

Defining Food Waste in Aotearoa

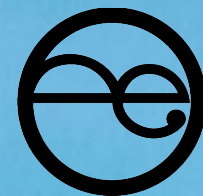
Background briefing



October 2022 Lisa Busch Consulting



NZ FOOD WASTE
CHAMPIONS 12.3



Ministry for the
Environment
Manatū Mō Te Taiao

Why is food waste* a problem?

The World Wildlife Fund estimated in 2021 that 40% of all food produced globally is lost or wasted.

- **Economic costs** - \$1.17 billion of avoidable food waste from households alone. The cost to the economy of food waste caused by inefficiencies across the food supply chain (FSC) is unknown.
- **Environmental costs** – In 2019, waste in landfill was responsible for 4 per cent of Aotearoa New Zealand’s total gross emissions. Of the waste emissions, 94 per cent were biogenic methane generated by the decomposition of organic materials at landfill ([Aotearoa New Zealand's Emissions Reduction Plan](#)). When food is wasted the resources used to grow and produce it are also wasted including energy, land use and water.
- **Social costs** - One in five children in Aotearoa New Zealand experience severe to moderate food insecurity. Diverting surplus food to those in need is essential to improving social outcomes.

*This document refers to ‘food loss’ and ‘food waste’ together (as ‘food waste’) for convenience, although they are defined separately and measured differently for some policy and international purposes (UNSDG12.3, FAO) This is approach is consistent with international best practice ([UNFLWARS](#)).

Why do we need a food waste definition?

- To guide a national food waste baseline.
- To provide businesses and other organisations with a consistent method for measuring and reporting food waste, aligned with international approaches, including to:
 - a. Track New Zealand’s progress toward achieving the United Nation’s 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.”*
 - b. Support evidence-based decision-making across government and industry.
 - c. Support the Kai Commitment, a voluntary agreement for food businesses to set targets, measure and reduce food waste, launching in November 2022.

Proposed definition of food waste

'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**.

Waste Destinations include composting/aerobic digestion, co-digestion/anaerobic digestion, controlled combustion, land application, landfill, plowed into land, refuse/litter, sewer/wastewater treatment and other destinations (as defined in these definitions). This definition excludes any material that is directed to **Non-Waste Destinations** (i.e., re-enters the Food Supply Chain via redistribution of food surplus to people, animal feed or is **repurposed or upcycled (as defined in later slides)**).

[Consistent with UNFLWARS, UK Guidelines]

'Food' means:

- I. Any substance (whether processed, semi-processed, or raw) that is **intended for human consumption**.
- II. 'Food' includes drink, and any substance that has been used in the manufacture, preparation, or treatment of food. 'Food' also includes material that has spoiled and is therefore no longer fit for human consumption. Food does not include cosmetics, tobacco, or substances used only as drugs. It does not include processing agents used along the food supply chain, for example, water to clean or cook raw materials in factories or at home.

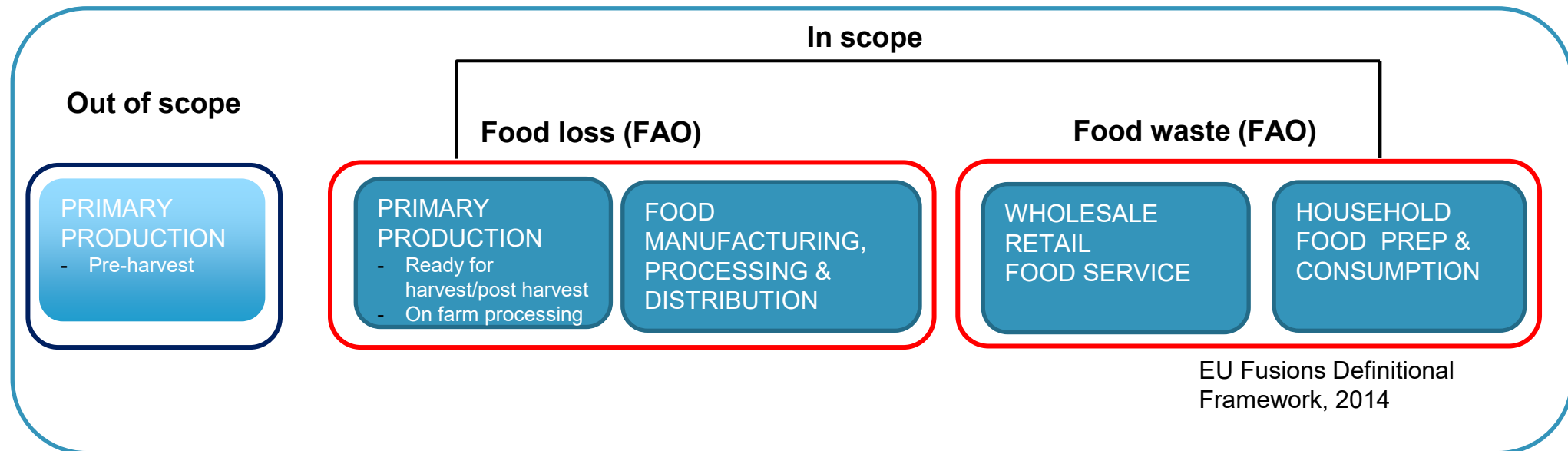
'Inedible parts of food' means:

- I. Components associated with a food that, in a particular food supply chain, are **not intended to be consumed by humans**.
- II. Examples of inedible parts associated with food could include bones, rinds, and pits/stones. What is considered inedible varies among users (e.g., chicken feet are consumed in some food supply chains but not others), changes over time, and is influenced by a range of variables including culture, socio-economic factors, availability, price, technological advances, international trade, and geography.

Proposed definition of food supply chain

'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.

- Adapted from EU FUSIONS Definitional Framework for Food Waste, 2014.



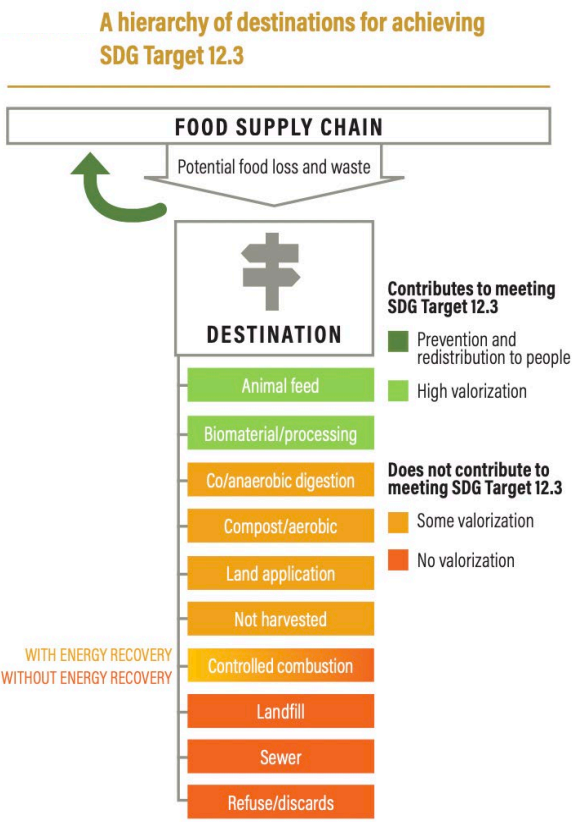
NB. Applies to production of food from plants, animals, aquaculture and fisheries.

Key issue for feedback – Where should the food supply chain start?

Starting point	Benefits	Issues
Pre-harvest	<ul style="list-style-type: none"> • Reflects true resource loss and waste. 	<ul style="list-style-type: none"> • Challenging to measure, particularly on a national basis.
Ready for harvest/slaughter (proposed)	<ul style="list-style-type: none"> • In line with international definitions (UK, Australia). • Considers loss of food that could have been eaten but did not make it to the market for economic or other reasons. • Covers food losses that occur during harvest. • Gives a better picture of on-farm losses to support with policy and investment to maximise harvest. 	<ul style="list-style-type: none"> • Includes unavoidable losses, e.g., frost, pest and disease. • Hard to quantify and measure. • Potentially arbitrary distinction between food that is ready and not ready for harvest.
Post-harvest	<ul style="list-style-type: none"> • Data is more accurate from post-harvest. • Focuses efforts on a smaller scope. • In line with EU approach. 	<ul style="list-style-type: none"> • Excludes efforts to reduce on-farm losses - e.g. food losses that occur during harvest, unharvested food. • Does not give better data on on-farm losses to support policy and investment opportunities to maximise the harvest.

Proposed Non-Waste and Waste Destinations

- Defining Waste and Non-Waste destinations for surplus food is a key part of the food waste definition. These definitions determine the options available to us to achieve our food waste reduction goals. Non-Waste Destinations reflect the top of the waste hierarchy (adjacent) where our efforts should be concentrated.
- In general, food that leaves that food supply chain and is not ultimately consumed by people or animals is considered food waste. This includes destinations such as landfill, waste-to-energy and compost (although there is an indirect connection with compost it is typically considered too far removed from the Food Supply Chain).
- One key area of contention is whether the processing of surplus food into biobased, non-food products such as compostable packaging, biofuels and non-edible nutraceuticals should be considered food waste. Although these products are not strictly within the food supply chain (packaging is excluded), many countries consider this type of processing a Non-Waste destination due to the added value created and environmental benefit created versus alternative destinations. The challenge is that each upcycled product has its own economic and environmental cost/benefit compared to other destinations. The general benefits and costs of including this as a Non-Waste option in the national definition are covered on Slide 9.
- On the other hand, the processing or upcycling of food by-products into new, valued-added food products is universally considered a Non-Waste destination as surplus food is retained in the Food Supply Chain.



Proposed Non-Waste and Waste Destinations

‘Non-Waste Destinations’ are defined in Box 1. Further technical guidance is provided by the [UNFLWARS](#)

‘Waste Destinations’ are defined in Box 2. Note that these Waste Destinations are considered food waste and cannot be counted towards reducing food waste reduction targets.

Box 1. Non-Waste Destination	
Food redistribution	Donation, gleaning or sale of surplus food for consumption.
Upcycling to other food products	Processing of food by-products or surplus food that would have otherwise gone to a Waste destination into new food products.
Animal feed	Diverting material from the food supply chain (directly or after processing) to animals.

Unsure	
Bio-based materials/ biochemical processing	Turning food waste into value-added, non-food products such as packaging, bioplastics and cosmetic products. This does not include biofuels, which are captured under the ‘Other’ and ‘Fermentation’ waste destinations.


Box 2. Waste Destination	
Compost/aerobic digestion	Production of organic material for soil application.
Anaerobic digestion/ fermentation	Production of biogas and nutrient rich digestate which can be applied to soil. Production of bioethanol through fermentation to be used for fuel. This does not include fermentation of food by-products into new food products (upcycling).
Controlled combustion	Burning of food waste with and without energy recovery.
Land application	Spreading, spraying, injecting or incorporating organic material onto land to improve soil quality.
Not-harvested/ ploughed-in	Leaving crops that were ready for harvest in the field or tilling them in.
Landfill	Sending food waste to an area of land or excavated site specifically designed to receive waste.
Refuse/discard	Abandoning food waste on land or in the sea. This includes open dumps, open burn and fish discards.
Sewer/wastewater	Sending food waste down the sewer, including through Insinkerators/food waste disposal units.
Other	Any other destination not identified as a non-waste destination. This includes using food for biodiesel or other biofuel products.

NB: These destinations are taken from the international protocols and are adapted from the global [Food Recovery Hierarchy](#).

Key area for feedback – Should food that is turned into packaging or other non-edible products be considered waste?

Should be considered a Non-Waste Destination	Should be considered a Waste Destination
<ul style="list-style-type: none">• Consistent with international approaches which recognise ‘high valorisation’ potential of non-food bioprocessing.• Provides greater opportunities to reduce food waste and meet global and domestic targets.• May drive innovation in alternatives, e.g. substituting non-renewable resources.• Provides greater economic and (often) environmental value compared to other waste destinations.• Option to reduce inedible food waste, which is difficult to address.	<ul style="list-style-type: none">• Food is removed from the food supply chain and not used for its intended purpose to feed people.• Supports efforts to prevent food waste in the first instance and target actions higher up the waste hierarchy.• If not considered waste, likely to drive supply of bio-based non-food products such as compostable packaging, which can have negative impacts on soil health and often end up in landfills (and release methane) as councils and processors largely do not accept compostable products.*

*NB: The Ministry for the Environment has released a [position statement](#) on compostable products which explains this issue in greater detail.



What does this all mean?

- The Ministry for Environment is taking a broad interpretation of food waste, consistent with international approaches. Aotearoa New Zealand's definitions relating to food waste will align with international approaches, which allows for better comparability across countries.
- Under this proposed definition, the opportunities to reduce food waste is by preventing it in the first instance, redistributing it, feeding it to animals or upcycling/processing it into new food products.
- This does not mean that all Waste or Non-Waste Destinations are equally preferable from an environmental, economic and social perspective. Waste Destinations higher up the waste hierarchy, such as composting, will play a vital role in reducing emissions.
- We welcome your feedback on the definitions proposed, how they will apply to business or industry. We also welcome any comments on what a food recovery hierarchy should look like for New Zealand.

Worked examples

Households

Example	Food waste?
Half-eaten apple	✓
Banana skin	✓
Yoghurt container	✗
Food scraps that are home-composted	✓
Food sent down the drain	✓

Wholesale, retail and food service

Example	Food waste?
Unsold food that is donated to a food rescue organisation	✓
Expired produce that goes to landfill	✓
Produce trays that go to landfill	✗
Plate waste that is commercially composted	✓

Worked examples cont.

Primary production

Example	Food waste?
Unharvested vegetables that are ploughed back into the soil	✓
Crops that are destroyed by pest/disease before they are ready to harvest	✗
Unsold vegetables used to feed animals	✗
Crops that are harvested but spoil in storage/transport	✓
Crops that are ready for harvest but subsequently destroyed by weather	✓

Manufacturing and processing

Example	Food waste?
Food (excl. energy crops) that is used in waste-to-energy processes	✓
Food that is used to produce bio-based packaging	?
Upcycling food by-products into new food products	✓
Residual sludge from production process	✓

References

- [Australia National Food Waste Baseline 2019](#)
- [Australia – National Food Waste Strategy feasibility study \(2021\)](#)
- [Environmental Protection Agency Food Recovery Hierarchy](#)
- [EU FUSIONS definitional framework](#)
- [FAO SDG12.3 sub-indicators](#)
- [FAO introduction to SDG12.3.1](#)
- [Te hau mārohi ki anamata Towards a productive, sustainable and inclusive economy: Aotearoa New Zealand's first emissions reduction plan](#)
- [UK FLW Measurement & Reporting Guidance](#)
- [UN Food Loss and Waste Reporting Standard](#)
- [World Wildlife Fund \(2021\) Driven to Waste Report](#)