Agribusiness and Economics Research Unit
A Lincoln University Research Centre.
New Zealand's specialist land-based university.

The AERU Data Portal: An Introduction

Tim Driver
Paul Dalziel
Caroline Saunders

AERU Report prepared for the Integrating Value Chains Research Programme, funded by the Our Land and Water National Science Challenge

OUR LAND AND WATER | Toitū te Whenua, Toiora te Wai | National Science Challenges

March 2018

Lincoln University
Te Whare Wānaka o Aoraki
CHRISTCHURCH•NEW ZEALAND

Research to improve decisions and outcomes in business, resource and environmental issues.

The Agribusiness and Economics Research Unit (AERU) operates at Lincoln University, providing research expertise for a wide range of international, national and local organisations. AERU research focuses on business, resource and environmental issues.

The Agribusiness and Economics Research Unit (AERU) has four main areas of focus. These areas are: wellbeing economics; trade and the environment; economic development; and non-market valuations.

Research clients include Government agencies, both within New Zealand and from other countries, other international agencies, New Zealand enterprises in the private sector, and community groups.

AERU MISSION
To exercise leadership in research for sustainable well-being.

AERU VISION
The AERU is a cheerful and vibrant workplace where senior and emerging researchers are working together to produce and deliver new knowledge that promotes sustainable well-being.

AERU STRATEGIC AIMS

- To be recognised by our peers and end-users as research leaders for sustainable well-being;
- To mentor emerging researchers and provide advanced education to postgraduate students;
- To maintain strong networks to guide AERU research efforts and to help disseminate its research findings; and
- To contribute to the University's financial targets as agreed in the AERU business model.

DISCLAIMER

Summaries of AERU Research Reports are available at www.lincoln.ac.nz/aeru. Printed copies of AERU Research Reports can be requested from the AERU Administrator.

Suggested citation for this report:

Driver, Tim, Paul Dalziel and Caroline Saunders (2018). *The AERU Data Portal: An Introduction*. AERU Report, prepared for the Integrating Value Chains Research Programme, funded by the Our Land and Water National Science Challenge. Lincoln University: Agribusiness and Economics Research Unit.

Contents

Acknowledgements

The authors of this report thank industry research partners for their substantial contributions to the Maximising Export Returns and the Integrating Value Chains research programmes over the last six years. The research reported through the AERU Data Portal has been funded from several sources, including the following:

- Ministry of Business Innovation and Employment for the research programme Maximising Export Returns;
- The Our Land and Water National Science Challenge for the research programme Integrating Value Chains; and
- Lincoln University Award for Excellence in Research by Early Career Researchers for the research by Dr Sini Miller on New Zealand consumers.

1. Introduction

Enterprises exporting food and beverage products from New Zealand are able to capture higher prices by marketing quality attributes of their products that are valued by final consumers. These attributes include items such as food safety (the most important attribute), animal health and welfare, environmental standards, social wellbeing and cultural authenticity. These are often qualities that cannot be directly seen or experienced at the point of sale, known as credence attributes.

To help exporters capture these higher prices, the Agribusiness and Economics Research Unit (AERU) received funding from the Ministry of Business, Innovation and Employment for a programme undertaking original research in five key export markets (China, India, Indonesia, Japan and the United Kingdom) to discover how consumers understand these attributes. The programme was known as *Maximising Export Returns*, beginning on 1 October 2013 and finishing on 30 September 2016.

In order to make the results from that research as accessible as possible, the AERU prepared an online data portal, which can be accessed at www.lincoln.ac.nz/aeru/mer. The AERU engaged a New Zealand private sector firm, Research First (www.researchfirst.co.nz/), to design a prototype interactive dashboard, using an online dashboard reporting software tool designed by Dapresy™ (http://dapresy.com/). This prototype was trialled with presentations to a workshop hosted by The FoodBowl in Mangere (where the audience were small to medium-sized enterprises attracted by the research programme) and to a meeting at New Zealand Trade and Enterprise (a public agency), both on 10 March 2016. The online tool was further improved as a result of a meeting with the Te Hono Directorate on 17 August 2016.

Subsequent to that research programme, Dr Sini Miller received funding support from Lincoln University to undertake similar research involving 1,400 New Zealand consumers (the sample size for the overseas studies was 1,000 consumers in each country). As the New Zealand study was conducted separately and with a slightly varied set of questions, there are some small differences in the data for New Zealand compared with other countries. For example, under the importance of factors of traditional cultures, the New Zealand study asked participants to specifically rate the importance of Māori values, as opposed to generic cultural values as in the international study.

In order to present results in a meaningful way, the data are adapted from their original form (usually 5-point Likert scales) into scores on a scale from 0 to 100. For example, where a participant indicated that a particular quality was very important (ranked 5 on the Likert scale), this is adjusted to be 100. Similarly, 75 = important, 50 = neutral, 25 = unimportant, 0 = not at all important. Except where otherwise indicated, results are then shown as average scores, with 0 representing the lowest importance and 100 representing the highest importance.

A major revision of the AERU online tool took place in the first half of 2017, led by Timothy Driver. The New Zealand data were incorporated and a number of significant improvements were made to the quality of presentations. The expanded version of the Data Portal was published on 1 June 2017. The landing page is shown in Figure 1 below.

Figure 1. Landing Page for the AERU Data Portal

Source: Accessed from www.lincoln.ac.nz/aeru/mer.

A feature of the online tool is that it allows the user to define the data base that will be accessed, using classifications based on gender, age groups, household make-up and highest level of education. The user can also choose which of six countries (including New Zealand) to explore, with comparisons automatically shown with the other countries. The publication also allows the user to access data on how consumers in the six countries are using digital technology in their purchasing decisions and how consumers in the five overseas countries view New Zealand.

This flexibility means that users are not reliant on having to commission further work by the research team to answer their own specific questions about specific markets. Further, users are able export graphs as PowerPoint slides.

In 2017, the AERU received funding from the Our Land and Water National Science Challenge to undertake further research on how to create and capture consumer value associated with New Zealand agri-food exports (see Saunders *et al*, 2016a). This research programme is known as Integrating Value Chains. Part of the funding was to provide documentation on the Data Portal, with definitions provided of credence attributes used in the research. This report meets that requirement.

Chapter 2 of the report explains how the AERU Data Portal can be used. Section 3 presents tables on definitions of credence attributes displayed in the tool.

2. Using the AERU Data Portal

The development of the MER Data Portal took into account the needs of end users for functionality, navigation and usefulness of the information presented. The design elements of the tool were developed to ensure that users were able to access the information they required quickly and easily without any additional need to consult assistive materials. For example, a food/beverage firm in New Zealand may be interested in exporting their products to a particular country with a particular demographic profile in mind. In response, users are able to select their target country and filter data shown based on demographic variables. This section provides a practical navigation guide to using the MER Data Portal to further ensure its optimal use.

The Data Portal can be accessed through the AERU website at www.lincoln.ac.nz/aeru/mer. Alternatively, the QR code to the right also takes a user to the resource. At the AERU MER webpage, there is a link that takes the user to the Data Portal.

The homepage of the MER Data Portal offers links to each of the portal's main sections. Users can choose whether to explore the data based on a target country (listed on the left-hand side of the homepage) or based on a cross-country comparison of Qualities (credence attributes discussed earlier), View of New Zealand (questions eliciting participants' associations with New Zealand, excluding New Zealand participants) or Digital (use of online shopping, mobile devices and other technology in relation to food and beverage information gathering/ purchasing). Users can also be directed to AERU's website (by clicking on the AERU logo in the top right-hand corner of the homepage) or to a brief *How To Use* guide of the Portal (by clicking on the button in the bottom right-hand corner of the homepage). There are also links along the top of the webpage (above the main Portal screen) showing the same options, providing the user another means of navigation.

By Country

Once at the homepage of the Data Portal, users are able to choose to explore the data based on a target country, as listed on the left-hand side of the homepage. The available countries are China, India, Indonesia, Japan, New Zealand and the United Kingdom. Once a country has been selected, users are able to select whether they want to view data relating to consumer preferences for product qualities (Qualities), perceptions of New Zealand (View of NZ; unavailable for New Zealand consumers) or use of digital media and smart technology (Digital).

Once chosen, users are also able to view the same data in cross-country comparison. In addition, with every set of data displayed, the user has the ability to filter the data based on a range of demographic variables, including gender, age, household make-up and highest level

of education of participants. This can be selected from drop-down menus above the main Portal window. Furthermore, users have the ability to print or export (as a PowerPoint slide) an entire screen.

Country: Qualities

If the Qualities button is clicked, users are directed to an overview of the top-level attributes (Qualities). As previously discussed, data for each quality is displayed as a score, whereby 0 represents the lowest possible rating of importance and 100 represents the highest. If filters are applied, this will change according to the demographic variables selected. In addition, once data are displayed, the user is able to click on the Compare Countries button in the top right-hand corner of the Portal screen to be directed to a cross-country comparison of the shown qualities. Furthermore, at any time users can click on the Back button displayed in the top left-hand corner of the screen to return to the previous page or on the AERU logo in the bottom left-hand corner of the screen to be directed to the AERU website.

From the main Qualities screen for a particular country the user is able to select particular qualities for further analysis. The user can click on each of the qualities listed to be directed to data outlining its underlying factors (as previously discussed). These include the qualities animal health and animal welfare (included as a single set of factors of animal health and welfare), environmental condition, food safety, health-enhancing foods, social responsibility and traditional cultures. (The qualities of nutritional value, price and quality were not included for analysis of their underlying factors in the original surveys.)

If the user clicks on a particular quality they are directed to a page displaying data outlining the underlying factors of that quality. As with the previous page, the user is able to click on the Compare Countries button in the top right-hand corner of the Portal screen to be directed to a cross-country comparison of the shown factors for that quality, as well as using the Back button or clicking on the AERU logo as previously mentioned.

Country: View of NZ

The above functionality is the same for perceptions of New Zealand, as listed on the View of New Zealand page for each Country channel.

Country: Digital

If the user clicks on the Digital button under a specific Country channel, they are directed to the Digital landing page for that country. This includes links to five sections: online food shopping/info, reasons for shopping online, use of mobile devices, use of QR/barcodes and use of microchip reading tech. Applying filters will change the data displayed accordingly, with Back buttons and Compare Countries links functioning as with previous sections. The following is a summary of the information contained within the Digital section for individual countries:

- Online food shopping/info displays data relating to the use of digital media for gathering food/beverage information as well as the average use of online shopping for food/beverages and other products.
- Reasons for shopping online displays data relating to the most common reasons for participants in that country to use online shopping for food and beverage purchasing.
- Use of mobile devices displays data relating to participants' use of mobile devices and barcodes/QR codes to find information about and purchase food and beverage products.
- Use of QR/barcodes displays the same page as above (i.e. data relating to participants' use of mobile devices and barcodes/QR codes to find information about and purchase food and beverage products).
- Use of microchip reading tech displays data relating to participants' current and intended use of various technologies (barcodes, QR codes, microchip reading technology and other) for verifying the claims of food/beverage products.

By Qualities

If the user clicks on either the Qualities button on the homepage or in the top menu, they will be directed to a page displaying a cross-country comparison of the importance of the main qualities to participants. The use of filters and other buttons work the same way as in previous sections. In addition, users are able to click on the flag of a particular country to view the same data in more detail for just the country selected. Similarly to the qualities page for an individual country, users are able to click on a desired quality to view data relating to the underlying factors of that quality in cross-country comparison.

By View of NZ

As this data was collected via a single question in the original surveys, clicking on this button on the homepage or in the top menu directs the user to a single page displaying data relating to participants' associations with New Zealand. This question was excluded from the New Zealand survey, thus data is only available for China, India, Indonesia, Japan and the United Kingdom. The use of filters and other buttons work the same way as in previous sections. In addition, users are able to click on the flag of a particular country to view the same data in more detail for just the country selected.

By Digital

If the user clicks on either the Digital button on the homepage or in the top menu, they are directed to a landing page containing multiple buttons relating to the use of digital media and smart technologies across all participating countries. These include: online shopping, use of mobile devices, use of QR/barcodes and use of microchip reading tech. Each of these pages display cross-country comparison data relating to the following:

- Online shopping displays data relating to percentage of use of online shopping for food/beverage products and other products for each country.
- Use of mobile devices displays data relating to participants' use of mobile devices to find information about and purchase food and beverage products.
- Use of barcodes/QR codes displays data relating to participants' use of mobile devices and barcodes/QR codes to find information about and purchase food and beverage products.
- Use of microchip reading tech displays data relating to participants' current and intended use of various technologies (barcodes, QR codes, microchip reading technology and other) for verifying the claims of food/beverage products.

The use of filters and other buttons work the same way as in previous sections. In addition, as with the previous cross-country comparison sections, users are able to click on the flag of a particular country to view the same data in more detail for just the country selected.

How to Use

The MER Data Portal also includes a brief *How to use this tool* section, including the following four sections:

- *How To Use This Tool* provides a brief outline and guide to the MER Data Portal, including functionality and methodology, advice on how to navigate through the tool, as well as a navigation map which outlines all navigation options;

- *About This Project* provides a brief outline of the Maximising Export Returns project;

- *About AERU* provides a brief introduction to the mission and areas of focus for the Agribusiness & Economics Research Unit (AERU);

- *About ResearchFirst* provides a brief introduction to ResearchFirst, which helped with the initial establishment and continued support of the MER Data Portal.

3. Credence Attributes

The following section provides an outline and definition of terminology for multiple sections of the MER Data Portal. This includes those used in the Qualities section of the tool as well as their associated sub-factors. Definitions have been largely sourced from previous work undertaken by the AERU (Saunders *et al*, 2016b), as well as other international sources (FAO, 2013; WHO, 2006).

As presented in the Qualities section of the tool, ten key qualities (attributes) were examined in these studies. These include the basic food product attributes nutritional value, price and quality, as well as the credence attributes animal health, animal welfare, environmental condition, food safety, health-enhancing foods, social responsibility and traditional cultures.

From the initial ten key product attributes, 6 were selected for further analysis. These included animal health and welfare (combined into a single attribute), environmental condition, food safety, health-enhancing foods, social responsibility and traditional cultures. Participants were asked to rate the importance of a range of factors underpinning each of the above attributes in relation to food and beverages.

The ten key attributes are listed and defined in Table 1.

For animal health and welfare, 12 factors are listed in Table 2. For environmental condition, 11 factors are listed in Table 3. For food safety, 12 factors are listed in Table 4.

For health-enhancing foods, 12 factors were selected for further examination, as listed in Table 5 below. As defined by the World Health Organization (WHO), “health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 2006). Therefore, the following definitions refer to the maintenance of the above physical, mental and social well-being, as well as the absence of disease, within human food/beverage consumers.

For social responsibility, 11 factors were selected for further examination, as listed in Table 6 below. Many of the definitions listed below are derived from the Food and Agriculture Organisation of the United Nations’ (FAO) Sustainability Assessment of Food and Agriculture Systems (SAFA) Guidelines, particularly Social Indicators.

For the role of traditional cultures in the food and beverage supply, 10 factors were selected for further examination, as listed in Table 7 below. Many of the definitions listed below are derived from the Food and Agriculture Organisation of the United Nations’ (FAO) Sustainability Assessment of Food and Agriculture Systems (SAFA) Guidelines, particularly Social Indicators.

Table 1. Definitions of Credence Attributes

Attribute	Definition
Animal health	The condition of physical health of animals used in food/beverage production.
Animal welfare	The living conditions and/or psycho-social state of animals used in food/beverage production.
Country of origin (New Zealand survey only)	This refers to the country from which a product is produced, processed or distributed from. This attribute was included (in its own right) in the New Zealand survey only.
Environmental condition	The state of the physical environment in which a primary product is produced, manufactured or processed. This is a broad term that takes into account many aspects of the physical environment, including, but not limited to, air quality, soil quality, water quality, biodiversity and the effects of climate change.
Food safety	Food/beverage products are free from contamination, foodborne illnesses and any other properties that could adversely affect human health.
Health-enhancing foods	These are food items which have been produced or processed using scientific innovations to provide additional benefits. In particular, this refers to food products that provide health benefits to the consumer beyond basic nutrition, such as the inclusion of added nutrients or vitamins.
Nutritional value	This refers to the nutritional content of a food/beverage product, i.e. a higher nutritional value suggests a healthier food/beverage product.
Price	The monetary or transactional cost to the consumer in order to purchase a food and/or beverage product.
Quality	This is a broad term with subjective dimensions. In the context of these studies, this refers to aspects of the physical condition of a primary product, such as a product's search attributes (e.g. appearance, texture, price, etc). However, due to the inclusive nature of the term, product quality may also serve as a proxy for other attributes, such as food safety, authenticity or fair trade.

Social responsibility	Frameworks used in order to ensure the fair, just and equal treatment of individuals employed within a primary production unit, as well as engagement in behaviour that benefits society as a whole.
Traditional cultures	This refers to the role of traditional cultures in the food and beverage supply chain. In particular, this refers to the preservation and/or enhancement of genuine cultural interests and/or cultural potential. In relation to food production, this term refers to the degree to which production affects associated cultures or a particular cultural body's involvement with production processes.
Māori culture (New Zealand survey only)	This refers specifically to the role of Māori in the food and beverage supply chain and was included in the New Zealand survey only. See the above definition of "Traditional cultures".

Table 2. Definitions of Factors of Animal Health and Welfare

Factor	Definition
Animals are well-fed	Animals used in food/beverage production have regular access to a diet appropriate to their species and adequate for their sustenance.
Free of disease	Producers actively ensure that animals used in food/beverage production are not inflicted with or exposed to disease.
Free range	Animals used in food/beverage production have access to large, spacious areas. This typically refers, but is not limited to, layer hens having access to pasture instead of entirely living indoors.
GM-free feed	Animals used in food/beverage production have access to feeds which have not been genetically modified.
Good quality of life	Animals used in food/beverage production are free from distress, discomfort, hunger and thirst, and stewarded responsibly.
Good shelter and living conditions	Spacious, adequate and species-appropriate housings, free from distress and discomfort, is provided for animals used in food/beverage production.
Humane slaughter	Animals used in food/beverage production are slaughtered in a humane way, e.g. not exposed to unnecessary harm or elongated slaughter.
Mainly pasture fed	The main feed source for animals used in food/beverage production is pasture-based, e.g. grazing animals. In the New Zealand survey, this factor was listed as *Mainly grass fed.*
Natural conditions	Animals used in food/beverage production are able to express natural behaviour within their environment/housings.
No cruelty	Animals used in food/beverage production are not exposed to actions which cause intentional harm, distress or discomfort.
Sustainably sourced inputs, especially feed	Inputs (particularly feed) used in relation to animals used in food/beverage production are sourced from sustainable supplies.
Welfare veterinary plan	Producers have documented plan(s) to ensure due diligence in response to animal health and welfare issues for animals used in food/beverage production.

Table 3. Definitions of Factors of Environmental Condition

Factor	Definition
Air quality	The physical condition of the chemical composition of the atmosphere proximal to sites of food/beverage production.
Greenhouse gas emissions	Gaseous chemical emissions which contribute to the deterioration of atmospheric quality, contributing to climate change. Specifically, the type of chemical compounds commonly released from food/beverage production practices include carbon dioxide (CO_2), methane (CH_4) and/or nitrous oxide (N_2O).
Open spaces[1]	The presence of visibly and physically unrestricted spaces proximal to sites of production.
Organic production	Food/beverage production processes that do not use industrial agricultural chemicals (such as pesticides and/or fertilisers) or other modern production techniques, such as the use of genetic modification, antibiotics and/or growth-promoting agents.
Protecting biodiversity	Food/beverage production processes/systems actively assist/enhance the level and variety of species within ecosystem(s).
Protecting coastal and sea-life	Production processes are carried out in such a way that not only does not threaten or harm, but also actively protects (and possibly enhances) coastal and/or sea-based lifeforms.
Protecting endangered plants and animals	Production processes are carried out in such a way that not only does not threaten or harm, but also actively protects (and possibly enhances) endangered species of flora and fauna.
Protecting wetlands	Production processes are carried out in such a way that not only does not threaten or harm, but also actively protects (and potential enhances) wetlands, particularly those proximal to production areas.
Recycling	Processes whereby items that would otherwise be considered as waste are able to be reconstituted, such as processing the waste packaging materials of a product for new applications. In the New Zealand survey, this factor was included as *Waste management and recycling.*
Water quality	The physical condition (i.e. chemical composition) and purity of water bodies (particularly that used in food/beverage production as agriculture is a contributor to the degradation of water quality).
Wilderness	The presence of natural, untended and/or unmanaged areas of land wherein uninhibited growth and proliferation of flora and fauna is possible and/or encouraged.

[1] This factor was not included in the New Zealand survey.

Table 4. Definitions of Factors of Food Safety

Factor	Definition
Animal health[2]	The condition of physical health of animals used in food/beverage production. As a factor of *food safety*, this refers to the extent to which the health of animals used in food/beverage production impacts on product safety.
Animal welfare	The living conditions and/or psycho-social state of animals used in food/beverage production. As a factor of *food safety*, this refers to the extent to which the health of animals used in food/beverage production impacts on product safety.
Country of origin (New Zealand survey only)	This refers to the country from which a product is produced, processed or distributed from. As a factor of food safety, this refers to the extent to which a product's country of origin is a proxy for the safety of the product itself. This attribute was included (in its own right) in the New Zealand survey only.
Environmental condition	The state of the physical environment in which a primary product is produced, manufactured or processed. As a factor of food safety, this refers to the extent to which the condition of the physical environment in which food/beverage products are produced impacts on product safety.
Freshness	A *fresh* product is one which is readily available for consumption in the shortest possible time following production/processing.
GM-free food	Food/beverage products which are not associated with the use of any genetically modified organisms, either being present in the final product or at any point in the product's life cycle (e.g. inputs).
Hygiene standards	Firms responsible for the production/processing of a food/beverage product have applied effective hygiene standards at all points along the supply chain.
Labelling of "use-by date"	Food/beverage products have an accompanying "use-by date", showing the consumer the date before which the product should be consumed to ensure safe consumption.
Rates of contamination	This refers to rates of the incidence of contaminants in food/beverage production processes, i.e. the incidence of contaminants within or associated with food/beverage products are within acceptable bounds to meet food safety standards.

[2] This is not included in the New Zealand survey as a factor of food safety, but instead combined with *animal health* and *animal welfare* are combined into an attribute called *animal health and welfare*.

Reduced use of pesticides	Producers (particularly land-based primary production) have actively reduced the amount of pesticides used in their production system.
Tamper proof packaging	Food/beverage products are packaged in such a way that prevents adulteration.
Traceability to origin	Food/beverage products can be traced to their initial place of origin, e.g. farm-level.
Trust in supply chain	The consumer places trust in supply chain processes to deliver products that are safe and authentic.

Table 5. Definitions of Factors of Health-Enhancing Foods

Factor	Definition
Baby health	As a factor of *health-enhancing foods*, this refers to food/beverage products that enhance the health of infants that consume them.
Blood nutrients	As a factor of *health-enhancing foods*, this refers to a food/beverage product's potential to enhance nutrients in the bloodstream of the consumer.
Bone health	As a factor of *health-enhancing* foods, this refers to a food/beverage product's potential to enhance the health of the skeleton of the consumer.
Child health	As a factor of *health-enhancing foods*, this refers to food/beverage products that enhance the health of children that consume them.
Digestive health	As a factor of *health-enhancing foods*, this refers to food/beverage products that enhance the health of the digestive systems/tract of the consumer.
Energy and endurance	As a factor of *health-enhancing foods*, this refers to food/beverage products that enhance energy levels and the ability to endure a higher degree of physical activity in the consumer.
Heart and cholesterol health	As a factor of *health-enhancing foods*, this refers to food/beverage products that enhance the health of the cardiovascular system of the consumer.
Immune system	As a factor of *health-enhancing foods*, this refers to food/beverage products that enhance the health of the immune system of the consumer.
Memory/Brain health	As a factor of health-enhancing foods, this refers to food/beverage products that enhance the health of the nervous system and/or memory potential of the consumer.
Mobility	As a factor of *health-enhancing foods*, this refers to food/beverage products that enhance the physical mobility of the consumer.
Skin health	As a factor of health-enhancing foods, this refers to food/beverage products that enhance the health of the skin (integumentary system) of the consumer.
Weight management	As a factor of *health-enhancing foods*, this refers to food/beverage products that are used by the consumer to manage their overall weight/diet.

Table 6. Definitions of Factors of Social Responsibility

Factor	Definition
Equity[3]	This is a broad term, but refers to the provision of fair and equal policies to be enacted by food/beverage producing firms to ensure equity between employees.
Fair prices to producers (New Zealand survey only)	As distinct from the brand associations of the factor *Fair Trade,* this refers specifically to the provision of fair prices for goods paid to producers within the food/beverage supply chain. This factor was included in the New Zealand survey only.
Fair Trade	This could specifically refer to "trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers" and/or the branding developed by international group Fairtrade International.
Fair wages	Food/beverage producing firms provide their workers with wages that are fair, equitable and provide basic needs (FAO, 2013).
Freedom from discrimination	Food/beverage producing firms do not discriminate against current or future employees based on demographic (e.g. age, gender, ethnicity) or other features (e.g. political affiliation) (FAO, 2013).
Freedom to join a trade union or other association(s)	Food/beverage production/processing workers are free to join trade unions or other associations which provide means of collective action or bargaining power (FAO, 2013).
Good working conditions	Food/beverage producing firms provide safe and inclusive workplaces for their employees.
Investment of profits in community facilities	A portion of the profits of food/beverage production firms is invested back into projects that assist/enhance its local community.
Local food	Local food systems support the community in which they operate.
No child labour	Food/beverage producers do not use child labour in any part of their operation(s).
Paid annual leave	Food/beverage producers provide their workers with paid annual leave.
Workplace safety	Food/beverage producers provide safe workplaces for their workers, including the provision of safety equipment, training and good practices for emergency mitigation.

[3] This factor is not included in the New Zealand survey.

Table 7. Definitions of Factors of Traditional Cultures

Factor	Definition
Care for future generations	Peoples of traditional cultures involved in or affected by food/beverage production systems ensure that processes do not diminish the ability of future generations to access resources, exercise autonomy and enhance well-being.
Connection with natural environment	Peoples of traditional cultures involved in or affected by food/beverage production have an intimate connection with the natural environment, particularly that which is proximal to production systems.
Cultural values	The values of peoples of traditional cultures are maintained and enhanced in relation to food/beverage production. In the New Zealand survey, this factor was changed to *Māori values* specifically.
Equity and fairness	Peoples of traditional cultures are able to operate in relation to food/beverage production systems in an equal, fair and just manner relative to other communities.
Family business[4]	Peoples of traditional cultures involved in or affected by food/beverage production systems ensure that family-owned and –operated businesses are retained.
Indigenous rights	Indigenous peoples of traditional cultures involved in or affected by food/beverage production systems are able to retain rights accorded to them to maintain/enhance indigenous interests.
Native/Indigenous values	The values of indigenous peoples of traditional cultures are maintained and enhanced in relation to food/beverage production. In the New Zealand survey, this factor was considered to be incorporated into the *Māori values* factor.
Traditional harvesting (New Zealand survey only)	*Peoples of traditional cultures involved in primary production use traditional harvesting methods in food/beverage product procurement.*
Traditional healing and medicine	Peoples of traditional cultures involved in or affected by food/beverage production are able to practice traditional healing and medicinal practices.
Traditional production processes	Peoples of traditional cultures involved in primary production use traditional processes.
Traditional wisdom & knowledge	Peoples of traditional cultures involved in or affected by food/beverage production retain/enhance traditional knowledge and/or wisdom.

[4] This factor was not included in the New Zealand survey.

References

Food and Agriculture Organization of the United Nations (FAO) (2013). *Sustainability Assessment of Food and Agriculture Systems (SAFA): Indicators*. Food and Agriculture Organization of the United Nations, Natural Resources Management and Environment Department, Rome 2013. Retrieved 12 February 2018 from http://www.fao.org/nr/sustainability/sustainability-assessments-safa/en/.

Saunders, Caroline, Paul Dalziel, Mark Wilson, Tiffany McIntyre, Hilton Collier, William Kaye-Blake, Alistair Mowat, Tava Olsen and John Reid (2016a). *How Value Chains Can Share Value and Incentivise Land Use Practices: A White Paper*. AERU Client Report, prepared for Our Land and Water National Science Challenge. Lincoln University: Agribusiness and Economics Research Unit. Retrieved 12 February 2018 from https://researcharchive.lincoln.ac.nz/handle/10182/8398.

Saunders, Caroline, Timothy Driver, Alistair Mowat, Bill Kaye-Blake, Tim Payn, Karen Bayne, John Saunders, Jay Whitehead, Sini Miller, Alice Tang, Meike Guenther and Peter Tait (2016b). *Driving Better Programme Investment and Accelerating Challenge Impact through a Prioritisation Matrix of International and National Perspectives*. Retrieved 12 February 2018 from http://ourlandandwater.nz/the-challenge/greater-value-in-global-markets.

World Health Organization (WHO) (2006). *Constitution of the World Health Organization. Basic Documents, 45th Edition, Supplement, October 2006*. Retrieved 12 February 2018 from http://www.who.int/governance/eb/who_constitution_en.pdf.