
Project definition

When we talk about Food Loss and Waste (FLW), it is important to understand that there are different ways of defining FLW. In this section, we will take a closer look at some definitions to see how they vary.

The project definition used for Food Loss & Waste

On this website, we use the definition of 'Food Loss and Waste' (FLW) used by the Food and Agriculture Organisation of the United Nations (FAO) (2019) [1]. FLW refers to the decrease in quantity or quality of the edible portion of raw, semi-processed or processed food intended for human consumption that is redirected to other non-food uses or productive use. Productive use includes animal feed, industrial use (e.g. biofuels, fibres for packaging material, creating bioplastics, making traditional materials such as leather or feathers (e.g. for pillows), and rendering fat, oil or grease into a raw material to make soaps, biodiesel or cosmetics), and other uses (e.g. use as fertiliser and ground cover). FLW also includes the decrease in the nutritional value, safety or other quality aspects from the time food is ready for harvest or slaughter to consumption. Food that has suffered a qualitative loss or waste but is still eaten by humans is not considered a quantitative loss or waste.

The difference between Food Loss and Food Waste is based on the stakeholder involved. 'Food Loss is the decrease in the quantity or quality of food resulting from decisions and actions by food suppliers from the production stage in the chain, excluding retail, food service providers and consumers. Food Waste is the decrease in the quantity or quality of food resulting from decisions and actions by retailers, food services and consumers.'

Standardised agreed-upon FLW definition

However, to date, there is no standardised and globally agreed-upon definition for FLW. For example, the European Union (EU) uses a different definition than the FAO. In projects, it is advisable to establish a common definition as a first step. This definition should ideally align with existing international definitions to ensure comparability of data collection. [Table 1](#) shows more about the currently applied FLW definitions.

Differences in the international applied FLW definitions

The differences in FLW definitions can be summarised into five main topics:

1. Scope on-farm losses, 2. Destinations, 3. Edible/inedible, 4. Drinks and liquids and 5. Quantitative and qualitative losses. Those five topics are described and visualised below in more detail.

1. Scope on-farm losses

The starting point of the FLW definition differs per source. The FLW definition always start on-farm, but the starting activity differs. Some FLW definitions start when the produce is ready-to-harvest (pre-harvest/pre-slaughter), while other FLW definitions start at the moment of the harvest activity itself (harvest/slaughter) or after harvesting (on-farm post harvest/slaughter operations) (Figure 1).

In the applied FLW definition in this project (FAO 2019), the FLW definition starts when the produce is ready-to-harvest (pre-harvest/pre-slaughter).

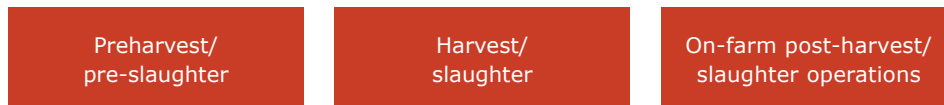


Figure 1: Starting point FLW definition

2. Destinations

Products produced for human consumption, but do not end up as food for consumers, need to go to another destination. Possible destinations are provided in Figure 2. Some FLW definitions include all these provided destinations as FLW, while other FLW definitions exclude animal feed and biomaterial/processing. The destination not harvested can only be included in the FLW definition if the preharvest and/or harvest losses are included in the FLW definition (see 1. Scope on-farm losses).

In the applied FLW definition for this project (FAO 2019) the destinations animal feed and biomaterial/processing are excluded from the FLW definition.

- Animal feed
- Biomaterial/processing
- Co/anaerobic digestion
- Compost/aerobic
- Controlled combustion
- Land application
- Landfill
- Not harvested
- Refuse/discards
- Sewer



Figure 2: Possible destinations of side-streams that do not end up for human consumption

3. Edible/inedible

FLW definitions can include both edible and inedible parts of food, or only include the edible fraction of the food (Figure 3). What part of the food is edible or inedible is culturally decided and therefore subjective. Sometimes the terminology avoidable and unavoidable are used. Although there is a minor difference, we consider them here as equivalent to edible and inedible respectively.

The applied FLW definition for this project (FAO 2019) only includes the edible fraction of food as part of FLW.



Edible + inedible parts of banana

Edible peeled banana

Inedible banana peel

Figure 3: Difference between edible and inedible parts of banana

4. Drinks and liquids

The FLW definition include the term food. However the loss and waste of drinks and liquids is less clear. Some FLW definitions mention the loss and waste of water, food products diluted with water, other liquids, and dairy and dairy-based products specifically, while other FLW definitions do not include these products (Figure 4).

The applied FLW definition in this project (FAO 2019) mentions specifically that FLW includes drinks and any substance used in the manufacture, preparation or treatment of food.



Figure 4: Different types of drinks and liquids

5. Quantitative and qualitative losses

Some FLW definitions include both quantitative and qualitative loss and waste along the food supply chain, while other FLW definitions do not consider loss in quality (nutritional losses, cosmetic losses, or loss in food safety) as FLW (Figure 5). Some FLW definitions even include the overconsumption beyond actual dietary requirements as a form of FLW.

The applied FLW definition in this project (FAO 2019) includes both quantitative and qualitative losses as a form of FLW.

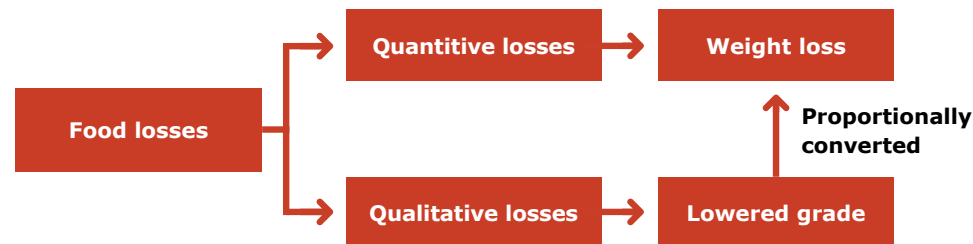


Figure 5: Quantitative and qualitative losses

Terminology

Last but not least, one should be aware that 'food waste' is a very sensitive term and topic. Companies therefore frequently prefer using other terms. In the biobased domain, the terms 'side streams' or 'biomass' are used, covering all parts of the product that don't end up as human food.

References

- 1 FAO. 2019. The State of Food and Agriculture 2019. Moving forward on food loss and waste reduction. Rome. Licence: CC BY-NC-SA 3.0 IGO. <https://www.fao.org/3/ca6030en/ca6030en.pdf>

Table 1

	FAO 2019	SDG 12.3	WRI	EU FUSIONS	EU regulation
Source	https://www.fao.org/3/ca6030en/ca6030en.pdf	https://champions123.org/sites/default/files/2020-09/champions-12-3-guidance-on-interpreting-sdg-target-12-3.pdf	https://files.wri.org/d8/s3fs-public/FLW_Standard_final_2016.pdf	https://www.eu-fusions.org/phocadownload/Publications/FUSIONS%20Definitional%20Framework%20for%20Food%20Waste%202014.pdf	DIRECTIVE (EU) 2018/851 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 amending Directive 2008/98/EC on waste Commission delegated decision (EU) 2019/1597 Guidance on reporting of data on food waste and food waste prevention according to Commission Implementing Decision (EU) 2019/2000
General definition	<p>For the purposes of this report, food loss and waste is understood as the decrease in quantity or quality of food along the food supply chain. Food refers to any substance, whether processed, semi-processed or raw, intended for human consumption.</p> <p>Food loss is the decrease in the quantity or quality of food resulting from decisions and actions by food suppliers from the production stage in the chain, excluding retail, food service providers and consumers. Food waste is the decrease in the quantity or quality of food resulting from decisions and actions by retailers, food services and consumers.</p> <p>Quantitative food loss and waste (also referred to as physical food loss and waste) is the decrease in the mass of food destined for human consumption as it is removed from the food supply chain.</p> <p>Qualitative food loss and waste refers to the decrease in food attributes that reduces its value in terms of intended use. It can result in reduced nutritional value (e.g. smaller amounts of vitamin C in bruised fruits) and/or the economic value of food because of non-compliance with quality standards. Food that has suffered a qualitative loss or waste but is still eaten by humans is not considered a quantitative loss or waste. If either consumers or suppliers discard such food, it is characterised as quantitative food loss or waste, unless diverted to productive use.</p>	<p>Food loss and waste includes both 'food' intended for human consumption and its associated 'inedible parts'. Food loss and waste covers all possible destinations beyond the human food supply chain including 'not harvested/plowed-in', but excluding the destinations animal feed and biobased materials/biochemical processing (where material is converted into industrial products).</p>	<p>Food loss and waste refers to the edible parts of plants and animals produced or harvested for human consumption but not ultimately consumed by people.</p>	<p>Food waste is any food, and inedible parts of food, removed from the food supply chain to be recovered or disposed (including composted, crops ploughed in/not harvested, anaerobic digestion, bio-energy production, co-generation, incineration, disposal to sewer, landfill or discarded to sea), but excluding animal feed and bio-based materials/ biochemical processing. There is no separate definition for food loss.</p>	<p>Food waste is all unprocessed, partially processed or processed product that, produced for human consumption and intended to be, or reasonably expected to be ingested by humans, but which the holder discards or intends or is required to discard. Including edible and inedible parts, and excluding animal feed, ingredients and chemicals as a destination.</p> <p>All food discarded as waste is covered in the EU simply as food waste, while concept of food loss is used rather to describe loss of food in primary production (e.g. pre-harvest losses), which is excluded from the scope of Waste Framework Directive.</p> <p>From these pieces of information: food waste means all food as defined in Article 2 of Regulation (EC) No 178/2002 of the European Parliament and of the Council (*) that has become waste. 'Food (or 'foodstuff') means any substance or product, whether processed, partially processed or unprocessed, intended to be, or reasonably expected to be ingested by humans.'</p>

	FAO 2019	SDG 12.3	WRI	EU FUSIONS	EU regulation
Scope on-farm losses	<p>Food products can be of animal or plant origin and are considered food from the moment that: (i) crops are harvest-mature or suitable for their purpose; (ii) animals are ready for slaughter; (iii) milk is drawn from the udder; (iv) eggs are laid by a bird; (v) aquaculture fish is mature in the pond; and (vi) wild fish are caught with fishing gear.</p> <p>(i) agricultural production and harvest/ slaughter/catch; (ii) post-harvest/slaughter/ catch operations; (iii) storage; (iv) transportation; (v) processing; (vi) wholesale and retail; and (vii) consumption by households and food services. Agricultural production, harvest and post-harvest/ slaughter/catch operations refer to activities where produce is still on the farm or the producer's premises.</p>	<p>One should interpret Target 12.3 as covering the entire food supply chain, from the point that crops and livestock are ready for harvest or slaughter.</p>	<p>Produce refers to the point at which the raw material for food are ready for harvest or slaughter (i.e., ready to enter the economic and technical system for food production or home-grown consumption). Examples of what might be considered 'ready to harvest or slaughter' include the following:</p> <ul style="list-style-type: none"> • Crops that are harvest-mature or suitable for their purpose • Fruit and berries that are mature for harvest • Wild crops, fruits and berries that are harvested • Animals ready for slaughter • Wild animals caught or killed (live-weight) • Milk drawn from the udder • Eggs laid by the bird • Aquaculture fish mature in the pond. 	<p>The food supply chain starts when the raw materials for food are ready to enter the economic and technical system for food production or home-grown consumption. This is a key distinction in that any products ready for harvest or slaughter being removed are within scope, not just those that are harvested and subsequently not used. It ends when the food is consumed or 'removed' from the food supply chain.</p>	<p>The food waste definition starts at primary production from the moment of harvesting (plants) or live animals placed on the market for human consumption, which means when they are ready to offer for sale.</p> <p>Based on this information: food does not include live animals unless they are prepared for placing on the market for human consumption, and it does not include plants prior to harvesting. Placing on the market means the holding of food or feed for the purpose of sale, including offering for sale or any other form of transfer, whether free of charge or not, and the sale, distribution, and other forms of transfer themselves.</p>
Destinations of FLW	<p>FLW destinations include co-digestion/ anaerobic digestion, incineration/landfill/ discard, compost, and other waste use. Animal feed, industrial use (including biofuels, fibres for packaging material, creating bioplastics, making traditional materials such as leather or feathers (e.g. for pillows) and rendering fat, oil or grease into a raw material to make soaps, biodiesel or cosmetics), and other uses (including uses such as fertiliser and ground cover) are excluded from the definition.</p>	<p>All side streams that exit the human food chain, excluding animal feed and biomaterial/processing. So FLW destinations include digestion, composting, combustion, land application, landfill, not harvested, plowed-in, refuse/discards, and sewer.</p>	<p>Users of the FLW Standard shall account for and report as much as is known about the destination of the FLW. 'Destination' refers to where material removed from the food supply chain is directed.</p> <p>There is a range of possible destinations, which represent a range of alternative uses and potential value. The categories used in the FLW Standard are: Animal feed, bio-based materials/biochemical processing, codigestion/anaerobic digestion, composting/aerobic processes, controlled combustion, land application, landfill, not harvested/plowed in, refuse/discards/litter, and sewer/wastewater treatment.</p> <p>The destinations that are to be considered 'loss and waste' are defined by the entity's goal, local legislation, external policy, voluntary program, or another source separate from the FLW protocol. This means that no FLW definition is provided regarding the destinations.</p>	<p>Any food, and inedible parts of food, removed from the food supply chain sent to destinations composting, plough-in/ not harvested, anaerobic digestion, bio-energy, co-generation, incineration, sewer, landfill, or discards are termed 'food waste'. Any food, or inedible parts of food, sent to animal feed, bio-material processing or other industrial uses are termed 'valorisation and conversion' and are distinct from 'food waste'.</p>	<p>All non-human consumption destinations are included, as it is stated as 'ingested by humans'. The valorisation of unavoidable side flows (including inedible parts of food) towards animal feed, ingredients/texture processing and fibres, and chemicals/bacterial conversion is a priority. Substances destined for use as feed material are excluded from the scope and should therefore not be measured as food waste. Information on food originally intended for human consumption and then directed to animal feed is important for the understanding of material flows related to food and may be useful in planning a targeted food waste prevention policy.</p>

	FAO 2019	SDG 12.3	WRI	EU FUSIONS	EU regulation
Edible and inedible parts	Inedible parts are not considered as food loss or waste.	Both the food and its associated inedible parts, such as bones, rinds and pits, are part of FLW.	Depending on the goals of quantification, an entity may account for 1) both food and associated inedible parts, 2) food only, or 3) associated inedible parts only.	Food and inedible parts of food that are removed from the supply chain to be recovered or disposed of. So both are part of FLW. Where possible the edible and inedible fractions should be separately analysed or estimated. However including both edible and inedible parts of food in the technical framework is a key to ensuring that the framework can be practically used by all stakeholders in the food supply chain, since it is not always feasible to separately collect edible and inedible parts of food.	Food includes the entire food, including all its parts, both that which is edible and that which is not intended to be eaten.
Drinks and liquid	Food refers to any substance, whether processed, semi-processed or raw, intended for human consumption. It includes drink, chewing gum and any substance used in the manufacture, preparation or treatment of food but does not include cosmetics, tobacco or substances used only as drugs.	Drinks and liquids are not mentioned specifically.	Dairy, drinks and liquids are considered.	It covers both food and drink waste, and hence both solid and liquid disposal routes.	'Food' includes drink, chewing gum and any substance, including water, intentionally incorporated into the food during its manufacture, preparation or treatment. It includes water after the point of compliance as defined in Article 6 of Directive 98/83/EC and without prejudice to the requirements of Directives 80/778/EEC and 98/83/EC. Foods which are usually discarded as or with wastewater should not be measured as food waste as there are currently no methods for measuring such waste that would ensure sufficient levels of confidence and comparability of reported data. However, reporting may be possible.
Quantitative and qualitative losses	Quantitative and qualitative losses included.	Only quantitative losses included.	Only quantitative losses included.	Only quantitative losses included.	Only quantitative losses included.