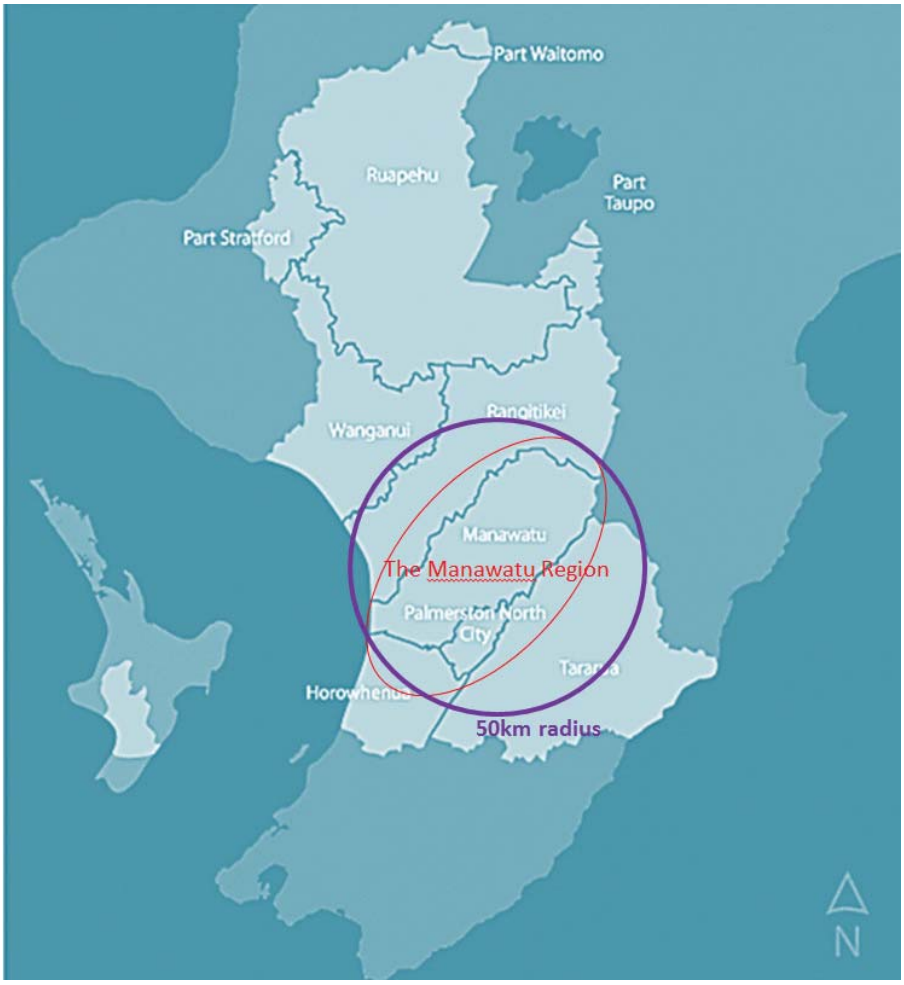
In the UK, a national consumer survey conducted by the Food Standards Agency (2007) found that the definition of local food that consumers supported most was to define it as food that was produced and sold within a 10-mile radius, followed by a definition that used a county boundary to define geographical proximity. Similarly in the US, the results of a national consumer survey showed that the most supported definition of local food was to define it as food that was produced and sold within a 50-mile radius, followed by a definition using a county boundary (Onozaka et al., 2010). In this study in New Zealand, the most supported definition of local food was to define it with the use of an administrative boundary, i.e. the Manawatu region, followed by the definition on the basis of a 50km radius. This means that the results of this study were different from the studies in the UK and the US because the definition using an administrative boundary was supported more strongly than the definition using a metric distance.

Association of local food with the food miles concept

Definitions of local food are associated with the food miles concept when the geographical proximity considered in defining local food is measured in metric distances (Feagan, 2007; Grebitus et al., 2013; Kemp et al., 2010). While the food miles concept originated in the UK (McLaren, 2009), local food movements such as the 100-mile diet in Canada and the locavore activism in the US also adopt the food miles indicator to define local food (DeLind, 2011; Knight, 2013). Also in New Zealand, a previous study reported that consumers associate local food with lower food miles (Millar, 2012). However, the results of this study identified that the respondents' definitions of local food were not necessarily in line with the food miles concept. This study suggested that the respondents' attitudes towards various definitions tested in this study were not always correlated with the physical size of the scoped area. For example, the definition of local food as food produced and sold in the Manawatu region was supported more than the definition of local food as food produced and sold in a 50km radius, despite the fact that the

Manawatu region approximately equals the geographical area covered by a 50km radius (Figure 5.1). Furthermore, the definitions of local food using administrative boundaries of the North Island and New Zealand were supported by more respondents compared to the definition that used the term a 100km radius, although the geographical area covered by a 100km radius is much smaller than the North Island or New Zealand.

Figure 5.1 Size of the Manawatu region



Source: Horizons Regional Council (n.d.), Statistics New Zealand (n.d.)

Type of administrative boundaries used to define local food

The administrative boundary used as an indicator of geographical proximity in defining local food may vary from the county boundary to the national boundary (Food Standards Agency, 2007; Onozaka et al., 2010; Saito & Saito, 2013). In the UK and the US, the county boundary is the most popular boundary used by consumers to define local food, followed by a regional boundary (Food Standards Agency, 2007; Onozaka et al., 2010). In Japan, the prefectural boundary is the

most commonly supported boundary (Saito & Saito, 2013). In all of these three countries, the use of the national boundary is supported only by a minority (Food Standards Agency, 2007; Onozaka et al., 2010; Saito & Saito, 2013). In comparison, a majority of the respondents of this study supported the use of the national boundary as well as the boundaries of the Manawatu region and North Island to define local food. This means that this study was consistent with the studies in the UK, US, and Japan in that an administrative boundary that indicates a smaller geographical area was supported more strongly by the respondents compared with the national boundary. However, this study was inconsistent with the studies in the UK, US, and Japan in regard to the fact that respondents of this study considered the national boundary as also appropriate for the use in local food definition.

Use of the national boundary in New Zealand

The fact that a majority of the respondents in this study supported the national boundary for defining local food may need to be analysed with respect to the social context of New Zealand. In New Zealand, the term "local" is frequently used to mean "domestic". As noted by Millar (2012), the phrase "made from local and imported ingredients" is commonly used on packaged food. This may have influenced consumers' understandings of the term local in New Zealand.

In addition, the geographical scale of campaigns that promote consumption of locally produced products is larger for New Zealand compared with countries such as the US, Canada, and Japan. In New Zealand, these campaigns are conducted at a national level. An example is the Buy Kiwi Made programme administered by the national government between 2007 and 2009 (Ministry of Economic Development, 2009). In comparison, similar campaigns in the US, Canada, and Japan are conducted at the levels of counties, states, provinces, and prefectures in addition to national levels (Kimura & Nishiyama, 2007; Knight, 2013; Martinez et al., 2010). The geographical scale of these campaigns may influence perceptions of the geographical identity consumers attach themselves to and the way they define geographical proximity. The fact that promotion of locally produced products has been conducted on a national scale rather than a regional scale in New Zealand may also have influenced consumers' understandings of the term local in New Zealand.

5.2.2 Distribution method

Local food is sometimes defined on the basis of distribution methods (Marsden et al., 2000). The idea is to focus on the relationship among actors in the supply chain, and define local food based on a shortened emotional distance (Martinez et al., 2010). In the US, direct sale by the producer to the consumer is one of the local food definitions adopted by the USDA (Martinez et al., 2010). In the UK, one in three consumers in urban areas defined local food as food sold at local shops (Khan & Prior, 2010). However, a majority of the respondents of this study did not consider that direct sale or sale at local shop would define local food.

Nevertheless, there were some respondents in this study who defined local food based on the directness of distribution, even though the proportion was small (28% of the sample). The fact that some consumers supported this approach to defining local food was consistent with Millar's (2012) qualitative study in New Zealand, which noted that meat products sold directly by the producer to the consumer were considered as local food by some consumers in South Island.

Self-production and community-supported agriculture

Even though the two definitions of local food based on distribution method (i.e. direct sale and sale at local shop) were supported only by a small proportion of the sample in this study, the approach of focussing on distribution method to define local food may be worth further examination. This is because comments provided by some respondents in this study implied that there was another way of defining local food that refers to the role of the consumers themselves in the supply chain: *"I have my own chooks, my husband hunts, and we fish."* (female respondent aged between 35-44 years). When consumers play the role of the producer and/or distributor, the supply chain is shortened, and the amount of information consumers obtain about the food increases. In other words, participation in the supply chain shortens the emotional distance between the provenance of food and the consumer. This way of defining local food may be consistent with community-supported agriculture (CSA), which is regarded as a local food movement in the US. The type of participation (e.g. financial as in CSAs or labour as in community garden or self-production) for consumers to relate the shortened supply chain to local food in New Zealand needs to be explored in detail.

5.2.3 Geographical origin

Local food may also be defined as food that emphasises the value in identification of its geographical origin (Hinrichs, 2003). In Europe, food produced in a particular area that is associated with tradition may be certified under the French AOC (appellation d'origine contrôlée) or the EU's PDO (protected designation of origin) and PGI (protected geographical indication), and be sold as local food anywhere irrespective of the place of production (Feagan, 2007; Ilbery & Kneafsey, 2000). In the US and Japan, although there are no certification systems like in Europe, food products that are labelled and/or branded in association with the geographical origin of the products can be sold anywhere as local food irrespective of the place of production (MAFF, 2012; Woods et al., 2013). This study identified that there are some consumers in the Manawatu region that define local food in this way. However, the proportion of respondents who rejected this approach was slightly greater than those who supported it. The existence of conflicting views suggests that this approach to defining local food is under development in New Zealand.

Identity of local food

The approach to defining local food on the basis of geographical origin focuses on the identity of the food that is preserved throughout the supply chain (Woods et al., 2013). In Europe, the preserved identity of the food is associated with a tradition that is unique to the place of production (Ilbery & Kneafsey, 2000). In Japan, the preserved identity of the food is associated with a tradition and regional speciality in some cases, and with a sense of connection with rural land in other cases (Kimura & Nishiyama, 2008; Naito, 2007). In this New Zealand study, the scale of the geographical area to which the identity of food was attached to was different from the cases in Europe and Japan. A majority of the sample in this study considered local food as New Zealand produced food, and the definition of local food based on geographical origin also seemed to be associated with the national scale. Nonetheless, the respondents' understanding of local food appeared to be along the lines of tradition, which was recognised from the company brandings: *"[Local food is] NZ made e.g. 'Barker's' juices and pickles, 'Proper' South Island crisps"* (male respondent from age group 55-64 years). If the company brands were the identifier of local food, this means that the identity that needs to be preserved in order for the food to be recognised as local food might be the identity associated with the company, such as intangible assets and ownership, instead of identity associated with the regional tradition in a particular geographical area within New Zealand.

Ownership

In the US, the geographical scope in which money circulates is considered as a component of the local food concept (Severson, 2009). This means that ownership of the business is relevant to defining local food. Foreign ownership would contribute less to the local economy in comparison with local ownership, as a large proportion of the money earned through the food supply chain would leave the region (Hand & Martinez, 2010; Severson, 2009). Some respondents in this study also noted the importance of taking into account the ownership of the business that produced or sold the food: *"Local=NZ made, but it excludes those made by a foreign company"* (male respondent aged between 18-24 years). Ownership of the business and related monetary flow may also be part of the identity of food that is preserved throughout the supply chain. Therefore, consideration of ownership of the business may be associated with the conceptualisation of local food, regardless of whether local food is defined on the basis of geographical origin, geographical proximity, or on distribution method..

Potential inconsistency with the marketers' view

It has been noted in a previous study that producers and marketers in New Zealand are interested in the approach of labelling and branding food with its geographical origin to increase marketability (Millar, 2012). The fact that more than half of the respondents of this study did not recognise this approach to defining local food (i.e. had either negative or neutral attitudes) may be an indication of inconsistency between the definition of local food for the producers and marketers and the definition of local food for the consumers. It appears that the supply side of food may need to educate consumers if local food defined using this approach is to be promoted. The producers and marketers may also need to establish a local food concept that is associated with a smaller geographical area than the national scope. Furthermore, local food may require to be imbued with a sense of identity that can be preserved throughout the supply chain. Therefore, it has be made clear what kind of identity (e.g. the geography of production, or of product design, or the people involved in the supply chain) is important for the food to be considered as local food.

5.2.4 Additional notes for further research

Three types of geographical locations

When definitions of local food based on geographical proximity are adopted by marketers, the geographical locations considered generally are the place of production and the place of sale (Martinez et al., 2010). However, a comment provided by one of the respondents of this study indicated that the place of

consumption may also be an important component of the local food concept in consumers' perceptions: *"[My milk is not local because] I buy milk from a farmer close to work, but the farmer is distant (non-local) from home."* (male respondent aged between 35-44 years). In this case, the focus was on the distance the food has travelled from the place of production to the place of consumption, instead of the distance between the place of production and the place of sale. More specifically, the respondent's attention was on the distance between the place of production to the location of home, leaving possibilities for the milk to be consumed away from home. The definitions of local food listed based on geographical proximity that were tested in this study referred to the distance between the place of production and the place of sale. If it is the distance travelled by the food that determines the geographical proximity, the distance that the food travels with the consumer after the purchase may also need to be considered.

Various lifecycle stages related to production

There may be further locations associated with the food, depending on the type of food and the degree of processing. In the case of meat, for example, a definition of local food based on geographical proximity may need to consider the place where the animal was raised as well as the place where the animal was slaughtered and packaged:

> *"If I lived in Levin, Otaki or 'like' area, I would buy from farmgate. It would be 'local' then. Meat export plants purchase live cattle and sheep (lambs) from areas outside their locale, e.g. Levin buyers would purchase from many areas. So the animal is not local, only slaughtered in Levin"* (male respondent of unknown age)

Therefore, it may be important to identify which stages in the life cycle of the product consumers consider relevant when discussing their definition(s) of local food.

Association between local food and farmers' markets in New Zealand

Previous New Zealand studies discussed farmers' markets as a distribution channel for local food (Guthrie et al., 2006; Millar, 2012). It has also been reported that New Zealand consumers tended to perceive food sold at farmers' markets as of high quality (Chalmers et al., 2009). In previous studies, it was not clear whether the association between local food and farmers' markets was due to the directness of exchange between the producer and the consumer, or due to geographical proximity of the location of sale to the location of production. The results of this study suggesting that the distribution method approach to defining local food was not significantly supported indicated that the association between

local food and farmers' markets was presumably more due to geographical proximity. Additionally, the association of local food with farmers' markets may also be related to the definition of local food based on geographical origin, in which the emphasis on the identified geographical origin may add to the perception of quality.

Importance of travel distance

In comparison with the geographical proximity approach where relative locations of production, sale, and/or consumption shape the local food concept, distance is irrelevant to the definitions of local food based on geographical origin. In the case of European certification schemes such as AOC, the food may travel a long distance to reach the consumer and still be considered as local food by the consumer (Feagan, 2007). On the other hand, some researchers in New Zealand note that local food sold at farmers' markets may attract tourists (Guthrie et al., 2006; Lawson et al., 2008). This means that tourists may travel a long distance to buy local food at farmers' market. Whether it is the food or the consumer that travels, the food is recognised as local food as long as it is embedded with a sense of the geographical origin. Furthermore, if the tourists bring back the local food they have purchased at a farmers' market as a souvenir and still consider it as local food, their definition of local food is in line with AOC and the definition based on geographical origin. Since the approach to defining local food on the basis of geographical origin only focuses on the geography associated with one point of the lifecycle of the food, it disregards the distance travelled by the food and/or the consumer.

5.3 Attributes associated with local food compared with international studies

Previous studies found four categories of attributes that can be associated with local food: product characteristics, production method, shopping experience, and benefits to society (Dimech et al., 2011; Khan & Prior, 2010; Knight, 2013; Roheim et al., 2007; Tobler et al., 2011; Saito & Saito, 2013).

Attributes associated with local food that have been reported in previous studies are summarised in Table 5.2 alongside the results of this study. They are discussed in more detail in Sections 5.3.1 to 5.3.4.

Table 5.2 Acknowledged attributes associated with local food

Category of attributes	Country / region			
	Europe	North America	Japan	The Manawatu region, New Zealand
Product characteristics	Fresh, good taste, good appearance, nutritious	Fresh, nutritious	Fresh, good taste, nutritious	Fresh (90%), tastes good (73%), nutritious (66%), has a special quality (62%), looks good (62%).
Production method	Seasonal, safe, organic	Seasonal, safe, no pesticides	Seasonal, safe, organic, increased connection with the producer	Seasonal (84%), reliable producer (62%), safe (59%), transparent production processes (55%), organic (45%).
Shopping experience	Cheap, expensive, convenient, not easily accessible, not always available, fun experience	Good value for money, fun experience	Cheap, expensive, convenient, fun experience	Convenient (69%), good value for money (67%), fun experience (63%), trustworthy seller (62%), highly available (58%).
Benefits to society	Support for small-scale rural farmers and businesses, conservation of tradition and farmland, environmental friendliness, animal and producer welfare	Support for small businesses, support for local economy, community food security, environmental friendliness, opposition against conventional food systems	Support for small-scale rural farmers and businesses, conservation tradition and farmland, food security, environmental friendliness	Support for community (98%), alternative food supply system (70%), increases trust among people (63%), reduced GHG emissions (62%), conserves traditional eating habits (57%), conserves landscape (51%), makes food expensive (29%).
Note: See Chapter Two, Section 2.4 for details of individual attributes associated with local food in previous studies.	Source: DEFRA (2008), Dimech et al. (2011), Kneafsey (2010), Khan & Prior (2010), Madgwick & Ravenscroft (2011), Tobler et al. (2011), and Weatherell et al. (2003).	Source: Desjardins et al. (2010), Hand & Martinez (2010), Hinrichs (2003), Ikerd (2011), Knight (2013), Martinez et al. (2010), Onozaka et al. (2010), Roheim et al. (2007), and Tropp (2014).	Source: Kimura & Nishiyama (2008), MAFF (2007, 2008, 2014), Miki & Miyahara (2008), and Saito & Saito (2013).	Source: This study Note: The percentages in brackets are those of the sample who supported associations of local food with respective attributes.

5.3.1 Product characteristics

Freshness

Freshness is one of the attributes that consumers are most likely to associate with local food, according to previous studies in the UK, the US, and Japan (DEFRA, 2008; MAFF, 2007; Onozaka et al., 2010). This study was consistent with the literature because a vast majority of the sample considered that local food was associated with freshness.

Taste

In the UK and Japan, taste was also considered as an important attribute of local food (DEFRA, 2008; MAFF, 2007). A majority of the respondents in this study also supported the association of local food with good taste. Good taste was the second most supported attribute associated with local food among the five product characteristics tested in this study, followed by freshness.

Nutritional values and health benefits

Nutritional values and health benefits of local food have been emphasised by promoters of locally produced food in the UK, the US, and Canada (Desjardins et al., 2010; Madgwick & Ravenscroft, 2011; Tropp, 2014). An increase in consumption of local food consumption is considered to be better for health, particularly in the case of fresh vegetable and fruits (Desjardins et al., 2010). This is partly due to the association between local food and freshness, and to the assumption that freshness of the food is associated with minimal loss of nutritional values (Desjardins et al., 2010). In a national study in the US, nearly half of the respondents considered that locally produced food was of higher nutritional values compared with domestically produced food (Onozaka et al., 2010). In comparison, this study conducted in the Manawatu region of New Zealand showed that more than half of the respondents considered local food as nutritious. Given the fact that a majority of the sample of this study considered local food as domestically produced food, it appeared that many of the respondents associated domestically produced food with superior nutritional values. As for health benefits, since nutritional values are not the only component of health benefits (e.g. the amount of chemical residue may also be related to health benefits), it was not clear from this study how much the respondents associated local food with overall health benefits.

Degree of processing

In addition, freshness is associated with the degree of processing of the food. Freshness, in fact, can mean either the opposite of the stale, or the opposite of the

processed (Dimech et al., 2011; Tobler et al., 2011). When being fresh is understood as not being stale, freshness may be associated with minimal loss of nutrients. It may also be perceived as associated with environmental friendliness due to an assumed short storage period or transport distance, requiring less energy and preservatives (Dimech et al., 2011). In comparison, if being fresh was understood as being unprocessed, it could be considered as being free of additives. In this case, freshness may be associated with environmental friendliness due to the saving of energy required for processing (Tobler et al., 2011). Related to this notion of different meanings to freshness, some comments provided by respondents of this study indicated that a lower degree of processing may also be an important attribute of local food. One respondent stated that local food to her was *"what is in season, less processed, more food knowledge from retailer*" (female respondent from age group 45-54 years). The degree of processing may be associated with the length of supply chain and the amount of information passed down to the consumers.

5.3.2 Production methods

Seasonality

Seasonality has been discussed by researchers and policymakers as an important attribute associated with local food in the UK, the US, and Japan (Miki & Miyahara, 2008; Tobler et al., 2011; Tropp, 2014). In the UK, seasonality was found to be among the key attributes consumers consider as important when making purchase decisions (DEFRA, 2008). This study was consistent with previous studies because seasonality was associated with local food by a majority of the respondents.

Food safety

Previous studies in the UK and Japan have reported food safety as a key attribute of local food that consumers considered as very important (DEFRA, 2008; MAFF, 2007). In Japan, food safety was valued as an attribute of local food by consumers nearly as much as connection with the farmer and product characteristics such as freshness (MAFF, 2007). In comparison, a study in the US noted that consumers associated food safety with local food, but the relative importance of food safety as an attribute of local food was lower than that of freshness and social benefits such as support for small businesses (Onozaka et al., 2010). This study was consistent with the previous studies in other countries in terms of the fact that a majority of the respondents supported the association between local food and food safety. With respect to the relative importance of attributes associated with local food, the results of this study were rather in line with the American study because

the association was supported by much smaller proportion of the respondents in comparison with many of other attributes including freshness and support for community.

In addition, it was noted in an Australian study that local food could be associated with safety guarantee due to increased trust in the supply chains (Meyer et al., 2012). The relatively low importance of food safety as an attribute of local food may mean that the respondents of this study did not associate local food so much with increased trust in the supply chain. Concomitantly, the results of this study showed that the association between local food and food safety was of lower importance relative to associations with reliability of the producer or with trustworthiness of the seller. This indicated that the positive perceptions of the seller and the producer were not because they added to the safety of the food.

Organic agriculture

Furthermore, organic agriculture has been discussed in the literature as one of the signals of safety assurance that is often associated with local food by consumers (Dupuy et al., 2005; Loftus, 2005; Verbeke, 2005). The perception of safety of organic food is largely due to the fact that organic food is non-GMO (Dupuy et al, 2005). In the UK, many consumers associate local food with organic agriculture (Holloway & Kneafsey, 2000). In the US and Japan, it has also been reported that some consumers consider local food as associated with organic agriculture (Nakata, 2005; Onozaka et al., 2010). In this study, just under half of the respondents considered that local food was associated with organic agriculture. It may be that the respondents considered organic agriculture as more than a mere indication of non-GMO. Since production of GMO crops are not permitted in New Zealand, it is possible that the respondents assumed domestically produced food as GMO-free, paying little attention to whether all the ingredients were sourced within New Zealand.

5.3.3 Shopping experiences

Convenience and availability

Convenience and high availability were associated with local food by consumers in the UK whose definition of local food was associated with retail chains such as supermarkets (Khan & Prior, 2010; Madgwick & Ravenscroft, 2011). In contrast, a national study in the US reported that many American consumers considered that local food was not highly available (Onozaka et al., 2010). In this study, more than half of the sample thought that local food was convenient and highly available. The association of local food with convenience and high availability

might be because a majority of the sample stated that they bought local food from supermarkets. The perceptions of convenience and high availability could have been influenced by the type of retail outlets respondents bought local food from. Furthermore, the type of retail outlets that respondents bought local food from must be related to their definitions of local food, since those respondents who defined local food as "*not supermarket food*" (female respondent from age group 35-44 years) would not have visited supermarket to shop for local food.

Influence of the choice of local food definition on shopping experience

A majority of the respondents of this study had positive perceptions about shopping for local food. Shopping experience may be influenced by how and where the food was sold. The method of local food distribution and the choice of retail outlets for buying local food varies depending on individual respondents' definition of local food. For example, when local food is defined as food that was directly sold by the producer, the shopping experience would involve more communication with the producer compared to when local food is defined as domestically produced food that can be bought from supermarkets. The difference in definitions of local food would lead to different perceptions of attributes related to shopping experience such as convenience, availability, and whether or not the experience of shopping is fun.

5.3.4 Benefits to society

Support for community

Support for community is among the most important attributes associated with local food in previous studies in the UK, the US, and Japan (MAFF, 2008; Onozaka et al, 2010; Roheim et al., 2007). This study was consistent with the previous studies in that support for community was considered by consumers as a very important attribute associated with local food.

In fact, the respondents of this study supported the association between local food and support for community, even more than the association between local food and freshness. This finding was different from previous studies in other countries, which reported freshness, taste, and food safety as the more important attributes associated with local food (DEFRA, 2007; Onozaka et al., 2010; Roheim et al., 2007).

In the UK, local food is associated with rural development, including support for the farmers and conservation of the land as well as tradition (Ilbery & Kneafsey, 2000; Murdoch 2000). Similarly in Japan, local food is associated with

conservation of rural land and farming culture, in addition to supporting the farmers and small businesses (MAFF, 2007). In the US, local food is associated with support for small businesses as well as for local economy (Roheim et al., 2007). However, this study did not identify a single meaning to support for community, as the respondents did not associate local food with other social benefits such as conservation of landscape or of tradition as much as support for community.

Furthermore, in studies in the UK, the US, and Japan, support for community was associated with development of a smaller geographical unit, such as a town or a state within a country (Ilbery & Kneafsey, 2000; Onozaka et al., 20010). In comparison, many of the respondents in this study may have associated local food with the development of the country, since definition of local food as domestically produced food was supported strongly.

Additionally, some respondents who stated that local food was associated with support for community might have meant it would support the local economy, where local economy refers to national economy: *"Local food contributes to local economy. [I buy to] support local farmer."* (male respondent aged between 25-34 years). The suggested association between local food and economic development of the country may be related to the fact that the national economy of New Zealand is significantly reliant on the agro-food industry. As support for community was identified as a key attribute that appeals to potential buyers of local food, it is worth examining what exactly consumers are willing to support through local food consumption in future research.

Environmental friendliness

Lower carbon footprint (i.e. reduced GHG emissions) is also an attribute that consumers reportedly associate with local food in previous studies in the UK, Canada, the US, and Japan (Campbell et al., 2014; Nakata, 2005; Selfa et al, 2008; Tobler et al., 2011; Thilmany et al., 2008). Environmentally friendly characteristics of local food tend to be perceived in association with reduced food miles and conservation of agricultural land and tradition (Feagan, 2007; Kimura & Nishiyama, 2008; Knight, 2013; Tobler et al., 2011). This study was consistent with the previous studies in other countries because lower carbon footprint was associated with local food by more than half of the respondents.

However, the relative importance of the association of local food with lower carbon footprint was low in this study compared with other attributes such as

support for community and product characteristics. This result was consistent with an American study that noted lower carbon footprint as an attribute associated with local food which was not considered much when consumers were making purchase decisions (Roheim et al., 2007).

Alternative food systems

Local food is sometimes discussed in relation to alternative food systems, and considered as an expression of opposition to the conventional food systems represented by large-scale retailers such as supermarkets (Holloway et al., 2007; Knight, 2013). In this study, a majority of the respondents considered local food as an expression of support for an alternative to the mainstream food supply systems. However, the association of local food with alternative food systems did not seem to be an expression of opposition against the mainstream food systems, unlike in other countries such as the US. This finding is supported by the fact that many of the respondents reported that local food was available at supermarkets. Indeed, the supermarket was the most common type of distribution channels respondents bought local food from, followed by open-air markets. It may be inferred from these results that supporting local food is considered to encourage food supply systems that are complementary to the conventional food supply systems. Then, the viewpoint of the sampled New Zealand consumers would be consistent with that of researchers who consider that such as DuPui and Goodman (2005), Sonnino and Marsden (2006), and Martinez et al. (2010). The alternativeness of local food can be considered as something that complements and co-exists with the conventional food system, rather than an independent resistance against it.

5.4 Influence of household income on understandings of local food

Income is a consumer characteristic that is frequently used as an independent variable that potentially characterises consumer segments in analyses of food consumption patterns (DEFRA, 2008; Roheim et al., 2007; Weatherell et al., 2003). However, findings about the influence of household income on consumers' understandings of local food sometimes have been inconsistent in previous studies (Campbell et al., 2014; Khan & Prior, 2010). While a study in the UK reported that income did not have significant influence on the understandings of local food (Khan & Prior, 2010), another work that studied consumers in the US and Canada noted some differences across income groups (Campbell et al., 2014). This study identified some differences across income groups, therefore was somewhat consistent with the study by Campbell et al. (2014).

The results of this study showed that the administrative boundary used to define local food was more geographically constricted for respondents from the high income group compared with respondents from the low income group. Respondents in the high income group had more positive attitudes towards the definition of local food as food from within the Manawatu than respondents in the low income group. Concomitantly, the high income respondents were found to have significantly more negative attitudes towards the definition of local food as food from within New Zealand than the low income respondents (see Section 4.3.1 for details).

With respect to definitions of local food based on other approaches (i.e. distribution method and geographical origin), low income respondents in this study were found to have more accepting attitudes, in contrast to the sample's overall attitudes (see Section 4.3.2 and Section 4.3.3 for details). This tendency may be another indication that low income respondents have a broader understandings of local food.

In previous studies in the UK, the vagueness, or the broadness of the definition of local food has been discussed as a difference arising from the type of consumers' residence, with urban consumers having a more vague understanding of local food than their rural counterparts (Khan & Prior, 2010). It has been found that consumers who define local food as domestically produced food tended to be urban consumers (DEFRA, 2008). The finding in the UK was indirectly supported by the results of this study. Although the influence of residential areas (i.e. urban or rural) on the definitions of local food was not analysed in this study, there was

an association between the level of household income and residential areas. The results were that significantly more respondents from the low income group resided in urban areas (i.e. either inner city or suburban area) while significantly more respondents from the high income group resided in rural areas (i.e. either rural town/village or farm/lifestyle block). Therefore the fact that respondents from the low income group accepted a broader definition of local food compared with high income respondents suggested that urban consumers may have a similar tendency to the low income respondents. Nonetheless, the direct influence of differences in residential areas on the understandings of local food needs to be examined further.

It has also been noted that younger urban population aged between 18 and 40 in the UK tended to define local food as food sold at the local shop/supermarket (DEFRA, 2008). The influence of age may be relevant to the findings of this study because there was an association between the low level of income and urban residence, as well as the level of income and age groups. In addition, the level of education may also be related to the differences across income groups, noting that the association between income level and the level of education were statistically significant. Nevertheless, further analyses of the age variable and the education variable are required to determine their influences on the understandings of local food in the Manawatu region, New Zealand.

Additionally, the influence of household income on the associations of values with local food was limited. Statistically significant differences across income groups were identified regarding the associations with good appearance, organic agriculture, good value for money, and conservation of landscape (Appendix H). The differences lied between the low income group and the high income group in most cases, except for the association with good value for money where the differences were found between the middle income group and the high income group. For the association with good appearance, the differences existed between the low and the middle income groups as well as the low and the high income groups. It was always the respondents from a lower income group who had more positive attitudes towards respective associations. The results of this study were partially consistent with the study by Campbell et al. (2014), which reported that low income consumers in the US and Canada tended to associate locally produced food with organic agriculture.

The results of this study suggested that there may be other demographic factors (e.g. the type of residential area) or lifestyle factors (e.g. the type of retail outlet to buy food from) that characterise consumer segments along with household income. It was found in this study that significantly more respondents from the low income group lived in inner city, and that significantly more respondents from the high income group lived on a farm/lifestyle block. This means that the difference in income is associated with the difference in the type of residential areas, which in turn is likely to influence the type of food and retail outlet that are easily accessible. Furthermore, a majority of the households with single adults, whether or not they had children, belonged to either the low income group or the middle income group. The composition of household would also influence lifestyle factors in many ways, including the quality and the quantity of food to purchase and where to buy from. Factors that are associated with household income may be worth analysing, since it has been noted by the Ministry of Health (2012) that food choice is influenced by household income in various forms (Ministry of Health, 2012).

CHAPTER SIX

Conclusions

6.1 Introduction

This chapter summarises the key findings of this research and draws conclusions. It evaluates the study, and identifies implications for consumers, producers and marketers, policymakers, and researchers. Finally, it suggests some directions for further research.

6.2 Summary of the findings

This study identified that many consumers in the Manawatu region (lower North Island, New Zealand) defined local food on the basis of geographical proximity between the place of production and the place of sale. A smaller number of consumers defined local food on the basis of geographical origin, and a minority defined local food based on distribution methods.

In the case of defining local food on the basis of geographical proximity, the use of administrative boundaries was supported as well as the use of metric distances for determining proximity. However, given the fact that the geographical scope of New Zealand was supported by more respondents in this study compared with a geographical area of a 100km radius, it appeared that the use of administrative boundaries for defining local food meant more than geographical proximity to consumers.

Administrative boundaries that could be used to define local food ranged between the Manawatu region, North Island, and New Zealand, where the Manawatu region, i.e. the smallest geographical area, was supported more strongly by the sample. Consumers with high household income tended to have a more geographically constricted definition of local food compared with consumers with low household income, showing less support for the definition of local food as food that was produced and sold in New Zealand.

In this study, respondents generally had positive perceptions of local food, associating local food with positive product characteristics such as freshness, positive production attributes such as seasonality, positive shopping experiences such as convenience, as well as positive benefits to society such as support for

community. Among these attributes associated with local food, support for community appeared to be the most important attribute, followed by freshness and seasonality.

In addition, this study showed that food products that were considered as local food were not limited to unprocessed food. Dairy products, meat and seafood, as well as bread and beverages, could potentially be local food in addition to fresh produce and eggs. This suggests that the geographical locations considered in the process of defining local food may vary across product categories.

Household income had limited influence on associations of local food with various attributes and on behaviours related local food, including the choice of retail outlets for buying local food. With respect to support for community, freshness and seasonality, which were the three key attributes associated with local food, there was no significant difference across different income groups. Differences in the main types of retail outlets visited for local food purchase across income groups were not significant either. A majority of the respondents, irrespective of the household income, bought local food from supermarkets, farmers' markets, and street/flea markets. However, insignificance of the differences might have been due to the fact that the responses were made with reference to individual respondents' own definitions of local food. A variation in definitions of local food adopted by individual respondents must have influenced their responses regarding associations with attributes and behaviours related to local food.

6.3 Evaluation of the study

6.3.1 Research design

This research was an exploratory study that used a quantitative method based on self-administered questionnaires. While the quantitative approach was useful for analysing the variability of definitions of local food in the Manawatu region as well as examining similarities and differences from the findings in previous studies, the depth of information obtained was limited. In order to explain the reasons behind the respondents' attitudes towards various definitions of local food, a qualitative approach using open questions would be necessary.

The use of convenience sampling for this research was effective in collecting a considerably large sample in a limited time and budget. If the situation allowed, probability sampling such as simple random sampling would have been a good

choice of sampling to generate a sample that was more likely to represent the population of the research.

The selection of the Manawatu region as the focus of the study was practical and effective given the limitations of time and budget. The findings of this study provide some information about New Zealand consumers' understandings of local food. However, situations in other regions of New Zealand also need to be studied in the future in order to identify whether there are differences across different regions in New Zealand.

6.3.2 Secondary data collection

Previous studies on local food reviewed for this research were predominantly consumer studies in contexts of the UK, the US, Canada and Japan. They provided secondary data about how consumers understood the term local food, as well as the consumers' attitudes towards local food initiatives studies in respective countries. Literature on the viewpoints of other social actors such as producers and marketers of local food would have also been a good source of additional information. A review of previous consumer studies about related topics such as farmers' markets and organic food in New Zealand and other countries would also have added to understandings of consumer values in New Zealand and potential differences from other countries.

6.3.3 Primary data collection

Relative importance of definitions of local food

In this study, respondents were provided with a list of definitions of local food and were asked to express their attitudes towards each of the definitions. A quantitative analysis revealed the compositions of the attitudes of the sample, including percentages of positive and negative attitudes towards each definition of local food. Although differences in the compositions of attitudes illustrated relative importance of one definition over another, an additional question that explicitly asked respondents to choose one definition that best described their ideas of local food could have been included in the questionnaire. Then, it would have been even clearer what definition of local food was most supported by the sample.

Relative importance of attributes associated with local food

Similarly, an additional question that asked respondents to choose one attribute that they considered as the most important would have added to the understandings of attributes associated with local food. In fact, Question 7 of the

questionnaire used in this study, which asked respondents to choose the top three reasons why they did/did not buy local food, was a question that partly reflected this intention. Question 7 was devised to identify the category of attributes that was most important to the respondents when making purchase decisions. However, since the reason for buying was not necessarily equal to key attributes associated with local food, a direct question about key values of local food could have been added to the questionnaire.

Wording of the questions

The respondents of this study generally showed positive attitudes towards associations of local food with attributes listed in the questionnaire. Considering the potential influence of the social desirability response bias, it may have been better if some of the attributes were expressed using negative terms. For example, the association between local food and convenience could have been examined using the term inconvenience instead of convenience.

Length of the questionnaire

Due to this research being one of the first studies in the context of New Zealand that explored consumers' understandings of local food, a wide range of attributes that were potentially associated with local food were included in the questionnaire, rather than focussing on a particular type or set of attributes. In addition, many questions were included in the questionnaire to collect information about behaviours related to local food purchase, as well as demographic information. Even though the collected data provided a lot of information that identified various areas to be focussed in future studies, the questionnaire used in this study was rather long and time-consuming to fill out. A shorter questionnaire may have reduced workload of potential respondents, enabling to collect a larger sample within the limited timeframe.

6.3.4 Data analysis

The data collected in this study were analysed using annual household income as an independent variable. The sample was divided into three income groups according to the respondents' annual household income. While this allowed comparison across the three income groups, there was a risk that the grouping obscured differences within the specified income ranges. The data about household income could have been collected as continuous data (i.e. by asking respondents to state the exact amount), from which more refined categories for the independent variable could be formed. However, the decision of asking the question about income as a multiple-choice question in this study may have

contributed to securing a reasonably high response rate, since income is a sensitive question to some consumers.

In addition, one or more of the demographic factors and lifestyle factors could have been used as an independent variable in addition to the household income. If analyses using more independent variables were performed, consumer characteristics that influence understandings of local food more than the household income might have been found. Further studies using different independent variables may contribute to identifying consumer segments, which may be of interest to food marketers.

6.4 Implications of the study

6.4.1 Implications for consumers

This study identified that there is a diversity of definitions of local food accepted by consumers, and that attributes associated with the local food concept vary. The implication of these findings for consumers is that there is always a possibility that what they consider as local food may not be treated as local food by other people. Differences in perceptions of local food may exist among individual consumers as well as between consumers and other social actors such as food distributors and policymakers. This means, for example, that what is promoted as local food by food distributors may not be equal to what consumers themselves consider as local food. Therefore, individual consumers should be aware of the attributes they value, and make purchase decisions with reference to labels and other sources of information instead of relying on the use of the term local food.

6.4.2 Implications for producers and marketers

It was found in this study that geographical proximity was the primary approach to defining local food for many consumers. Furthermore, this study indicated that consumers with high household income tended to have a more geographically constricted definition of local food compared with consumers with low household income. The implication of these findings is that providing specific information about the geographical origin of food would appeal more to high income consumers who are seeking local food.

In addition, the approach of geographical origin to defining local food was not supported in this study as much as the geographical proximity approach. In order to develop marketability of local food using the geographical origin approach, local food must be differentiated from other New Zealand-made food. This means that consumers have to be educated to associate the term local food with a

geographical area smaller than the whole of New Zealand. Currently, not many consumers seemed to distinguish between local food and domestically produced food, indicating a distinction only from imported food. Differentiation of local food from domestic food may not be important for producers and marketers when the focus is on foreign markets, selling the food under the New Zealand brand. However, it would be crucial if the food is to be marketed using the term local food to consumers within New Zealand as well as overseas.

With respect to attributes associated with local food, the implications of the results for producers and marketers of local food are that support for community should be emphasised where possible. Freshness and seasonality may also be stressed to appeal to consumers who are interested in local food.

6.4.3 Implications for policymakers

The results of the study showed that there is potentially a risk of miscommunication between the supply side and the demand side of food, due to differences in understandings of the local food concept. Furthermore, the fact that consumers' understandings of local food vary may affect effectiveness of campaigns or programmes that use the term local food. Therefore, policymakers should be aware of the potential disjunctions between their intentions and consumers' understandings, and be cautious about using the term local food when making policies to support certain types of food, producers, or distribution channels. In order to avoid confusion, one alternative is to establish an official definition of local food, as USDA has done in the US.

6.4.4 Implications for researchers

This study identified areas that need further exploration on the topic of local food in New Zealand. Therefore, researchers are recommended to use this study as a preliminary work in the context of New Zealand, and design future studies to deepen understandings of local food both in New Zealand and overseas.

6.5 Further research

This study provided a basis for further research into analysing the local food concept in New Zealand. Based on the findings of this study, the following areas are recommended for future research.

- **Similar studies in different regions of New Zealand**

Since this study was limited in terms of region, more studies similar to this are suggested to be undertaken in other regions, especially in a more populated urban

region such as Auckland and in South Island that is less populated and more rural. A sequence of similar studies in different regions of New Zealand would provide general ideas about how New Zealand consumers understand local food. The obtained information would be of use to policymakers and food distributers who operate on a national scale to increase effectiveness of their initiatives regarding local food. Moreover, a comparative study between New Zealand and other countries may further be undertaken. Information about similarities and differences across countries would be useful for exporters and importers of food to better understand consumers and their needs in destination markets.

- **Qualitative study using the focus group technique**

In order to explore in depth how local food is defined by consumers and understand the meanings associated with the definitions of local food, a qualitative study is recommended to be conducted. Focus groups, where participants with different definitions of local food (e.g. consumers who consider New Zealand-made as local food and those who consider otherwise) are recruited, may be a useful approach to a qualitative study. The limit to the extent of geographical proximity for defining local food, as well as the influence of differences in product categories and the degree of processing, may be explored. In addition, details of the phrase "support for community" and the influence of monetary flow represented by ownership of the business on consumers' attitudes towards definitions of local food may also be examined to identify the relationship between definitions of local food and value associations. It may also be useful to obtain information about respondents' cultural and personal background, including habits, values and beliefs. Since differences in understandings of local food are known to exist across countries, similar differences may exist within one country where consumers with various cultural and personal backgrounds reside.

- **Identification of key stages in the life cycle of the product**

This study suggested that various geographical locations may be considered by consumers when they define local food on the basis of geographical proximity. Since different stages in the life cycle of the product may involve different geographical locations, it is recommended that further study be undertaken to identify what stages in the life cycle of the product consumers consider relevant when discussing their definitions of local food. In addition, different products, including unprocessed food and processed food, may need to be examined, to identify potential differences across various product categories.

- **Identification of consumer segments**

This study identified that household income had some influence on consumers' local food concept. Further quantitative analyses of the influence of other demographic factors (e.g. age, education, and household composition) and lifestyle factors (e.g. the type of retail outlets to buy food from) would contribute to understanding consumer segments for local food. Once characteristics of each consumer segment are identified, producers and marketers of local food may target a particular consumer segment, focus on particular attributes, and market particular types of local food through appropriate distribution channels to meet consumers' expectations. Concomitantly, understandings of consumer segments would help identifying who needs what kind of educational programmes with respect to local food, which may be important to policymakers as well as food distributors.

- **Analyses of other consumer trends**

Since local food is one of the terms used to describe trends in food consumption, the concept may be associated with other terms such as organic food, animal welfare, producer welfare (including fair trade), and environmental sustainability. Consumers' understandings of these other terms may overlap with their ideas of local food. For the purpose of understanding the language consumers use to express their demand, it may be worthwhile to conduct exploratory studies on the meanings of these terms to consumers.

- **Analyses of the viewpoints of other social actors**

This study focussed on the viewpoint of consumers with respect to defining and understanding local food. In order to compare viewpoints of different social actors and identify disjunctions and potential risks of miscommunications, it may be important to additionally analyse the viewpoints of producers, marketers, and policymakers.

To conclude, local food is a concept that is understood differently by different people, even within a small area such as the Manawatu region of New Zealand. Further multidimensional analyses of how and why differences in the understanding of local food exist will help stakeholders of local food supply and consumption enhance solid and effective communication.

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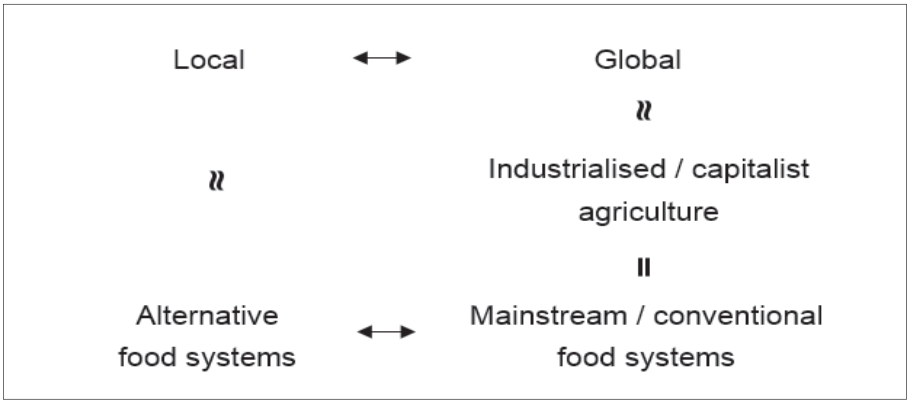
APPENDICES

Appendix A: Relationship between local food and alternative food

The local food literature overlaps with the literature on alternative food to some extent (Allen et al., 2003; Goodman, 2003; Kneafsey, 2010). This is due to the relationship of the terms local and alternative as illustrated in the diagram below.



Source: Developed on the basis of studies by Born & Purcell (2006), DuPuis & Goodman (2005), Feagan (2007), Goodman (2003), Tregear (2011), and Winter (2003).

Firstly, the term local is used to indicate the opposite of global (Feagan, 2007). Secondly, the term global tends to be associated with industrialisation and capitalisation of food systems (Born & Purcell, 2006; DuPuis & Goodman, 2005; Winter, 2003). Food systems that are "heavily reliant on industrialised methods of food production and processing, global sources and means of supply, corporate modes of financing and governance, and an imperative towards operational efficiency" are the mainstream and the conventional mode of food production and distribution (Tregear, 2011, p. 419). An example of such food systems is "supermarket mode of food provisioning in countries like the UK" (Holloway et al., 2007, p. 2). Contrasting to the conventional food systems are "alternative agro-food networks operating at the margins of mainstream industrial food circuits" (Goodman, 2003, p. 1). Given the assumption that a capitalist agriculture equates non-local or global mode of food provisioning, an alternative food system that is distinguished from the mainstream capitalist systems "must be necessarily local" (Born & Purcell, 2006, p. 119). In words of DuPui and Goodman (2005, p. 359), "the global becomes the universal logic of

capitalism and the local the point of resistance to this global logic". Hence, the terms local and alternative are considered as associated.

Local and alternative food systems are often discussed as a solution to various issues that exist in the capitalist society (Born & Purcell, 2006; Murdoch et al., 2000). However, Murdoch et al. (2000) question the assumption made in many of the alternative agro-food studies that alternative food systems are more sustainable. Born and Purcell (2006, p. 205) also criticise the approach of idealising the "localized and noncapitalist food systems that were dismantled by capitalization". They note that the existing issues lie in the "capitalist logics of industrialization and its globalization strategy that result in the negative effects, not industrialization and globalization" (p. 205).

Even though many of agro-food studies have been undertaken given the binary between the local and the global, and the alternative and the mainstream/conventional (DuPui & Goodman, 2005; Murdoch et al., 2000), the trend towards local and the trend towards global should not be discussed as independent phenomena (DuPuis & Goodman, 2005). As Sonnino and Marsden (2006) noted, both de-localisation and re-localisation may take place concurrently, where de-localisation denotes a process that leads to conventional agri-food systems and re-localisation is a process through which alternative agri-food networks develop. Martinez et al. (2010) also state that the increased interest in local food has rather contributed to the developments in the conventional mainstream food system. Therefore, the alternativeness of local food may be considered as something that complements and co-exists with the conventional food system, rather than an independent resistance against it.

Understanding the meaning of alternativeness is a key to identifying the values consumers seek in alternative foods such as local food. The analytical framework developed by Holloway et al. (2007) serves to analyse similarities and differences of individual food movements from a multi-dimensional approach. The idea of Holloway et al. (2007) is that each alternative food system is different from the mainstream food systems in one way or the other, addressing various problems that the mainstream food systems caused. Concomitantly, similarities must also exist between alternative food systems and conventional food systems. These similarities may be keys to making alternative food systems economically successful (Holloway et al., 2007).

Appendix B: Information sheet and the questionnaire

MASSEY UNIVERSITY
COLLEGE OF SCIENCES
TE WAHANGA PUTAIAO

Perceptions of 'Local Food' in Manawatu

INFORMATION SHEET

This survey is part of a research project being conducted by Sayaka Hiroki in partial fulfilment of the requirements for the degree of Master in AgriCommerce at Massey University, under supervision of Dr. Elena Garnevska and Associate Professor Sarah McLaren.

The aim of the research is to gain understandings of consumer perceptions of 'local food' in the Manawatu. Although 'local food' is recognised as a growing trend among growers and consumers around the world, its definition varies from case to case.

In countries such as the United Kingdom, the United States and Japan, consumers' perceptions of 'local food' are being studied by researchers and the governments for various purposes. However, there have not been such studies in the context of New Zealand.

The information you provide by participating in the survey will help us understand how consumers in New Zealand perceive 'local food'. Potentially, it may further help us find business opportunities for producers and distributors of 'local food'.

The survey is anonymous and voluntary. As you complete the survey, you will be asked to offer personal opinions about 'local food' and supply demographic information. The survey will take around five minutes. Your responses will be confidential and the information you supply will not be reported in such a way as to identify you.

Completion and return of the questionnaire implies consent. You have the right to decline to answer any particular question. If you have any questions about the project or the survey please do not hesitate to contact Sayaka Hiroki (S.Hiroki@massey.ac.nz), Dr. Elena Garnevska (E.V.Garnevska@massey.ac.nz) or Associate Professor Sarah McLaren (S.McLaren@massey.ac.nz) at Massey University.

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researchers named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researchers, please contact Professor John O'Neill, Director, Research Ethics, telephone 06 350 5249, email humanethics@massey.ac.nz.

Te Kunenga ki Pūrehuroa

Agriculture & Horticulture Group – Institute of Agriculture and Environment
Private Bag 11222, Palmerston North 4442, New Zealand T +64 350 5996 F +64 350 5680 http://www.massey.ac.nz

Perceptions of Local Food in Manawatu
QUESTIONNAIRE

1. Where do you live?

☐ Palmerston North City (PN) ☐ Feilding ☐ Other (please specify) .....

2. There are **various definitions** of local food. Please provide **your** opinion by ticking an appropriate box for **each** statement.

Local food is food that is:	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
Produced and sold in Manawatu (PN and Manawatu District)	☐	☐	☐	☐	☐
Produced and sold in the North Island	☐	☐	☐	☐	☐
Produced and sold in New Zealand (NZ)	☐	☐	☐	☐	☐
Sold within 50km of its production	☐	☐	☐	☐	☐
Sold within 100km of its production	☐	☐	☐	☐	☐
Produced anywhere but sold in your local shop /supermarket	☐	☐	☐	☐	☐
Produced anywhere but sold directly to you by the farmer	☐	☐	☐	☐	☐
Produced in a particular area of NZ and sold anywhere	☐	☐	☐	☐	☐
Produced in a place relatively close to that of alternative products	☐	☐	☐	☐	☐
Other definition	☐	☐	☐	☐	☐

3. The following are **characteristics** of local food. To what extent do you agree or disagree with each statement?

	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
Fresh	☐	☐	☐	☐	☐
Tastes good	☐	☐	☐	☐	☐
Looks good	☐	☐	☐	☐	☐
Nutritious	☐	☐	☐	☐	☐
Has a special quality that derives from its place of production	☐	☐	☐	☐	☐

4. The following describes **producers and production methods** of local food. Please tick a box for each statement.

	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
Organic	☐	☐	☐	☐	☐
Safe	☐	☐	☐	☐	☐
Seasonal	☐	☐	☐	☐	☐
Transparent production process	☐	☐	☐	☐	☐
Reliable producers	☐	☐	☐	☐	☐

5. To what extent do you agree or disagree with the following statements about **shopping for local food**?

	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
Good value for money	☐	☐	☐	☐	☐
Fun experience	☐	☐	☐	☐	☐
Convenient	☐	☐	☐	☐	☐
High availability	☐	☐	☐	☐	☐
Trustworthy seller	☐	☐	☐	☐	☐

6. The following are descriptions of **aspects** related to local food. Please tick a box for each statement.

	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
Support for community (including farmers and shops)	☐	☐	☐	☐	☐
Reduced greenhouse gas emissions	☐	☐	☐	☐	☐
Conservation of landscape	☐	☐	☐	☐	☐
Makes food expensive	☐	☐	☐	☐	☐
Conservation of traditional eating habits	☐	☐	☐	☐	☐
Increases trust among people	☐	☐	☐	☐	☐
Alternative to the mainstream food supply system	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐

PLEASE TURN OVER ↓

PLEASE TURN OVER ↓

7. Do you buy local food?

☐ Yes

→ Why? **Rank** the top **three** you value most.

- ☐ Distance it has travelled
- ☐ Area it was produced in
- ☐ Shop it was sold at
- ☐ Freshness / taste / appearance / nutritional value
- ☐ Production method
- ☐ Experience with shopping
- ☐ Benefits to society
- ☐ Other (please give details) .....

↓

☐ No

→ Why? **Rank** the top **three.**

- ☐ Not interested
- ☐ Don't know where to buy it
- ☐ No time to travel to buy it
- ☐ Too expensive
- ☐ Quality is not satisfactory
- ☐ Grow / make your own instead of buying it
- ☐ Other (please give details) .....

↓

Please go to Question 11.

8. Where do you buy local food? Tick all that are applicable.

- ☐ Supermarket
- ☐ Farmers' market
- ☐ Street / flea market
- ☐ Specialist shop
- ☐ Farmgate shop
- ☐ Internet
- ☐ Dairy / convenience store
- ☐ Box scheme
- ☐ Other (please specify) .....

9. How often do you buy **local** food in **each** of the following food categories?

	At least once a week	At least once a month	At least once in three months	Less than once in three months	Never	This category cannot be local
Fresh fruits and vegetables	☐	☐	☐	☐	☐	☐
Eggs	☐	☐	☐	☐	☐	☐
Dairy products (including milk)	☐	☐	☐	☐	☐	☐
Meat / meat products	☐	☐	☐	☐	☐	☐
Seafood	☐	☐	☐	☐	☐	☐
Bread	☐	☐	☐	☐	☐	☐
Beverages (including alcohol)	☐	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐	☐

10. Do you wish to buy more local food?

☐ Yes ☐ No

→ What are the greatest barriers to you? .....

Please tell us about yourself.

11. Gender: ☐ Male ☐ Female

12. Age group: ☐ 18-24 ☐ 25-34 ☐ 35-44 ☐ 45-54 ☐ 55-64 ☐ 65+

13. How many people do you regularly buy food for? Adults:..... Children:.....(financially dependent)

14. Cultural background

☐ Māori ☐ Pakeha / European NZ ☐ European ☐ Asian ☐ Other .....

15. Highest educational level

☐ Secondary schooling ☐ Vocational training ☐ Tertiary level

16. The annual income level of your household [*optional*]

☐ <$39,999 ☐ $40,000-69,999 ☐ $70,000-99,999 ☐ $100,000+

17. Which best describes the place that you live?

☐ Inner city ☐ Suburban area ☐ Rural town / village ☐ Farm / lifestyle block

18. Please feel free to express any other comments about local food you wish to share.

.....

.....

Thank you very much for your cooperation.
Please note that your consent for this survey is implied by submitting the completed questionnaire.

Appendix C: Data collection venues

Type of venue	Name	Address	Township
Supermarket	Countdown Broadway	Corner of Albert Street and Main Street	Palmerston North
	Countdown Rangitikei Street	Corner of Featherston Street and Rangitikei Street	Palmerston North
	New World Aokautere	194-200 Ruapehu Dr, Aokautere (Summer Hill)	Palmerston North
	New World Pioneer	Corner of Main Street and Bryant Street	Palmerston North
	Pak'n Save Palmerston North	Corner of Ferguson Street and Linton Street	Palmerston North
Farmers' market	Feilding Farmers' Market	Manchester Square	Feilding
Street / flea market	Albert Street Market	Corner of Albert Street and Main Street	Palmerston North
	Cloverlea Market	301 Tremain Avenue (Corner of Tremain Avenue and Botanical Road)	Palmerston North
Other public places	Hancock Community House	77-85 King Street	Palmerston North
	Te Manawa Museum of Art, Science and History	325 Main Street	Palmerston North
	Palmerston North Hospital	50 Ruahine Street, Roslyn	Palmerston North
	Alexander Park	Alexander Street, Awapuni	Palmerston North
	Norton Park	Featherston Street, Roslyn	Palmerston North
	Parkland School	41 Parkland Crescent, Terrace End	Palmerston North
	Awahou School	518 Pohangina Valley East Rd, Pohangina	Palmerston North
	Massey University	Tennent Drive, Turitea	Palmerston North

Appendix D: Demographics cross-tabulated by income

	ANNUAL HOUSEHOLD INCOME						Total	
	Low <$39,999		Middle $40,000-69,999		High $70,000+			
	Count	% (residual)	Count	% (residual)	Count	% (residual)	Count	%
RESIDENCE								
Palmerston North City	57	84	49	79	55	74	161	79
Feilding	6	9	5	8	6	8	17	8
Other Manawatu	3	4	1	2	6	8	10	5
Bordering districts of Manawatu	1	2	6	10	2	3	9	4
Other	1	2	1	2	5	7	7	3
Total	68	100	62	100	74	100	204	100
Statistics	X^2 (8, N =204)=12.852, p =.117							
TYPE OF REESIDENTIAL AREA								
Inner city	26	37 (3.5)	12	19 (-1.0)	10	13 (-2.4)	48	23
Suburban area	34	49 (-1.0)	42	65 (2.2)	36	48 (-1.2)	112	53
Rural town/village	6	9 (-1.4)	11	17 (1.0)	11	15 (0.4)	28	13
Farm/lifestyle block	4	6 (-1.6)	0	0 (-3.3)	18	24 (4.8)	22	11
Total	70	100	65	100	75	100	210	100
Statistics	X^2 (6, N =210)=35.361, Cramer's V=.290, p <.001							
GENDER								
Male	26	38	21	32	22	30	69	33
Female	42	62	44	68	52	70	138	67
Total	68	100	65	100	74	100	207	100
Statistics	X^2 (2, N =207)=1.198, p =.549							

Notes: The percentage is that of the participants who provided a response. These data are rounded to nearest whole numbers. Due to rounding, some percentages may not add up to 100. Figures in brackets that are presented in the percentage columns are values of adjusted standardised residuals. Values of adjusted standardised residuals are presented only when the result of a chi-square test indicated a significant difference.

	ANNUAL HOUSEHOLD INCOME						Total	
	Low <$39,999		Middle $40,000-69,999		High $70,000+			
	Count	% (residual)	Count	% (residual)	Count	% (residual)	Count	%
AGE GROUP								
18-24 years	11	16	9	14	4	5	24	12
		(1.4)		(0.7)		(-2.1)		
25-34 years	23	33	13	20	16	21	52	25
		(2.0)		(-1.1)		(-0.9)		
35-44 years	7	10	11	17	13	17	31	15
		(-1.3)		(0.6)		(0.8)		
45-54 years	5	7	12	19	22	29	39	19
		(-3.0)		(0.0)		(3.0)		
55-64 years	8	12	10	15	15	20	33	16
		(-1.2)		(-0.1)		(1.2)		
65 years and above	15	22	10	15	5	7	30	14
		(2.1)		(0.3)		(-2.4)		
Total	69	100	65	100	75	100	209	100
Statistics	X^2 (10, N =209)=25.267, Cramer's V=.246, p =.005							
AGE GROUP								
18-34 years	34	49	22	34	20	27	76	36
		(2.7)		(-0.5)		(-2.2)		
35-54 years	12	17	23	35	35	47	70	34
		(-3.5)		(0.4)		(3.0)		
55 years and above	23	22	20	31	20	27	63	30
		(0.7)		(0.1)		(-0.8)		
Total	69	100	65	100	75	100	209	100
Statistics	X^2 (4, N =209)=15.055, Cramer's V=.190, p =.005							
HOUSEHOLD COMPOSITION								
Single adult without child	20	30	9	14	2	3	31	15
		(4.1)		(-0.4)		(-3.6)		
Plural adults without child	29	44	30	46	35	49	94	47
		(-0.5)		(-0.1)		(0.6)		
Single adult with children	5	8	6	9	1	1	12	6
		(0.7)		(1.4)		(-2.0)		
Plural adults with children	12	18	20	31	33	47	65	32
		(-3.0)		(-0.3)		(3.2)		
Total	66	100	65	100	71	100	202	100
Statistics	X^2 (6, N =202)=29.700, Cramer's V=.383, p <.0005							
HIGHEST EDUCATION								
Secondary schooling	29	43	19	29	10	13	58	28
		(3.3)		(0.3)		(-3.5)		
Vocational training	3	4	3	5	7	9	13	6
		(-0.8)		(-0.7)		(1.4)		
Tertiary level	36	53	43	66	58	77	137	66
		(-2.7)		(0.1)		(2.6)		
Total	68	100	65	100	75	100	208	100
Statistics	X^2 (4, N =208)=16.061, Cramer's V=.196, p =.003							

Notes: The percentage is that of the participants who provided a response. These data are rounded to nearest whole numbers. Due to rounding, some percentages may not add up to 100. Figures in brackets that are presented in the percentage columns are values of adjusted standardised residuals. Values of adjusted standardised residuals are presented only when the result of a chi-square test indicated a significant difference.

CULTURAL BACKGROUND	ANNUAL HOUSEHOLD INCOME						Total	
	Low <$39,999		Middle $40,000-69,999		High $70,000+			
	Count	% (residual)	Count	% (residual)	Count	% (residual)	Count	%
Pakeha/European NZ	35	51	41	65	56	75	132	64
		(-2.8)		(0.3)		(2.5)		
Non-Pakeha/European NZ	34	49	22	35	19	25	75	36
		(2.8)		(-0.3)		(-2.5)		
Total	69	100	63	100	75	100	207	100
Statistics	X^2 (2, N=207)=8.984, Cramer's V=.208; p=.011							
Asian	16	23	9	14	2	3	27	13
		(3.1)		(0.4)		(-3.3)		
Non-Asian	53	77	54	86	73	97	180	87
		(-3.1)		(-0.4)		(3.3)		
Total	69	100	63	100	75	100	207	100
Statistics	X^2 (2, N=207)=13.467, Cramer's V=.255; p=.001							
Maori	11	16	8	13	7	9	26	13
Non-Maori	58	84	55	87	68	91	181	87
Total	69	100	63	100	75	100	207	100
Statistics	X^2 (2, N=207)=1.431, p=.489							
European	5	7	7	11	11	15	23	11
Non-European	64	93	56	89	64	85	184	89
Total	69	100	63	100	75	100	207	100
Statistics	X^2 (2, N=207)=2.003, p=.367							
Pacific	1	1	1	2	0	0	2	1
Non-Pacific	68	99	62	98	75	100	205	99
Total	69	100	63	100	75	100	207	100
Statistics	X^2 (2, N=207)=1.154, p=.562							
New Zealander	1	1	1	2	0	0	2	1
Non-New Zealander	68	99	62	98	75	100	205	99
Total	69	100	63	100	75	100	207	100
Statistics	X^2 (2, N=207)=1.154, p=.562							
Other	3	4	1	2	0	0	4	2
Non-Other	66	96	62	98	75	100	203	98
Total	69	100	63	100	75	100	207	100
Statistics	X^2 (2, N=207)=3.642, p=.162							

Notes: As multiple responses were counted, sum of the counts may not equal to the number of the participants. The percentage is that of the participants who provided a response. These data are rounded to nearest whole numbers. Due to rounding, some percentages may not add up to 100. Figures in brackets that are presented in the percentage columns are values of adjusted standardised residuals. Values of adjusted standardised residuals are presented only when the result of a chi-square test indicated a significant difference.

Appendix E: Attitudes towards definitions of local food

Geographical proximity

	Manawatu		North Island		New Zealand	
	Count	%	Count	%	Count	%
Strongly agree	127	63	27	14	45	23
Agree	55	27	100	52	80	40
Neither	15	7	38	20	31	16
Disagree	3	1	23	12	33	17
Strongly disagree	2	1	5	3	9	5
Total	202	100	193	100	198	100

	50 km radius		100 km radius	
	Count	%	Count	%
Strongly agree	71	38	34	18
Agree	65	34	81	42
Neither	39	21	53	28
Disagree	11	6	20	10
Strongly disagree	3	2	4	2
Total	189	100	192	100

Distribution method

	Direct sales		Local shop	
	Count	%	Count	%
Strongly agree	18	10	13	7
Agree	33	18	22	12
Neither	40	21	21	11
Disagree	59	32	66	35
Strongly disagree	37	20	66	35
Total	187	100	188	100

Geographical origin

	Particular area of New Zealand	
	Count	%
Strongly agree	18	9
Agree	56	29
Neither	44	23
Disagree	48	25
Strongly disagree	29	15
Total	195	100

Notes: Each column represents a definition of local food. The percentage is that of the participants who provided a response. These data are rounded to nearest whole numbers. Due to rounding, some percentages may not add up to 100.

Appendix F: Kruskal-Wallis test and Dunn-Bonferonni test results for definitions of local food

	Kruskal-Wallis test					Dunn-Bonferroni test					
	H	p	Mean rank			Between Low-Middle		Between Low-High		Between Middle-High	
			Low income	Middle income	High income	z	p	z	p	z	p
Manawatu	9.699	0.008	90.92	96.26	115.93	5.34	>.05	25.01	<.05	19.67	>.05
North Island	0.354	0.838	94.45	99.97	96.84						
New Zealand	8.886	0.012	110.97	104.44	84.21	6.528	>.05	26.756	<.05	20.228	>.05
50km radius	4.644	0.098	86.83	91.15	105.24						
100km radius	0.487	0.784	93.06	96.77	99.38						
Local shop	14.333	0.001	113.01	92.45	79.16	20.554	>.05	33.851	<.05	13.297	>.05
Direct sales	3.737	0.154	102.40	96.15	85.03						
Particular area of NZ	14.459	0.001	113.75	103.30	79.03	10.448	>.05	34.722	<.05	24.274	<.05

Appendix G: Attitudes towards associations of attributes with local food

Product characteristics

	Fresh		Tastes good		Nutritious		Special quality		Looks good	
	Count	%	Count	%	Count	%	Count	%	Count	%
Strongly agree	127	61	63	31	60	30	42	22	44	22
Agree	60	29	84	42	73	36	76	40	79	40
Neither	16	8	45	22	56	28	60	32	61	31
Disagree	2	1	7	4	9	5	10	5	12	6
Strongly disagree	3	1	3	2	4	2	2	1	4	2
Total	208	100	202	100	202	100	190	100	200	100

Production methods

	Seasonal		Reliable producer		Safe		Transparent process		Organic	
	Count	%	Count	%	Count	%	Count	%	Count	%
Strongly agree	94	46	44	22	47	23	36	18	35	17
Agree	78	38	80	40	73	36	74	37	56	28
Neither	22	11	60	30	63	31	70	35	86	43
Disagree	3	2	10	5	13	6	14	7	15	7
Strongly disagree	6	3	7	4	6	3	7	4	10	5
Total	203	100	201	100	202	100	201	100	202	100

Shopping experiences

	Convenient		Good value for money		Fun experience		Trustworthy seller		High availability	
	Count	%	Count	%	Count	%	Count	%	Count	%
Strongly agree	40	20	58	28	40	20	52	26	41	21
Agree	100	49	82	39	86	43	73	36	73	37
Neither	51	25	48	23	64	32	66	33	60	30
Disagree	9	4	18	9	9	5	9	4	23	12
Strongly disagree	3	2	2	1	2	1	3	2	3	2
Total	203	100	208	100	201	100	203	100	200	100

Benefits to society

	Support for community		Alternative food supply system		Increases trust among people		Reduced GHG emissions		Conservation of traditional eating habits	
	Count	%	Count	%	Count	%	Count	%	Count	%
Strongly agree	126	61	52	26	33	16	65	32	25	13
Agree	76	37	89	44	94	47	61	30	87	44
Neither	6	3	49	24	63	31	66	33	67	34
Disagree	0	0	9	5	10	5	9	4	17	9
Strongly disagree	0	0	2	1	2	1	2	1	4	2
Total	208	100	201	100	202	100	203	100	200	100

	Conservation of landscape		Makes food expensive	
	Count	%	Count	%
Strongly agree	39	20	14	7
Agree	61	31	44	22
Neither	83	42	76	38
Disagree	12	6	60	30
Strongly disagree	2	1	7	4
Total	197	100	201	100

Notes: Each column represents an attribute associated with local food. The percentage is that of the participants who provided a response. These data are rounded to nearest whole numbers. Due to rounding, some percentages may not add up to 100.

Appendix H: Kruskal-Wallis test and Dunn-Bonferonni test results for attributes associated with local food

	Kruskal-Wallis test					Dunn-Bonferroni test					
	H	p	Mean rank			Between Low-Middle		Between Low-High		Between Middle-High	
			Low income	Middle income	High income	z	p	z	p	z	p
Fresh	2.357	0.308	111.88	103.36	98.68						
Tastes good	4.944	0.084	113.59	95.47	95.28						
Looks good	6.853	0.033	114.80	92.67	93.82	22.132	0.07	20.983	0.071	-1.148	>.05
Nutritious	3.245	0.197	111.37	95.78	97.09						
Special quality	4.048	0.132	99.20	103.34	85.91						
Organic	7.159	0.028	115.86	95.70	92.69	20.162	>.05	23.171	<.05	3.008	>.05
Safe	2.736	0.255	109.71	101.16	94.23						
Seasonal	4.424	0.11	91.97	102.58	110.99						
Transparent production	0.188	0.91	103.31	99.34	100.21						
Reliable producers	0.636	0.728	105.06	97.33	100.41						
Good value for money	8.012	0.018	111.92	113.79	89.42	-1.872	>.05	22.501	>.05	24.373	<.05
Fun experience	1	0.607	98.35	106.77	98.50						
Convenient	3.536	0.171	111.68	99.94	94.80						
High availability	3.252	0.197	109.71	100.02	92.71						
Trustworthy seller	3.661	0.16	112.22	99.35	94.73						
Support for community	0.033	0.984	103.93	104.12	105.35						
Reduced GHG	5.68	0.058	114.99	96.28	94.50						
Conserva-tion of landscape	7.22	0.027	113.13	93.97	89.85	19.168	>.05	23.289	<.05	4.121	>.05
Makes food expensive	4.331	0.115	110.57	90.16	101.28						
Conserva-tion of eating habits	2.033	0.362	108.18	96.07	97.10						
Increases trust	5.297	0.071	113.37	99.27	92.51						
Alternative food system	2.409	0.3	93.46	108.42	101.51						

Appendix I: Type of retail outlets cross-tabulated by income

Do you buy local food?	ANNUAL HOUSEHOLD INCOME						Total	
	Low <$39,999		Middle $40,000-69,999		High $70,000+			
	Count	%	Count	%	Count	%	Count	%
Yes	68	97	58	91	73	97	199	95
No	2	3	6	9	2	3	10	5
Total	70	100	64	100	75	100	209	100
Statistics	X^2 (2, N=209)=4.269, p=.118							

Where do you buy local food? (multiple choice)	ANNUAL HOUSEHOLD INCOME						Total	
	Low <$39,999		Middle $40,000-69,999		High $70,000+			
	Count	% (residual)	Count	% (residual)	Count	% (residual)	Count	%
Supermarket	53	78	42	72	48	66	143	72
Did not select this option	15	22	16	28	25	34	56	28
Total	68	100	58	100	73	100	199	100
Statistics	X^2 (2, N=199)=2.599, p=.273							
Farmers' market	46	68	39	67	54	74	139	70
Did not select this option	22	32	19	33	19	26	60	30
Total	68	100	58	100	73	100	199	100
Statistics	X^2 (2, N=199)=.933, p=.627							
Street / flea market	27	40	27	47	29	40	83	42
Did not select this option	41	60	31	53	44	60	116	58
Total	68	100	58	100	73	100	199	100
Statistics	X^2 (2, N=199)=.790, p=.674							
Specialist shop	18	27 (-2.6)	22	38 (-0.2)	38	52 (2.8)	78	39
Did not select this option	50	73 (2.6)	36	62 (0.2)	35	48 (-2.8)	121	61
Total	68	100	58	100	73	100	199	100
Statistics	X^2 (2, N=199)=9.724, Cramer's V=.221, p=.008							
Farm gate shop	7	10	8	14	15	21	30	15
Did not select this option	61	90	50	86	58	79	169	85
Total	68	100	58	100	73	100	199	100
Statistics	X^2 (2, N=199)=2.996, p=.224							
Dairy / convenience store	13	19	9	16	7	10	29	15
Did not select this option	55	81	49	84	66	90	170	85
Total	68	100	58	100	73	100	199	100
Statistics	X^2 (2, N=199)=2.626, p=.269							
Box scheme	1	2	0	0	4	6	5	3
Did not select this option	67	98	58	100	69	94	194	97
Total	68	100	58	100	73	100	199	100
Statistics	X^2 (2, N=199)=4.420, p=.110							
Internet	1	2	1	2	2	3	4	2
Did not select this option	67	98	57	98	71	97	195	98
Total	68	100	58	100	73	100	199	100
Statistics	X^2 (2, N=199)=.322, p=.851							

Notes: As multiple responses were counted, sum of the counts may not equal to the number of the participants. The percentage is that of the participants who provided a response. These data are rounded to nearest whole numbers. Due to rounding, some percentages may not add up to 100. Figures in brackets that are presented in the percentage columns are values of adjusted standardised residuals. Values of adjusted standardised residuals are presented only when the result of a chi-square test indicated a significant difference.

Appendix J: Frequency of buying local food cross-tabulated by income

Frequency of buying local food in each product category	ANNUAL HOUSEHOLD INCOME						Total	
	Low <$39,999		Middle $40,000-69,999		High $70,000+			
	Count	%	Count	%	Count	%	Count	%
Fresh fruits and vegetables								
Once a week	59	87	50	88	59	82	168	85
Once a month	8	12	4	7	11	15	23	12
Once in 3 months	0	0	2	4	2	3	4	2
Less than above	1	2	0	0	0	0	1	1
Never	0	0	1	2	0	0	1	1
Cannot be 'local'	0	0	0	0	0	0	0	0
Total	68	100	57	100	72	100	197	100
Statistics	X^2 (8, N =197)=8.557, p =.381							
Dairy products including milk								
Once a week	45	69	30	55	33	48	108	57
Once a month	10	15	8	15	11	16	29	15
Once in 3 months	1	2	1	2	2	3	4	2
Less than above	5	8	2	4	6	9	13	7
Never	4	6	10	18	14	20	28	15
Cannot be 'local'	0	0	4	7	3	4	7	4
Total	65	100	55	100	69	100	189	100
Statistics	X^2 (10, N =189)=13.858, p =.180							
Bread								
Once a week	40	60	32	58	34	48	106	55
Once a month	12	18	12	22	13	18	37	19
Once in 3 months	2	3	1	2	4	6	7	4
Less than above	3	5	5	9	4	6	12	6
Never	8	12	3	6	16	23	27	14
Cannot be 'local'	2	3	2	4	0	0	4	2
Total	67	100	55	100	71	100	193	100
Statistics	X^2 (10, N =193)=12.926, p =.228							
Eggs								
Once a week	36	55	28	51	35	49	99	51
Once a month	21	32	14	26	20	28	55	29
Once in 3 months	1	2	5	9	4	6	10	5
Less than above	2	3	3	6	2	3	7	4
Never	6	9	4	7	11	15	21	11
Cannot be 'local'	0	0	1	2	0	0	1	1
Total	66	100	55	100	72	100	193	100
Statistics	X^2 (10, N =193)=9.395, p =.495							
Meat/meat products								
Once a week	37	56	23	43	25	36	85	45
Once a month	19	29	10	19	17	24	46	24
Once in 3 months	1	2	6	11	6	9	13	7
Less than above	4	6	6	11	7	10	17	9
Never	4	6	8	15	13	19	25	13
Cannot be 'local'	1	2	1	2	2	3	4	2
Total	66	100	54	100	70	100	190	100
Statistics	X^2 (10, N =190)=14.492, p =.152							

Frequency of buying local food in each product category (continued)	ANNUAL HOUSEHOLD INCOME						Total	
	Low <$39,999		Middle $40,000-69,999		High $70,000+			
	Count	%	Count	%	Count	%	Count	%
Beverages including alcohol								
Once a week	20	32	18	35	18	27	56	31
Once a month	14	22	5	10	16	24	35	19
Once in 3 months	7	11	5	10	4	6	16	9
Less than above	8	13	8	15	11	16	27	15
Never	12	19	10	19	15	22	37	20
Cannot be 'local'	2	3	6	12	3	5	11	6
Total	63	100	52	100	67	100	182	100
Statistics	X^2 (10, N =182)=9.447, p =.490							
Seafood								
Once a week	14	22	13	26	14	21	41	23
Once a month	20	31	9	18	13	19	42	23
Once in 3 months	4	6	5	10	7	10	16	9
Less than above	9	14	8	16	8	12	25	14
Never	15	23	11	22	17	25	43	24
Cannot be 'local'	2	3	4	8	9	13	15	8
Total	64	100	50	100	68	100	182	100
Statistics	X^2 (10, N =182)=8.583, p =.572							

Notes: The percentage is that of the participants who provided a response. These data are rounded to nearest whole numbers. Due to rounding, some percentages may not add up to 100.

Do you wish to buy more local food?	ANNUAL HOUSEHOLD INCOME						Total	
	Low <$39,999		Middle $40,000-69,999		High $70,000+			
	Count	%	Count	%	Count	%	Count	%
Yes	58	92	48	84	56	80	162	85
No	5	8	9	16	14	20	28	15
Total	63	100	57	100	70	100	190	100
Statistics	X^2 (2, N =190)=3.912, p =.141							

Notes: The percentage is that of the participants who provided a response. These data are rounded to nearest whole numbers. Due to rounding, some percentages may not add up to 100.

Appendix K: Reasons and barriers related to buying local food cross-tabulated by income

Reason for buying local food (multiple choice)	ANNUAL HOUSEHOLD INCOME						Total	
	Low <$39,999		Middle $40,000-69,999		High $70,000+			
	Count	% (residual)	Count	% (residual)	Count	% (residual)	Count	%
Freshness/taste/looks/nutrition	50	77	40	70	48	69	138	72
Did not select this option	15	23	17	30	22	31	54	28
Total	65	100	57	100	70	100	192	100
Statistics	X^2 (2, N=192)=1.279, p=.528							
Area it was produced in	29	45	23	40	31	44	83	43
Did not select this option	36	55	34	60	39	56	109	57
Total	65	100	57	100	70	100	192	100
Statistics	X^2 (2, N=192)=.275, p=.871							
Benefits to society	31	48 (1.1)	14	25 (-3.2)	36	51 (2.0)	81	42
Did not select this option	34	52 (-1.1)	43	75 (3.2)	34	49 (-2.0)	111	58
Total	65	100	57	100	70	100	192	100
Statistics	X^2 (2, N=192)=10.519, Cramer's V=.234, p=.005							
Distance it has travelled	20	30	20	35	30	43	70	37
Did not select this option	45	70	37	65	40	57	122	63
Total	65	100	57	100	70	100	192	100
Statistics	X^2 (2, N=192)=192)=2.192, p=.334							
Shop it was sold at	20	31	20	35	19	27	59	31
Did not select this option	45	69	37	65	51	73	133	69
Total	65	100	57	100	70	100	192	100
Statistics	X^2 (2, N=192)=.932, p=.628							
Experience with shopping	21	32	16	28	16	23	53	28
Did not select this option	44	68	41	72	54	77	139	72
Total	65	100	57	100	70	100	192	100
Statistics	X^2 (2, N=192)=1.515, p=.469							
Production method	14	22	9	16	16	23	39	20
Did not select this option	51	78	48	84	54	77	153	80
Total	65	100	57	100	70	100	192	100
Statistics	X^2 (2, N=192)=1.061, p=.588							
Other	1	2	2	4	7	10	10	5
Did not select this option	64	98	55	96	63	90	182	95
Total	65	100	57	100	70	100	192	100
Statistics	X^2 (2, N=192)=5.362, p=.068							

Notes: As multiple responses were counted, sum of the counts may not equal to the number of the participants. The percentage is that of the participants who provided a response. These data are rounded to nearest whole numbers. Due to rounding, some percentages may not add up to 100. Figures in brackets that are presented in the percentage columns are values of adjusted standardised residuals. Values of adjusted standardised residuals are presented only when the result of a chi-square test indicated a significant difference.

Barriers to buying more local food	ANNUAL HOUSEHOLD INCOME						Total	
	Low <$39,999		Middle $40,000-69,999		High $70,000+			
	Count	% (residual)	Count	% (residual)	Count	% (residual)	Count	%
Price / cost	20	49	8	32	8	18	36	33
		(2.8)		(-0.1)		(-2.7)		
Did not name this barrier	21	51	17	68	36	82	74	67
		(-2.8)		(0.1)		(2.7)		
Total	41	100	25	100	44	100	110	100
Statistics	X^2 (2, N=110)=9.033, Cramer's V=.287, p=.011							
Availability / supply	8	20	8	32	17	39	33	30
Did not name this barrier	33	80	17	68	27	61	77	70
Total	41	100	25	100	44	100	110	100
Statistics	X^2 (2, N=110)=3.758, p=.153							
Accessiblity / travel	16	39	4	16	11	25	31	28
Did not name this barrier	25	61	21	84	33	75	79	72
Total	41	100	25	100	44	100	110	100
Statistics	X^2 (2, N=110)=4.435, p=.109							
Convenience / time	2	5	4	16	15	34	21	19
		(-2.9)		(-0.4)		(3.3)		
Did not name this barrier	39	95	21	84	29	66	89	81
		(2.9)		(0.4)		(-3.3)		
Total	41	100	25	100	44	100	110	100
Statistics	X^2 (2, N=110)=11.926, Cramer's V=.329, p=.003							
Identification / labelling	4	10	4	16	8	18	16	15
Did not name this barrier	37	90	21	84	36	82	94	85
Total	41	100	25	100	44	100	110	100
Statistics	X^2 (2, N=110)=1.267, p=.531							
Variety / range	4	10	2	8	3	7	9	8
Did not name this barrier	37	90	23	92	41	93	101	92
Total	41	100	25	100	44	100	110	100
Statistics	X^2 (2, N=110)=.245, p=.885							
Quality	3	7	0	0	3	7	6	6
Did not name this barrier	38	93	25	100	41	93	104	94
Total	41	100	25	100	44	100	110	100
Statistics	X^2 (2, N=110)=2.597, p=.273							
Other	2	5	0	0	4	9	6	6
Did not name this barrier	39	95	25	100	40	91	104	94
Total	41	100	25	100	44	100	110	100
Statistics	X^2 (2, N=110)=2.597, p=.273							

Notes: As multiple responses were counted, sum of the counts may not equal to the number of the participants. The percentage is that of the participants who provided a response. These data are rounded to nearest whole numbers. Due to rounding, some percentages may not add up to 100. Figures in brackets that are presented in the percentage columns are values of adjusted standardised residuals. Values of adjusted standardised residuals are presented only when the result of a chi-square test indicated a significant difference.

Reason for not buying local food (multiple choice)	ANNUAL HOUSEHOLD INCOME						Total	
	Low <$39,999		Middle $40,000-69,999		High $70,000+			
	Count	%	Count	%	Count	%	Count	%
Don't know where to buy	1	100	4	67	1	50	6	67
Did not select this option	0	0	2	33	1	50	3	33
Total	1	100	6	100	2	100	9	100
Statistics	X^2 (2, N=9)=.750, p=.697							
Have own supply	0	0	4	67	0	0	4	44
Did not select this option	1	100	2	33	2	100	5	56
Total	1	100	6	100	2	100	9	100
Statistics	X^2 (2, N=9)=3.600, p=.165							
Too expensive	1	100	2	33	0	0	3	33
Did not select this option	0	0	4	67	2	100	6	67
Total	1	100	6	100	2	100	9	100
Statistics	X^2 (2, N=9)=3.000, p=.223							
Not interested	1	100	1	17	0	0	2	22
Did not select this option	0	0	5	83	2	100	7	78
Total	1	100	6	100	2	100	9	100
Statistics	X^2 (2, N=9)=4.179, p=.124							
Don't have time to travel	0	0	1	17	1	50	2	22
Did not select this option	1	100	5	83	1	50	7	78
Total	1	100	6	100	2	100	9	100
Statistics	X^2 (2, N=9)=1.286, p=.526							
Unsatisfactory quality	0	0	1	17	0	0	1	11
Did not select this option	1	100	5	83	2	100	8	89
Total	1	100	6	100	2	100	9	100
Statistics	X^2 (2, N=9))=.563, p=.755							
Other	0	0	1	17	1	50	2	22
Did not select this option	1	100	5	83	1	50	7	78
Total	1	100	6	100	2	100	9	100
Statistics	X^2 (2, N=9)=1.286, p=.526							

Notes: As multiple responses were counted, sum of the counts may not equal to the number of the participants. The percentage is that of the participants who provided a response. These data are rounded to nearest whole numbers. Due to rounding, some percentages may not add up to 100.