## SUBMISSION ON

## Defining Food Waste in New

 Zealand: Background briefing9 November 2022
To: Ministry for the Environment
Name of Submitter: Horticulture New Zealand Supported by:

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## Submission structure

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An overview of HortNZ and brief description of the value of the horticulture industry.
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Feedback on the background briefing document and consultation survey questions.

## Our submission

Horticulture New Zealand (HortNZ) thanks the Ministry for the Environment for the opportunity to submit on the 'Defining Food Waste in New Zealand: Background briefing' consultation. We welcome any opportunity to discuss our submission.
The HortNZ submission represents an industry wide view. HortNZ wishes to be heard in support of our submission.
The details of HortNZ's submission and decisions we are seeking are set out in our submission below.

## Consultation scope

This purpose of this consultation is to seek feedback on the proposed technical definition of food waste proposed by the Ministry for the Environment (MfE) and the New Zealand Food Waste Champions of 12.3 (NZFWC), to support efforts to quantify food waste, and in future reduce food waste through national targets.

The consultation sets out that a definition for food waste is needed to:

- Guide work on a national food waste baseline,
- Track NZ's progress towards United Nations Sustainable Development Goal 12.3 "By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses",
- Help food businesses measure their food waste and the impact of their reduction efforts on a consistent basis, and
- Support evidence-based decision-making across government and businesses.

MfE is proposing to adopt a definition of food waste that incorporates both food loss and food waste, that is the entire food supply chain from production (ready to harvest) to consumption, as per the definition proposed in the briefing document.

MfE is undertaking consultation on the definition of food waste at this time, not on food waste policy in general or potential national food loss and waste targets.

The background briefing document, which is the subject of this consultation, was developed in collaboration with NZFWC in response to the Environment Committee's recommendations ${ }^{1}$ and the Miranda Mirosa report, to set a definition and begin to measure food waste in New Zealand.

MfE is planning to undertake the first national food waste baseline project in 2023. The definition of food waste determined through this consultation will be used to scope the national baseline. In future, MfE may consider adopting a national target in line with the United Nations Sustainable Development Goal 12.3. The adoption of national targets may be subject to further consultation.

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## HortNZ's Role

## 1. Background to HortNZ

HortNZ advocates for and represents the interests of approximately 5,500 commercial fruit and vegetable growers in New Zealand. These growers produce around 100 different fresh and processed fruit and vegetable crops on approximately, 80,000 hectares of land in New Zealand for domestic consumers, as well as exporting crops to discerning consumers overseas. Our growers supply fresh and processed products to domestic and overseas consumers.

The horticulture industry is valued at $\$ 7 \mathrm{~b}$ with $\$ 4.6 \mathrm{~b}$ in exports annually.
The national and regional economic benefits associated with horticultural production are important. The industry employs more than 40,000 people and provides critical regional development opportunities in Northland, Auckland, Bay of Plenty, Waikato, Hawke's Bay, Gisborne, Manawatu, Marlborough, Nelson, Canterbury and Central Otago. The rural economy supports local communities and primary production defines much of the rural landscape.

The horticulture sector plays an important role in food security for New Zealanders. Over $80 \%$ of vegetables grown are for the domestic market and many varieties of fruits are grown to serve the domestic market.

HortNZ's purpose is to create an enduring environment where growers thrive. This is done through enabling, promoting and advocating for growers in New Zealand.


Industry value \$6.87bn
Total exports \$4.6bn
Total domestic \$2.27bn

## HortNZ's Resource Management Act 1991 Involvement

On behalf of its grower members HortNZ takes a detailed involvement in resource management planning processes around New Zealand. HortNZ works to raise growers' awareness of the Resource Management Act 1991 (RMA) to ensure effective grower involvement under the Act.

# Our Submission 

## 1. Summary of submission

Food waste is a wicked problem of a complex and interconnected nature. The precise causes and effects are difficult to identify, and there is no simple solution. How food waste is defined will inform how we measure our national baseline, set and monitor against national targets, and where investment and intervention is likely required.

HortNZ seeks further national strategic direction from MfE on food waste policy, and the adoption of clear criteria or lenses through which food waste policy for New Zealand is assessed. In our view, the key outcomes and therefore lenses for assessing food waste policy include emission reductions, sustainable production systems, health and nutrition, food security, and economically resilient food production systems.

The definition adopted by MfE following this consultation will influence the scope of the national food waste baseline, and the setting of and monitoring against future national targets adopted. It is crucial that this process is done in a way that does not compromise the ability of our primary producers to continue to produce safe, sustainable and affordable food, and remain economically viable.

The proposed definition in the background briefing document is as follows:
"Food waste means imported or domestically produced food, including inedible parts of food, that is removed from any part of the Food Supply Chain and directed to any Waste Destination."
"Food supply chain means the connected series of activities used to produce, process, distribute and consume food, beginning from the point that crops and livestock are ready for harvest or slaughter, through to the point where food is consumed by humans."

In our view, the proposed definition of food waste has the potential to significantly impact on primary producers if adopted, as detailed in our submission.

HortNZ is seeking that MfE to adopt separate definitions, measurements, and targets for food loss and food waste for New Zealand, aligned to the United Nations Sustainable Development Goal 12.3.
"By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses."

We seek that, food loss is defined and measured from post-harvest, once produce is washed and/or processed and packed) and deemed food that is "safe and suitable"2 for human consumption, through manufacturing and distribution. Food waste is defined and measured at the wholesale, retail and consumer/household levels of the food supply chain.

[^1]We have expressed these terms within the food supply chain below. We have proposed a suite of definitions on the following page that we think are key to framing the issue and definition of food waste.


HortNZ is concerned that combining food loss and food waste into one definition, measurement and target for New Zealand, could have unintended and detrimental consequences on primary producers, with no additional benefit to tackling the true causes and effects of food waste in the food supply chain, predominantly at wholesale, retail and household levels.

In our view, there is an emphasis on fresh fruit and vegetables in the general discourse on food waste, as demonstrated by the cover page of the consultation document and many other publications we see relating to food waste. The food that kiwis waste is predominantly bread, milk, meat, and takeaways (if you discount inedible parts such as banana skins and orange peels) ${ }^{3}$. The message that is sent to the public and consumers is that food waste is a fruit and vegetable dominated issue.

Retail and consumer food waste in New Zealand is related to domestic consumption. We believe there is an emphasis on horticulture due to the close link to domestic food supply. However, most of the primary production in New Zealand is red meat and milk for export and food loss and waste is likely to be proportionate to the volumes of production in the various sectors, i.e. at a national scale, largely milk and meat.

We wish to see a shift in the conversation (and imagery) of what food waste is in New Zealand, where it is generated, and where intervention and investment is needed the most to achieve outcomes across climate change, food safety and security, sustainable and economic production systems.

Our submission outlines the impacts of a broad food waste definition as proposed by MfE across the following areas:

- Emission reduction addressing food waste emission sources,
- Healthy soils and sustainable growing practices,
- Food security and human health, and
- Financial viability of growing businesses from capturing ready-to-harvest produce.

[^2]
## 2. HortNZ's proposed definitions

HortNZ seeks that the Government adopts the following definitions to frame the issue of food waste, scope the national baseline, and inform future national targets.

1. Food as defined in the Food Act $2014^{4}$ and includes produce that has been deemed safe and suitable for human consumption.

In our view, food must be deemed safe and suitable for human consumption in line with regulatory requirements under the Food Act, and therefore does not include spoiled food, as proposed in the definition in the briefing background document.
2. Food Loss is post-harvest, once produce is washed and/or processed and packed, and deemed food that is "safe and suitable"5 for human consumption, through manufacturing and distribution. Food loss does not include read-to-harvest produce that is not yet food (e.g. carrots in field, milk in an udder, fish in the sea).
3. Food Waste includes avoidable food waste in wholesale, retail, food service and household levels of the food chain. This does not include food loss (defined above), ready-to-harvest produce, or unavoidable food waste.
4. Avoidable food waste is food and drink thrown away that was, at some point prior to disposal, edible (e.g. slices of bread, apples, meat) and does not include inedible parts of food waste (see below).
5. Unavoidable food waste is waste arising from food or drink preparation that is not, and has not been, deemed food, i.e. edible under normal circumstances (e.g. meat bones, banana skins, peels, and eggshells).

## 3. Achieving emission reductions

We understand that a strong driver for reducing food waste at a national level is reducing landfill methane emissions ${ }^{6}$.

Methane from landfills is generated from the decomposition of rubbish including organic material and food waste. Landfill methane emissions make up 4\% of New Zealand's total methane emissions. Although this proportion is not large, the Government has made a commitment to reduce New Zealand's greenhouse gas emissions and has accounted for reduction from the waste sector in the climate change policy package.

In 2004 and 2008, the Ministry of the Environment commissioned a series of audits at four landfills. Based on these audits "organic waste was the largest proportion of waste

[^3]disposed of to landfills in 2007-2008, representing 28 per cent of the overall waste stream". Of that $17 \%$ was estimated to be food waste. ${ }^{8}$

Achieving reductions in landfill methane emissions from food waste will require intervention and investment at the retail and household levels and, in HortNZ's view, needs to be the focus of the definition of food waste.

Food waste that ends up in landfills predominantly comes from the retail, food services and households. By comparison, emissions associated with the production of crops is nitrous oxide from synthetic nitrogenous fertilisers, to be captured by He Waka Eke Noa or similar system, and does not contribute to landfill methane emissions.

The Paris Agreement highlights the importance of food production and food security, recognising the "fundamental priority of safeguarding food security ..." and noting the need to adapt and foster resilience and lower emissions, in a manner that does not threaten food production. This same consideration is relevant to resource management more broadly.
We urge MfE to adopt a definition of food waste to encompass the retail and household levels, so that interventions and investment can be targeted where they will have the greatest impact on reducing food waste, and minimise the impact on the viability of our primary producers and growing businesses to produce safe, sustainable and affordable food.

We also ask MfE to consider the overall emissions generated by different foods, when considering emission reduction strategies. The graph below shows the percentage contribution of different food items (measured in carbon dioxide equivalent, CO 2 e ) from farming until retail.

[^4]
## Carbon footprint of food items (CO2e)

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- Beef muscle, steak, roast,
schnitzel,corned beef, mince
- lasagna (left overs)
- rice, all sorts
- bread, buns, bagels, all sorts
- chicken muscle meat, chest, drum, thigh,
    wing, mince
- beans, peas, corn
- banana, pineapple
- leafy green, lettuce, spinach, silverbeet,
    bok choy etc
- oranges, lemons, other citrus
- apple, pear, pomme fruits
- potato chips, wedges, croquettes, hash
    browns
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Source: 2017. J.M. Drew. Otago University. Appendix B, pp. 132-138.
$86 \%$ of emissions are captured by the first five food item categories listed. When considering emission reduction strategies, we urge MfE to consider the footprints required to produce those foods, relative to emissions from food waste, and where intervention is best placed.
"If we stopped binning bread - it could do the same for greenhouse gas emissions as planting 5.3 million trees!" 9

We also seek that the government considers the lifecycle assessment of alternatives to food waste to landfill, for example home/business composting and bioprocessing. We believe it is important to compare the lifecycle emissions and cost of trucking and processing home and business compositing, and investment and emissions from bioprocessing operations required at scale to address food waste reductions, relative to methane emissions generated at landfill from food waste, to ensure that are not creating carbon leakage in our attempts to tackle the issue of food waste.

## 4. Soil health

From a soil health perspective, it is important that food loss and waste is counted from the point of post-harvest, to protect and encourage healthy soil practices that growers use to sustain effective and efficient production systems. Following harvest of a marketable yield, a grower uses the remaining plant materials and residues to cycle nutrients and carbon back into the soil in preparation for the next crop.

[^5]"There is no such thing as waste inside the farm gate." Anon grower.
These sustainable production practices are crucial to maintaining soil health throughout the annual cycles of food production. The residues from the natural breakdown of plant material, release key nutrients like nitrogen, to form part of a grower's nutrient budget when planning nutrient inputs for the following crop. Allowing the plant residues to breakdown naturally over time also provides a healthy environment for microbiological activity, vital to maintaining productive and health soils. It is in the best interest of growers and consumers, to protect our most productive soils in New Zealand through the use and ongoing encouragement of such practices.

Vegetable growers follow a pattern of crop rotation, whereby specific sequences of crops are rotated on the same piece of land over time. Rotating crops is used to minimize the presence of soil-borne pests and disease, and to improve soil fertility and reduce nutrient losses through the cycling of shallow followed by deep rooted crops. The location of the ground the vegetables grow on also shifts over-time as lease arrangements change, and to provide for the arable and pasture phases of rotations. Crop rotation is essential to maintain soil health and is an inherent and essential part of sustainable commercial vegetable growing.

It is important that growers are not penalized for, or perceived to be generating food waste from, the incorporation of plant material back into the soil as part of normal practices. We therefore urge MfE to adopt separate definition of food loss and food waste, and that food loss does not include ready-to-harvest produce, rather, food loss is defined and measured from the point of post-harvest, once produce has been deemed safe and suitable for human consumption.

## 5. Food security and human health

Food security is a nationally important issue that requires addressing at a strategic level. Food donations play a minor role in addressing and alleviating food insecurity. The national issue of food insecurity requires a much broader suite of policies, including national Food Policy, which New Zealand does not currently have.

Food security requires an economically resilient food production system, and the abundance of safe and suitable food available year-round at a reasonable price for consumers. Food security of New Zealand is already vulnerable, and if not designed and defined appropriately, there is the potential for food waste policies to have unintended consequences that undermine the viability of our producers, and therefore both New Zealand and Pacific food security.

We have a national food producing system that relies on growing vegetables and fruit in pockets of highly productive land, with good climate and access to freshwater. Fruit and vegetables are essential for the human health of New Zealanders. New Zealand also has an important role in exporting fresh vegetables to the Pacific Islands, and consequently, the food security of Pacific Islands. ${ }^{10}$

[^6]There are complex social and economic reasons that people struggle to meet their nutritional needs. Despite, on the whole, New Zealand producing more food than we can consume, many New Zealanders live in food insecurity. A 2019 Ministry of Health study analysed household food insecurity among children in New Zealand, it estimated that $174,000(19 \%)$ of all children in New Zealand live in food-insecure households. ${ }^{11}$ There is an extensive body of research indicating that children experiencing household food insecurity have lower fruit and vegetable intake, diets higher in fat, and are at an increased risk of obesity. ${ }^{12}$
Increases in fruit and vegetable prices, especially around their off-season, compel New Zealanders to substitute the purchase of healthier whole fruit and vegetables with cheap energy-dense and nutrient-poor products. ${ }^{13}$ Ministry of Health data indicates that only $33.5 \%$ of adults and $44.1 \%$ of children are meeting fruit and vegetable intake guidelines. ${ }^{14}$
Otago University has modelled the potential health impacts of increased vegetable prices. This study found that, using the health costs of an increase in vegetable prices of 43-58\% (Deloitte, 2018), would result in a loss of 58,300-72,800 Quality Adjusted Life Years and health costs of $\$ 490-\$ 610$ million across the population. ${ }^{1}$
In the research paper, Exploration of Māori household experiences of food insecurity ${ }^{15}$, food security is defined as 'the availability of nutritionally adequate and safe foods, and the ability to obtain these foods in socially acceptable ways'. In the paper, New Zealand food insecurity is associated with dietary patterns, such as inadequate fruit and vegetable consumption and frequent fatty processed meat consumption. There are underlying complexities and challenges in food insecure households that are not simply fixed by scaled food donation. The paper touches on examples of taste preference of people interviewed who have experienced food insecurity, prioritizing satiety over health eating even when food security is restored, and the skills to recognize, prepare and cook new foods was a barrier. Inadequate incomes drive people to consume low-cost foods, and low-cost diets tend to be energy dense and nutrient poor.

In our view, MfE needs to consider the ethics of promoting healthy diets to low-income families and the link between palates and poverty, when considering the purpose and impact of potential food waste policy. To address food security, it would seem pertinent for the Government to address inadequate incomes, so that basic human health needs are adequately met in every household in New Zealand, and that people can meaningfully participate in their communities.

Growers in New Zealand are committed to producing safe and sustainable food for consumers that is affordable and provides a return on growers' investments to produce that crop. While New Zealand is a net food exporter, many of the vegetables and some of the fruit that we grow are only for domestic food supply.

Growers are passionate about providing healthy produce to consumers. Maintaining our environmental brand is of value to our high value export products - so too is ensuring that

[^7]all New Zealanders have access to the healthy food that we built our export reputation on. ${ }^{16}$ Regulatory pressure is preventing the expansion of vegetable growing from keeping up with population growth. This is predicted to result in increased cost for consumers, with tangible health consequences.
We urge MfE to consider all of the drivers of consumer food waste, and the potential social consequences of food waste policy. Food security comes from having an abundance of food both in the market and at home. This requires consumers to buy more than they eat and feel encouraged to buy and consume more fresh fruit and vegetables, and less inconvenient and highly processed food. If food wasted is not socially tolerated, a possible consequence is that consumers end up buying and consuming less fresh produce for fear of generating food waste.

## 6. Pressure on food production

New Zealand's existing food production systems are coming under increased pressure from population growth (and competing land use demands reducing availability of highly productive land), climate change, and the need to improve environmental outcomes.
Supporting evidence to the Climate Change Commissions advice to Government (on emissions reduction) notes that, "... if the production of items grown primarily for domestic consumption (such as some fresh vegetables) contracts, as this could drive prices up and exacerbate existing food and nutrition access for some vulnerable groups". There is a misconception that there is not a risk of reduced food production, as the horticulture industry as a whole is growing. However, it is generally export-oriented crops which are most likely to expand - this alone does not guarantee New Zealand's food security, as it represents only a subset of the crops grown in New Zealand.
There are number of compounding pressures on growers and it is important to highlight the fragility of the vegetable sector particularly. Market dynamics plays an important role, and it is clear in the Commerce Commission's report into the retail grocery sector (a critical route to market) that there is limited competition, which gives suppliers few options and creates an imbalance of bargaining power. ${ }^{17}$ While it is desirable socially, for vegetables to be affordable for consumers, growers are price takers and often operate with very tight profit margins as a result. A more sustainable economic model would include a greater proportion of the profit being returned to growers, to ensure the system is economically sustainable and competition within the growing market is retained.

## 7. Economically viable food production

Food security and resilience is underpinned by financially and environmentally sustainable food production. Horticultural operations are businesses. For growers to continue to produce the healthy food we rely on, it has to be economically viable. Counting ready-toharvest produce as food loss or food waste may negatively impact on the economic viability of growing businesses.

Most growers are price takers, the market sets a price on the day and growers directly compete to sell their produce. Growers plan their crops up to 12 months in advance, ordering seed, fertiliser and other inputs to ensure the crop grows to achieve a full

[^8]marketable yield. The markets requirements include food safety as well as food aesthetics - markets expect a certain size, colour, texture and taste of produce before they offer a price to growers.
To determine the volumes harvested, growers consider the cost of production, including harvest, and the price offered by the market. Growers need to be free to make sound economic decisions, including not to harvest a crop if doing so will result in greater economic losses than can be sustained.
We have heard suggestions that growers could harvest beyond what they can sell, to donate the remaining unmarketable crop to food rescue. This expectation on growers is both economically and logistically unreasonable, potentially irresponsible from a food safety perspective, and has the potential to disrupt the free market that growers operate within. Growers may choose to be a part local food rescue efforts as a voluntary business decision. In order to justify additional harvest costs, growers would need viable secondary markets and a reasonable return on investment, and few secondary markets currently exist.

Flooding the local market with food donations has the potential to disrupt the free market that growers operate within and could negatively impact on the prices that growers receive. There is also the risk that donated food may not reach the most food insecure families, that it may not be safe, suitable, palatable or acceptable (socially or culturally), and that our food waste footprint and associated emissions may even increase as a result of food donations at scale.

HortNZ is asking MfE to adopt separate definitions, measurements and targets of food loss and food waste (see proposed definitions in Section 1 in Part 2 of the submission), to avoid impacting on the economic viability of our food production systems, with little or no additional emission reductions achieved or food security benefits.

## 8. Responses to consultation survey questions

HortNZ has responded to the MfE consultation survey questions below.

### 8.1. Do you agree with the proposed scope of the food supply chain, including it beginning from the point food is ready to harvest?

Note: This does not preclude a food waste measurement exercise from starting at postharvest if there is a lack of data at the pre-harvest level.

## HortNZ response: No

We do not support the proposed scope of the food supply chain as it relates to the definition of food waste, including produce that is 'ready to harvest'.

We urge MfE to adopt separate definitions for food, food loss and food waste, to inform the national baseline and any future national goals or targets set for food loss or waste. See page 7 of our submission.

Food is defined in the Food Act 2014, and this legislation sets out what it means for food to be "safe and suitable" for human consumption.

We seek that food loss does not include ready-to-harvest produce, whether it is a plant, milk, meat or fish, until that product is harvested and deemed safe and suitable for human consumption. This may require washing, some form of processing, and packing, to ensure food safety is maintained through distribution and transport before being consumed.

We seek that for the purposes of defining food loss and waste, the food supply chain starts at post-harvest and continues through to human consumption. That food loss is defined and measured separately, from post-harvest through to distribution, and that food waste is defined and measured from wholesale through to household.

We have expressed these terms within the food supply chain below. We have proposed definitions on page 7 to frame the issue and definition of food waste.


In our view, ready-to-harvest produce still in the field or animal, cannot be deemed safe or suitable for human consumption until it has been harvested, washed, possible processed, and packed. Until it is deemed food, in our view it cannot be counted as food loss or food waste. In addition, it is complex and challenging to determine what constitutes ready-toharvest, and therefore how to measure it both temporally and spatially.

For growers operating within a free market, to harvest or not to harvest, a particular volume at a particular time, is a multi-faceted business and economic decision, dependent largely on the quantity harvested that can be sold at market. Growers need to be free to make sound economic decisions, including not to harvest a crop if doing so will result in greater economic losses than can be sustained.

If ready-to-harvest produce is included in the definitions of food loss and/or waste, in our view this has the potential to cause significant logistical and economic impacts on primary producers with little or no additional benefit to addressing and reducing food waste.
Therefore, we urge MfE to consider defining the food supply chain starting at post-harvest, for the purposes of defining food loss and food waste.

### 8.2. Do you think that inedible food waste should be included in the definition?

## HortNZ response: Support in part.

We see some benefit in measuring inedible parts of food in food waste at business and household level, however in our view there is a risk that measuring it in the national food waste baseline has the potential to distort or mis-represent where food waste issue(s) exist and therefore where investment and intervention is needed the most.

We see a risk with including inedible food waste in the baseline, will lead to it being included in a future national food waste reduction target. Inedible parts of food and the associated waste are unavoidable, and inedible parts and generated at the same rate as edible parts of food. This creates a challenge to reduce unless we reduce the amount of food eaten in the first place. We would not support an approach that results in kiwis eating less fresh fruit and vegetables for fear of generating any food waste. There is a risk that such approaches could lead to food shaming and create disordered eating in our society.
There will be costs and emissions associated with the collection and distribution of inedible parts of food waste away from landfill to other waste destinations that needs to be considered on balance, when looking to achieve emission reduction outcomes.

### 8.3. Do you agree with the proposed waste and non-waste destinations for food? <br> HortNZ response: Support in part.

We agree with the non-waste destinations as listed in the background briefing document.
We do not agree that the following categories be counted as waste destinations:

- compost/aerobic digestion
- land application
- Not-harvested/ploughed-in

The use of compost or land application, and the ploughing in of a crop, all contribute to maintaining and enhancing soil health, and form part of a suite of healthy soil practices used by growers as part of their Good Agricultural Practice assurance programmes. We consider these destinations as environmentally sustainable alternatives to landfill application, and the associated methane emissions. We seek that these are counted as non-waste destinations, alongside food redistribution, upcycling to other food products, and animal feed.

### 8.4. Do you think that processing food waste into non-food products, such as packaging, should be considered a waste destination?

## HortNZ response: Unsure

HortNZ remains neutral on this point.

### 8.5. Are you aware of any te ao Māori perspectives that should be taken into account in developing this definition?

## HortNZ response: Unsure

HortNZ is not currently aware of any te ao Māori perspectives that should be taken into account in developing this definition.

### 8.6. Are you aware of any other cultural perspectives that should be taken into account in developing this definition?

## HortNZ response: Unsure

HortNZ is not currently aware of any other cultural perspectives that should be taken into account in developing this definition.

### 8.7. Can you think of any other issues which need to be addressed in developing this definition?

## HortNZ response: Yes

HortNZ is seeking further national and strategic direction from MfE on food waste policy and the adoption of clear criteria or lenses through which food waste policy for New Zealand is assessed, including emission reductions, sustainable production systems, health and nutrition, food security, and economically resilient food production systems. That consultation on analysis of approaches and outcomes is undertaken to inform the adoption of national targets and intervention and investment strategies.

The definition that is adopted by MfE following this consultation will influence the scope of the national food waste baseline, the setting of and monitoring against future national targets adopted to address food waste. In our view it is critical that this process is done in a way that does not compromise the ability of our primary producers to continue to produce safe, sustainable and affordable food and remain economically viable.

Food security requires an economically resilient food production system, and the abundance of safe and suitable food available year-round at a reasonable price for consumers. Food security of New Zealand is already vulnerable, and if not designed and defined appropriately, there is the potential for food waste policies to have unintended consequences that undermine the viability of our producers, and therefore both New Zealand and Pacific food security.


[^0]:    ${ }^{1}$ https://www.parliament.nz/resource/en-NZ/SCR 96164/cebeaf7cf20b40245fdf5c60601d83a2ac5b105f

[^1]:    2 https://www.legislation.govt.nz/act/public/2014/0032/75.0/DLM2996083.htm|\#DLM2996083

[^2]:    ${ }^{3}$ https://lovefoodhatewaste.co.nz/food-waste/what-we-waste/

[^3]:    ${ }^{4}$ https://www.legislation.govt.nz/act/public/2014/0032/75.0/DLM2996074.htm|\#DLM2996074
    ${ }^{5}$ https://www.legislation.govt.nz/act/public/2014/0032/75.0/DLM2996083.htm|\#DLM2996083
    ${ }^{6}$ Reducing food waste $\mid$ Ministry for the Environment
    7 https://environment.govt.nz/assets/Publications/Files/proposed-nes-landfill-emissions.pdf

[^4]:    ${ }^{8}$ https://lovefoodhatewaste.co.nz/wp-content/uploads/2020/09/What-is-known-about-food-waste-in-NewZealand.pdf

[^5]:    ${ }^{9}$ https://www.lovefoodhatewaste.com/take-action-save-food

[^6]:    ${ }^{10} \mathrm{https}: / /$ wits.worldbank.org/CountryProfile/en/Country/WSM/Year/2019/TradeFlow/Import/Partner/all/Produc t/16-24 FoodProd

[^7]:    ${ }^{11}$ Ministry of Health. (2019). Household food insecurity among children, New Zealand Health Survey
    ${ }^{12} \mathrm{Ibid}$.
    ${ }^{13}$ Rush, E., Savila, F., Jalili-Moghaddam, S., \& Amoah, I. (2018). Vegetables: New Zealand Children Are Not Eating Enough. Front. Nutr.
    ${ }^{14}$ New Zealand Health Survey Data. Accessed here: https://minhealthnz.shinyapps.io/nz-health-survey-2019-20-annual-data-explorer/_w_b6ac76b1/\#!/explore-topics
    ${ }^{15}$ Exploration of Māori household experiences of food insecurity (ana.org.nz)

[^8]:    ${ }^{16}$ /assets.kpmg/content/dam/kpmg/nz/pdf/2020/05/agri-food-now-normal-future.pdf
    ${ }^{17}$ Commerce Commission (2020). Market study into the retail grocery sector. Draft report - executive summary.

