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Guidance on reporting of data on food waste and food waste prevention according to Commission Implementing Decision (EU) 2019/2000

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1 Legal basis

The Waste Framework Directive (2008/98/EC) establishes an annual reporting obligation on food waste generation as of reference year 2020. The aim of the reporting is to monitor and assess the implementation of the food waste prevention measures in Member States based on a common methodology by measuring the levels of food waste at the different stages of the food supply chain.

The common methodology is laid down in:

[Commission delegated decision \(EU\) 2019/1597 of 3 May 2019 supplementing Directive 2008/98/EC of the European Parliament and Council as regards a common methodology and minimum quality requirements for the uniform measurement of levels of food waste](#)

The reporting format is defined in:

[Commission implementing decision \(EU\) 2019/2000 of 28 November 2019 laying down a format for reporting of data on food waste and for submission of the quality check report in accordance with Directive 2008/98/EC of the European Parliament and of the Council](#)

This guidance document aims to support the harmonised reporting of the data on food waste and on food surplus by providing instructions and explanations based on the provisions of the legal acts and on the methodological framework.

The guidance addresses primarily the reporting of food waste and food surplus data collection, as well as the reporting of the applied methodology for data gathering and calculation. Presently, the guidance does not provide methodological advice and guidelines on how to collect the data. The aspect of methodology to improve quality of data collection is addressed through reference to existing guidance documents, good-practice examples and state of the art standards.

1.1 Time schedule for reporting of the data on the level of food waste

The first mandatory reference year for reporting (data and quality report) is the year 2020. The deadline for submission of the data and quality report is 30/6/2022. Eurostat launched the first voluntary data collection already in year 2020 for the reference year 2018. For the first voluntary data collection, Member States were encouraged to submit their best possible estimates. This year, Eurostat is launching the second and last voluntary data collection for reference year 2019, under the same conditions stated in the previous year. Countries are encouraged to provide, voluntarily, also reference years prior to year 2019.

The first reference year for reporting is defined in Article 9(5) of Directive 2008/98/EC: *“Member States shall monitor and assess the implementation of their food waste prevention measures by measuring the levels of food waste on the basis of the methodology established by the delegated act referred to in paragraph 8, as from the first full calendar year after the adoption of that delegated act.”* The Delegated Decision (EU) 2019/1597 is of 3 May 2019, which makes 2020 the first reporting year.

Art 37 (3) of Directive 2008/98/EC sets out that *“Member States shall report the data concerning the implementation of Article 9(4) and (5) to the Commission every year. They*

shall report the data electronically within 18 months of the end of the reporting year for which the data are collected. The data shall be reported in the format established by the Commission in accordance with paragraph 7 of this Article.” As a consequence the first deadline to submit data on a mandatory basis is 30/6/2022.

2 Introduction

The Waste Framework Directive (2008/98/EC) establishes an annual reporting obligation on food waste generation as of reference year 2020. The basis for the data collection on food waste is the Delegated Decision as well as the Implementing Decision on food waste¹. The first reference year for obligatory reporting is 2020 to be reported before 30 June 2022.

Eurostat started in 2020, for reference year 2018, the collection of food waste data on a voluntary basis with a new questionnaire so countries could get acquainted to the new data collection. Also in 2021, for the reference year 2019, Eurostat and DG SANTE encourage the reporting countries to provide data on a voluntary basis. This exercise would allow the European Commission to identify reporting and methodological challenges, to improve the guidance for countries and to further improve the food waste estimates that Eurostat currently publishes as part of the indicator set used to monitor progress towards a circular economy².

In addition, Eurostat will continue until 2022 to collect food waste data with the help of the food waste plug-in, which is also based on voluntary data deliveries of the Member States in the context of the Waste Statistics Regulation. Therefore, there is no food waste plug-in exercise foreseen for reference year 2019, as it occurs every two years, but still the countries may submit revisions of the previously reported reference years. Information on food waste plug-in are provided in the Annex 3 “Methodological review on the Eurostat food waste plug-in”. It is important to highlight that countries currently reporting under the scheme of the food waste plugin cannot automatically fill in the positions for the new food waste data collection. There are several differences in the definitions between the two collections, in particular the new data collection covers only food waste arisen from food according to the definitions explained in Chapter 3 of this document. Moreover, countries have to pay attention to account in the reporting for the new data collection only the LoW codes indicated in this document in Annex I. Data arisen from LoW codes previously reported in the plugin (see Annex III Table 2) and not appearing in the list in Annex I must not be accounted in the new reporting, since they are excluded in the definition of food waste (see chapter 3 of this document). Finally, differently from the plugin exercise, the new questionnaire is only measuring generation of food waste amounts and measuring food waste prevention (food reused or recycled as feed, not yet becoming waste). The final treatment and processing of food waste is not covered in this reporting, therefore any transformation arising from food

¹ The text of the Delegated Decision on food waste is available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1582025823480&uri=CELEX:32019D1597>
*OJ L 248, 27.9.2019, p. 77–85*¹

The text of the Implementing Decision on food waste is available at: <https://eur-lex.europa.eu/legal-content/AUTO/?uri=CELEX:32019D2000&qid=1581672510293&rid=6>
OJ L 310, 2.12.2019, p. 39–45

² The circular economy website of Eurostat is accessible at: <https://ec.europa.eu/eurostat/web/circular-economy>

waste recycling, energy recovery, or any disposal up to landfilling are not covered in the new questionnaire.

For the transition period 2020-2022, Eurostat encourages countries to submit with the new questionnaire and/or with the plugin exercise (ideally both). In March 2020, the Waste Statistics Working Group was consulted on a draft version of this guidance document and the accompanying Excel file with the questionnaire and quality report. Following this consultation, the main explanations introduced to the guidance document were:

- Disclaimer on the difference between plugin and the new food waste data collection (chapter 2).
- Indication on how to report home composting, when data are available (chapter 3.2)
- More explanations on the unit of measurement (**tonnes of fresh mass**) and estimation methodology (chapter 4.2)
- Update of the list of standard guidelines and methodologies (chapter 6)

3 General scope, definitions and measurement methodology applied in the reporting

3.1 General scope and definitions

The objective of this reporting is to provide to policy makers the means for monitoring, **food waste** and supporting food waste prevention, in particular edible food waste prevention.

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.

Edible food parts are the components associated with a food, in its fresh mass status, that are usually consumed by humans, either as-is (raw consumption) or after processing or cooking. The definition of edible food parts might differ from country to country, or from region to region, according to local culture and habits.

Food encompasses food as a whole, along the entire **food supply chain** from production until consumption. Food also includes **inedible parts**, where those were not separated as **by products**³ from the **edible** parts when the food was produced (including all the stages of production, processing and distribution), such as bones attached to meat destined for human consumption, orange peels, seeds... According to **General Food Law Regulation** (Regulation (EC) No 178/2002, namely GFLR), food includes water intended for human consumption⁴, drink, chewing gum and any substance including water, incorporated into the food during its manufacture, preparation or treatment. Food must not include feed, live animals not placed on the market for human consumption, plants prior to harvesting (also for the case of plants not harvested for economical reasons), medicinal products, cosmetics, tobacco and tobacco products, narcotic or psychotropic substances, residues and contaminants.

Food waste is any **food** that has become waste under these conditions:

1. it has entered the food supply chain,
2. it then has been removed or discarded from the food supply chain or at the final consumption stage,
3. it is finally destined to be processed as waste.

Therefore, food waste can comprise items which include parts of food intended to be ingested (edible food) and parts of food not intended to be ingested (inedible food).

³ In the reporting exercise, it is necessary to analyse the final destiny of the by-products: in fact, the by-product originating from food (e.g. bone destined for non-food use) that has not been used and has been finally wasted would still be counted as food waste; in addition, when a by-product is separated before food production it will not count as food waste (e.g. the straw separated from grains, if wasted will not be counted as food waste).

⁴ water intended for human consumption is defined according to Article 6 of the Directive 98/83/EC:
<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:01998L0083-20151027&from=EN>

3.2 Scope of food waste measurement

Food waste measurement does not include losses at stages of the food supply chain where certain products have not yet become food (for instance, not harvested crops or animals killed due to zoonosis). Food waste measurement does not include:

- agricultural material and animal by-products (both are not considered waste under waste framework directive),
- food waste residues collected within packaging (code '15 01 — Packaging including separately collected municipal packaging waste),
- food waste residues classified under waste code: '20 03 03 — Street cleaning residues',
- non-food materials that are mixed together with food waste (whenever it is feasible to exclude these quantities from the measurements).

The measurement of food waste excludes food waste drained as or with wastewater and parts that are destined for transformation or direct use as feed products (both these amounts can be reported on a voluntary basis, whenever separate measurements are available).

The objective of the data collection is to identify the sole component of food waste related to the products that entered the human food supply chain. Products usually traded as food but that never entered the human food chain, such as:

- products that did not meet the requirements for becoming food e.g.:
 - **food losses** resulting from plants affected by mycosis, animals affected by zoonosis or epizootic diseases, whose final destiny is usually incineration (excluded from WFD)
 - animals treated with specific medicaments and not anymore admitted for human consumption,
 - imports of food with not admitted additives by a single MS legislation or EU legislation,
 - food frauds
- products directly marketed as feed and that has never been introduced in the food chain or put on the market as food
- by-products resulting from food production, processing and manufacturing and destined for other purposes (as animal by-products), since they are not becoming waste

are excluded from food waste reporting or food waste prevention reporting.

This is extensively addressed in the WFD, in Article 2 (exclusion from waste reporting under this framework), therefore, whatever is already excluded from the reporting in the WFD, even though including products meant as food, are excluded also in this reporting. The scope of the reporting is in fact to allow the reporting countries to focus on the “big picture” of the food waste collections and not on small unmeasurable variables.

As mentioned, food drained as or with wastewaters is not considered for the objective of this reporting, principally because there are no measuring methods which would ensure confidence and comparability of the reported data. Therefore it shall be reported in table 1 in

a separate column and shall not be accounted (not summed) in the total food waste. In this category there can be the reporting also of the water to clean or cook raw materials in factories or at home, which may contain food.

As a general principle, Commission Implementing Decision (EU) 2019/2000 excludes from the definition of food (and therefore the accounting as food waste generation), any amount arising from products excluded by the precautionary principles stated in the laws concerned on human health and consumers' interest in relation to food. Those amounts must never be reported as food waste.

In order to clarify the former definitions, a list of examples of interpretation of common cases is here provided:

- If an animal has a disease and, even if initially was foreseen for human consumption, it cannot be any longer slaughtered and destined as food, therefore it cannot be accounted as food waste, because it was not finally put on the market as food. Any treatment of the discarded animal (or of its parts) will then either fall under food loss (for instance incineration due to zoonosis⁵) or under by-product use, and must not be reported under the scope of Commission Implementing Decision (EU) 2019/2000.
- If an animal (or parts of it) is instead marketed as food and then during any stage of food production, processing, or distribution is wasted (for instance “cold chain” is interrupted and there is the risk of bacteria et cetera), then it has to be accounted as food waste.
- If an healthy animal (or part of it), initially meant to become food, is instead used for any other purpose than human consumption as food (for instance a by-product use) then the animal or the parts of it are actually not becoming food waste and these amounts must not be reported under the scope of Commission Implementing Decision (EU) 2019/2000. In this case this animal (or its parts) is excluded from the food processing flow as it is undergoing other types of processing flows (cosmetics, chemicals...), and the arising amounts of waste will therefore be accounted under other product types classifications. However, if the total amount of that by-product is entirely becoming waste, this should still be accounted as food waste
- During the slaughtering food processing, the amounts drained as or with wastewaters (for instance the animal blood and the parts of the animal that are washed) are excluded from being accounted as food waste by virtue of Art.1 point 5a of Commission Delegated Decision (EU) 2019/1507, but can be reported on voluntary basis in column “Food drained as or with wastewaters”; however, if those liquid amounts are not drained with waste waters but are separately processed as waste (for instance as sludge), these amounts should be still be reported as food waste. In this situation, it is necessary to account those separately treated liquid amounts and to declare the related processing information in the quality report.
- Discarded vegetal food products, initially harvested and meant for human consumption as food, that are then detected to be contaminated and cannot therefore

⁵ According to Article 2 point 2(c) of the Waste Framework Directory; see also Zoonosis in the glossary in Annex II of this document

be further processed or placed on the market as food, cannot be reported as food waste amounts. Those discards are in fact food losses, since consumers protection laws exclude the possibility to classify such products as food.

- The Commission Implementing Decision (EU) 2019/2000 requires that countries report the amounts of food waste generation; any type of subsequent food waste treatment and recovery operation is not covered by this reporting obligation.

For what concerns amounts of food waste retained for **home composting**, that cannot therefore be measured from standard municipal waste collection systems, there is not yet an overview of applicable methodologies for measuring food waste retained in the households for own use for home composting.

For this reason DG Sante and Eurostat suggest to use the average amount of food waste as measured in standard municipal waste collection system. However if a reporting country possess specific data on food waste in home composting, resulting from the measurement for the need of [Decision 2011/753/EU](#) (Commission Decision of 18 November 2011 establishing rules and calculation methods for verifying compliance with the targets set in Article 11(2) of Directive 2008/98/EC) or from [Commission Implementing Decision 2019/1004](#) (Commission Implementing Decision 2019/1004 of 7 June 2019 laying down rules for the calculation, verification and reporting of data on waste in accordance with Directive 2008/98/EC of the European Parliament and of the Council and repealing Commission Implementing Decision C(2012) 2384) it may add these amounts in the corresponding food waste measured amounts. The reporting under these Decisions may be valid if there is for instance an impact of lower food waste reporting in rural areas.

More information for countries that are reporting as of Decision 2011/753/EU can be summarised in this subparagraph:

The Waste Framework Directive recalls to home composting in the new Article 22(1) first paragraph, where it makes separate collection of biowaste (also for home composting) obligatory. In this article there is also a call to Member States to encourage home composting.

Home composting has been addressed in the [decision 2011/753/EU](#): Commission Decision of 18 November 2011 establishing rules and calculation methods for verifying compliance with the targets set in Article 11(2) of Directive 2008/98/EC

In the description of calculation methods (Annex I) there is a request that “Where a Member State includes home-composted waste in the calculation it shall explain how the amounts generated and recycled have been calculated”.

Moreover, in the reporting table (Annex II) were Member States are asked to give amounts of recycled bio-waste (separately for kitchen waste and garden waste) Member States are asked “ Please indicate whether home-composted waste is included”.

Therefore, countries which have home composting large enough to count in the recycling targets, may have the data on amounts of food waste (in practice it will be equivalent of: biodegradable canteen and kitchen waste 20 01 08) and could be able to provide this information.

In such case, it is recommended to indicate in the questionnaire “Reporting on food waste and food waste prevention” sheet “Quality Report”, in the section 4 and/or 5, the sentence: “including food waste measured from home composting according to Decision 2011/753/EU”

More information for countries that are reporting as of Commission Implementing Decision 2019/1004 can be summarised in this subparagraph:

Commission Implementing Decision 2019/1004 outlines the rules on calculation, verification and reporting of data on waste in accordance with Directive 2008/98/EC (WFD).

This Decision implements the specific rule on home composting in the Waste Framework Directive and provides rules on how to calculate the amount of bio-waste recycled at source for MS.

According to Art. 1(g) of the Decision defines ‘municipal bio-waste separated and recycled at source’ as: “municipal bio-waste that is recycled at the place where it is produced by the persons who produce it.” Home composting can be accounted for in municipal waste that is generated and recycled at source.

There are however many conditions on this (e.g. annex II, point 4(b), point 5 and 6, 7).

There are clear rules on how it is to be measured. It also depends how reporting countries are measuring and whether they separate green from food waste, according to annex V, part A.

3.3 Methodology of food waste measurement

In the Delegated Decision 2019/1597 Article 2 you will find all the details related to the **methodology for the measurement of food waste**, as here explained, by points:

Point 1 and point 5: the reporting country must measure and report the amount of food waste generated in a full calendar year; the amounts of food waste shall be measured in tonnes of fresh mass.

Point 2. the reporting country should measure the amount of food waste for any given stage of the food supply chain using the methodology of direct measurement, mass balances or coefficients (set out in Annex III of the Delegated Decision) at least once every four years.

Point 4: For the first mandatory reporting period, Member States shall measure the amount of food waste for all stages of the food supply chain using the methodology set out in Annex III. For that period, Member States may use data already collected under existing arrangements for the year 2017 or later. Please notice that the wording mandatory has been added here to highlight that, for the voluntary reference year 2018 and 2019, you can choose on the basis of available data, but for data of reference year 2020 you must establish a measurement according to ANNEX III. The deadline for reporting for reference year 2020 will be end of June 2022.

Point 3. for the years and stages of the supply chain where the methodology of direct measurement (as set out in Annex III) is not available, the measurement shall follow the methodologies set out in Annex IV of the Delegated Decision, which may consist of:

- Method a: estimation using the available data on food waste from the measurements according to ANNEX III from previous years, applied to the related stage and the **total waste amounts from the Waste Statistics Regulation (WStatR)**. The estimate consist of:
 - identifying the share of food waste in a specific stage according to ANNEX III method ($FW_{year,stage}$) towards totals of waste derived from the data collected under the Waste Statistics Regulation ($TW_{year,stage}$), in the same years, as of the codes defined in Annex I and Annex II of the Delegated Decision in the applied stage for the available measured years.
 - This coefficient is multiplied with the total waste amount reported in the reference year, for the specific stage, according to the same codes used in the previous calculation.

Example on the estimation of food waste in the **primary production** stage for year 2017: there were measures for the food waste amounts according to Annex III for the primary production stage in years 2011, 2014 and 2016; these amounts were $FW_{2011,pp}$, $FW_{2014,pp}$ and $FW_{2016,pp}$. For each year, the reporter takes the waste amounts declared under the codes 02 01 02 (animal-tissue waste) and 02 01 03 (plant-tissue waste) coming from the WStatR and corresponding to the primary production and we sum them, obtaining:

$$TW_{2011,pp} = W_{2011,pp,02\ 01\ 02} + W_{2011,pp,02\ 01\ 03}$$

$$TW_{2014,pp} = W_{2014,pp,02\ 01\ 02} + W_{2014,pp,02\ 01\ 03}$$

$$TW_{2016,pp} = W_{2016,pp,02\ 01\ 02} + W_{2016,pp,02\ 01\ 03}$$

The final estimated share will be:

$$S_{FW} = (FW_{2011,pp} + FW_{2014,pp} + FW_{2016,pp}) / (TW_{2011,pp} + TW_{2014,pp} + TW_{2016,pp})$$

The estimated food waste for year 2017, based on the total waste in production stage taken from WStatR, is calculated as follows:

$$TW_{2017,pp} = W_{2017pp,02\ 01\ 02} + W_{2017,pp,02\ 01\ 03}$$

$$FW_{2017,pp,estimated, Ma} = S_{FW} * TW_{2017,pp}$$

- Method b: estimation using the available data of food waste from the previous year for a specific stage multiplied by the ratio of some suitable socio economic indicators for the new reference year versus the previous years

Example on the estimation of food waste from **primary production** for year 2017: there were measures for the food waste amounts according to Annex III for the primary production in year 2016; this amount was $FW_{2016,pp}$. The reporter has the indicator $FP_{AFH,2016,pp}$ (food production in agriculture, fishery and hunting for year 2016, stage primary production) for year 2016 and $FP_{AFH,2017,pp}$ for year 2017:

$$FW_{2017,pp,estimated, Mb} = FW_{2016,pp} * FP_{AFH,2017,pp} / FP_{AFH,2016,pp}$$

where the factor $FP_{AFH,2017,pp} / FP_{AFH,2016,pp}$ represents the rate of change between year 2017 and year 2016 of the socioeconomic indicator. This formula is already valuable if there is a constant trend for the specific economic indicators. If there is a big value oscillation in the indicator values it is suggested to use, as an approximation, the average of several years, example:

$$FW_{2017,pp,estimated,Mb} = AV_{years=2011..2016}(FW_{year,pp}) * FP_{AFH,2017,pp} / AV_{years=2011..2016}(FP_{AFH,year,pp})$$

where, in the example:

$$AV_{years=2011..2016}(FW_{year,pp}) = (FW_{2011,pp} + FW_{2012,pp} + \dots + FW_{2016,pp})/6$$

$$AV_{years=2011..2016}(FP_{AFH,year,pp}) = (FP_{AFH,2011,pp} + FP_{AFH,2012,pp} + \dots + FP_{AFH,2016,pp})/6$$

And 6 is the number of years taken into consideration

- Method a and b combined: a combination of the two aforementioned methods, which will provide a better estimation

Example: the average of the previous two examples:

$$FW_{2017,pp,estimated,final} = (FW_{2017,pp,estimated,Ma} + FW_{2017,pp,estimated,Mb})/2$$

In order to ensure good data quality, the Delegated Decision 2019/1597 Article 4 establishes minimum quality requirements, which are:

Point 1: Countries shall take appropriate measures to ensure the reliability and accuracy of the measurements of food waste. In particular:

(a) the measurements according to the methodology in Annex III must be based on a representative sample for each stage of the food supply chain, based on the dimensions of the economic activities or the population to which the methods are applied, possibly providing also any information that can support the validation of those data (this is covered in the quality report in sections 3 and 4);

(b) the measurements conducted in accordance with the methodology set out in Annex IV are based on the best information available (this is covered in the quality report in sections 3 and 5);

Point 2: the reporting country shall provide the information on the methods used for measurement of food waste for each of the stages of the food supply chain and on any significant modifications to the methods used in comparison with the methods used for a previous measurement (this is covered in the quality report in sections 3, 4 and 5).

Finally, it is worth mentioning that the new questionnaire is only measuring generation of food waste amounts and measuring food waste prevention (food reused or recycled as feed, not yet becoming waste). The final treatment and processing of food waste is not covered in this reporting, therefore any transformation arising from food waste recycling, energy recovery, or any disposal up to landfilling are not covered in this questionnaire.

4 Completing the annual reporting questionnaire on food waste and food waste prevention

4.1 General instructions

According to Article 1 of Implementing Decision (EU) 2019/2000, Eurostat has prepared an Excel questionnaire for reporting the data on food waste and food waste prevention (in sheets Table 1 and Table 2) and the quality report (in sheet Quality Report), according to Annex I to IV of the Delegated Decision (EU) 2019/1597 and the Annex of Implementing Decision (EU) 2019/2000 . All amounts have to be entered in tonnes of fresh mass.

The amounts in Table 1 and Table 2 are all referring to the reference year indicated in the **Basic instructions sheet**. In the Quality Report, attention should be paid to the columns referred as Year in table 5: these are the ones from which you retrieved the data by which you estimated data reported in the reference year.

Please distinguish carefully between real zeros (0 tonnes of fresh mass) and An empty field means that the value is missing, i.e. you cannot provide any value. A “0” in a field means, that nothing is to be reported, i.e. e.g. no food waste is generated in a sector. It is mandatory to enter “0” for real zeros. In case of revisions, the cells that are empty will provoke a deletion of any former datum in that position from the previous submission. For revisions, the whole questionnaire has to be filled in.

Column “Standard footnote” is used to report:

- E if the data are originated from **estimates**, according to Annex IV of the Delegated Decision 2019/1597; please provide the required explanation of the methodology you used for the estimate in paragraph 5 of the quality report.
- D for **definition differs**, for all those cases in which the amounts reported are including or excluding other codes or categories which are not included in the scope of the reporting falling under this specific column; please indicate a detailed explanation in paragraph 7 of the quality report.

Column “Confidentiality footnote” is provided for the reporting of **confidential data**. The confidentiality claim can be applied only in the case that there are less than 3 statistical units and those data are not publicly available elsewhere. Please remember to report in section 8 of the quality report the reason for which your country is claiming for confidentiality in a specific stage of the food supply chain and column category.

4.2 Table 1: Data on food waste amounts

Table 1 has three reporting columns, where the amounts have to be expressed in **tonnes of fresh mass**.

Regarding the measurement in **tonnes of fresh mass**, in many countries there are seasonal effects on the measures of weight of food waste, resulting in the actual measure of the dry mass in place of fresh mass of food waste. Such phenomenon is usually imputed to the loss

of water originally contained in the food by evaporation or drained from the waste bin, especially occurring in summer time or whenever the food waste is not collected on a daily basis. When collecting those data, the best practice is to apply coefficients based on sample analyses, so to convert the dry mass to the **fresh mass estimates**, for instance the simplest method is:

$$\text{TotFW}_{\text{FM}} = \text{FW}_{\text{winter}} * K_{\text{winter}} + \text{FW}_{\text{spring}} * K_{\text{spring}} + \text{FW}_{\text{summer}} * K_{\text{summer}} + \text{FW}_{\text{autumn}} * K_{\text{autumn}}$$

Where **TotFW_{FM}** is the total food waste in fresh mass and FW is the measured weight of food waste (actual dry mass) and K are the conversion coefficients from dry to fresh mass. K will always be equal to or higher than 1, with 1 usually expected to occur in the winter season.

The first two columns are food waste according to the definition in Article 1 of Commission Delegated Decision (EU) 2019/1597; food waste reported here shall exclude amounts of food losses and food drained as or with wastewaters. As the unit is in **tonnes of fresh mass**, the food waste amounts shall include also an estimate of the water content when it was in the status of food fresh mass. These two columns must never include food drained as or with wastewaters. As the unit is in tonnes of fresh mass, the reported food waste amounts shall therefore include the estimation of the weight of the water content when the food was in the status of food fresh mass, according to the estimation methodology applied.

Country:												
Reference year:	2018											
Stage of the food supply chain	Total food waste according to Article 1 of 2019/1597*									Food drained as or with wastewaters		
	Total food waste**	Standard footnote	Confidentially footnote	Explanatory footnote	Of which: edible food waste***	Standard footnote	Confidentially footnote	Explanatory footnote	Food drained as or with wastewaters	Standard footnote	Confidentially footnote	Explanatory footnote
Primary production												
Processing and manufacturing												
Retail and other distribution of food												
Restaurants and food services												
Households												
Total												

Cell shading:

White: Data provision is mandatory.
Light blue (cyan): Data provision is voluntary.
Light orange: footnotes (only to be filled-in when relevant)
Light grey: The calculation of data is automatic and cannot be edited.

* Food waste as referred to in Article 1 of Commission Delegated Decision (EU) 2019/1597. Food waste reported here shall exclude amounts of *food losses* and *food drained as or with wastewaters*. As the unit is in tonnes of fresh mass, the food waste amounts shall include also an estimate of the water content when it was in the status of food fresh mass. Data on *food drained as or with wastewaters* are reported separately, also in tonnes of fresh mass.

** Total food waste including edible and inedible parts of the food but excluding food drained as or with wastewaters

*** Amounts of food waste excluding the inedible parts of the food

Valid standard footnote for food waste statistics in column 'Standard footnote':

E: estimated

D: definition differs

Confidentiality footnote for food waste statistics in column 'Confidentially footnote':

C: confidential data

1. Total food waste, mandatory, including edible and inedible parts of the food. This is the total amount of food waste generated in the Member State in the reference year. The

total amount of food waste shall be broken down by the five stages of the food supply chain which are set out in Annex I of Decision 2019/1597/EC on the basis of NACE codes. Please make sure that the data reflect the total food waste from the whole economy. Please allocate food waste generated under NACE codes listed in Annex I of Delegated Decision 2019/1597/EC to the five stages of the food supply chain as accurate as possible, taking into account all the amounts to be excluded from food waste, according to chapter “General definition” and describe any methodological change in the quality report in section 7. A significant share of food waste is usually disposed as part of the mixed municipal waste (LoW 20 03 01). Municipal waste consists mainly of waste from households but includes similar waste from other sources (e.g. from commercial and public services. Municipal waste should be allocated to the generating sectors,. , In the quality report it is to be described how the breakdown by stages has been determined.

2. **Of which: edible food waste**, (Article 3(a) of Delegated Decision 2019/1597) voluntary, contains only amounts of food waste belonging to formerly edible parts of the food in its fresh status; in practice, it is the amount of food waste resulting from the exclusion of the inedible parts of the food
3. **Data on food drained as or with wastewaters**, (Article 3(b) of Delegated Decision 2019/1597) voluntary, are reported separately in this column, in tonnes of fresh mass. This column is not considered as food waste according to definition in Article 1 of Commission Delegated Decision (EU) 2019/1597; it contains data on food that has been discarded through the sink.

4.3 Table 2: Data on management of food surplus related to food waste prevention

Table 2 has three reporting columns, where the amounts have to be expressed in tonnes of fresh mass; all data are voluntary. The data on the food waste prevention in table 2 are completely voluntary.

Reuse: food donation and other redistribution for human consumption (Article 3(c) of Delegated Decision 2019/1597): please report in this column the quantity of food that has been prevented from becoming waste by means of redistribution for human consumption. In particular your attention has to be driven to the reuse as food, either as donation, charity and whichever initiative has prevented it to become waste, or to be recycled or reused as feed, or the recycling as any other type of product (according to article 9 point 1 point h of WFD).

Former food provided to feed business operators for transformation into feed: (Article 3(d) of Delegated Decision 2019/1597) please report in this column the amount of food which is no longer intended for human consumption and placed on the market by food business operators (food producers, wholesalers or retailers) for transformation into feed by a feed business operator. The keywords and criteria of exclusion you have to use to prepare the survey and to identify survey respondents are:

- feed business operators (as defined in Article 3(6) of Regulation (EC) No 178/2002 and in Article 3(b) of Regulation (EC) No 183/2005): the operators having a licence to produce and distribute feed on the market, and that are purchasing food for transformation into feed.
 - Criteria of exclusion: if the feed business operator is also food business operator, which transforms his own food surplus in feed, the amounts have not to be reported in this column but in the next column; this information must be highlighted in the survey
- the amount to report is food, in tonnes of fresh mass, that is destined for the use as 'feed material' pursuant to feed legislation and has thus been prevented from becoming waste.
- food business operators (producers, distributors...) not having licence as feed business operators, that are placing food on the market for transformation into feed, as it is not anymore fulfilling the requirements for human consumptions

TABLE 2: Data on management of food surplus related to food waste prevention Unit: tonnes of fresh mass									
Country:									
Reference year:	2018								
Stage of the food supply chain	Reuse: food donation and other redistribution for human consumption	Standard footnote Confidentiality footnote	Explanatory footnote	Food provided to feed business operators for transformation into feed*	Standard footnote Confidentiality footnote	Explanatory footnote	Former food placed as feed on the market by operators registered simultaneously as food and feed business**	Standard footnote Confidentiality footnote	Explanatory footnote
Primary production									
Processing and manufacturing									
Retail and other distribution of food									
Restaurants and food services									
Households									
Total									

Cell shading:

Light blue (cyan): Data provision is voluntary.

Light orange: footnotes (only to be filled-in when relevant)

Light grey: The calculation of data is automatic and cannot be edited.

* Amounts of food which is no longer intended for human consumption and placed on the market by food business operators (food producers, wholesalers or retailers) for transformation into feed by a feed business operator as defined in Article 3(6) of Regulation (EC) No 178/2002 and in Article 3(b) of Regulation (EC) No 183/2005.

** 'Former foodstuffs' means food, other than catering reflux, which were manufactured for human consumption in full compliance with the EU food law but which are no longer intended for human consumption for practical or logistical reasons (for instance surplus) or due to problems of manufacturing or packaging defects or other defects and which do not present any health risks when used as feed (see point 3 of Part A of the Annex to Regulation (EU) No 68/2013 (Catalogue of feed materials)); the food had been transformed into feed by the food business operator. Therefore, he needs also registration as feed business operator.

Valid standard footnote for food waste statistics in column 'Standard footnote':

E: estimated

D: definition differs

Confidentiality footnote for food waste statistics in column 'Confidentiality footnote':

C: confidential data

Former food placed as feed on the market by operators registered simultaneously as food and feed business (Article 3(e) of Delegated Decision 2019/1597): please report in this column the amounts of food, in tonnes of fresh mass, that will be transformed into feed by the food business operators holding also a permission as feed business operators. 'Former foodstuff', as defined in feed legislation, means food, other than catering reflux, which were manufactured for human consumption in full compliance with the EU food law but which are no longer intended for human consumption for practical or logistical reasons (for instance surplus) or due to problems of manufacturing or packaging defects or other defects

and which do not present any health risks when used as feed (see point 3 of Part A of the Annex to Regulation (EU) No 68/2013 (Catalogue of feed materials)).

Please consider the comments on the distinction between these last two columns and ensure that double counting is avoided. If you should encounter problems in distinguishing between the two material flows please describe the problems in the quality report in section 6 of the quality report, and insert the whole amount in the column **Former food provided to feed business operators for transformation into feed** selecting D (definition differ) in column "Standard footnote".

4.4 Instructions for the completion of the quality report

This paragraph provides instructions on how to complete the quality report that has to be delivered together with the food waste data on an annual basis.

Please use the quality report template that is available in the excel questionnaire template form, sheet **Quality Report (QR)**.

The quality report focuses on the methodologies used for the collection and compilation of the data in **Table 1** and **Table 2**. In particular, the QR sections 3, 4 and 5 are devoted to the collection and compilation of mandatory data on **Total food waste** in **Table 1**.

QR section 6 asks for information on the methods used for the compilation of the voluntary data in the reporting tables 1 and 2.

QR section 7 requests information on methodological changes and on problems encountered, while QR section 8 requires the justification of confidentiality for data or information provided within the report. Finally, in QR section 9 countries shall provide references to websites and documents relevant in the context of food waste data.

The numbering of the QR sections in the following is identical with the numbering in Annex B of Implementing Decision (EU) 2019/2000.

QR section 1: Objectives of the report

This section provides a summary of the objective of the report.

QR section 2: General information

In this section the user must provide general information regarding the country and user that provides the information in the whole excel questionnaire. All the rows are compulsory

2. General information		Top
2.1. Member State		
2.2. Organisation submitting the data and the description		
2.3. Contact person / contact details		
2.4. Reference year		
2.5. Delivery date / version		
2.6. Link to data publication by the Member State (if any)		

QR section 3: General information on data collection

in this section you have to provide information on which methodology you have applied to measure, calculate or estimate the amounts for the in the mandatory column **Total food waste** for the reference year.

3. General information on data collection Top		
<i>Please indicate the methodology used to measure the amount of food waste generated in the given reporting year, for each stage of the food supply chain (mark with a cross the relevant cells to indicate if the data is collected using the methodology set out in Annex III or in Annex IV to Delegated Decision (EU) 2019/1597).</i>		
Stage of the food supply chain	Data collected using the methodology set out in Annex III to Delegated Decision (EU) 2019/1597	Data collected using the methodology set out in Annex IV to Delegated Decision (EU) 2019/1597
Primary production		
Processing and manufacturing		
Retail and other distribution of food		
Restaurants and food services		
Households		

The Delegated Decision 2019/1597/EC distinguishes between:

- Methods for the in-depth measurement of food waste according to Annex III (in Delegated Decision 2019/1597/EC), referring only to those performed in the reference year; cross the stages for which you have applied the related techniques and describe them in QR section 4;
- Other estimation and calculation methods according to Annex IV (in Delegated Decision 2019/1597/EC); cross the stages for which you have applied the related techniques and describe them in QR section 5;

You should cross only one cell per line. Please remember that, whenever the data are resulting from estimation according to Annex IV for a specific stage of food supply chain, meaning not based on direct measures, you have to insert in Table 1 column **total food waste** the E (estimate) in column “Standard footnote”; this clarifies that no direct measurement information according to Annex III has been performed on that year.

However, you may consider the samples used for the methodologies as of Annex III not sufficiently representative, and therefore you may be willing to refine the amounts using also the estimates coming from Annex IV techniques. In that case, you must summarise the details in the sampling/scaling column 3 in table 4.2 (Annex III) and provide full description in table 5 (Annex IV) showing up the methodologies of calculation adjustments according to both the techniques in Annex III and IV.

Methods for the in-depth measurement according to Annex III shall be applied for all stages of the food supply chain for the first reference year, which is the year 2020, and in the following years, for each stage, at least obligatory once every four years. For further information, please accurately read Article 2 in the Delegated Decision 2019/1597/EC.

Other methods according to Annex IV shall be used to calculate the food waste generation for the years between the in-depth measurement studies (methodologies under Annex III), i.e. to update the results of previous analysis on the basis of appropriate indicators.

QR section 4: Information concerning measurement using the methodology set out in Annex III

Please be aware that the whole QR section 4 applies only to the measures made in the reference year according to methodology in Annex III, as this section is meant to keep track of the legal requirements of application of such obligation at least once every 4 years for each stage.

QR section 4.1 General description of the data sources used for in-depth measurements

The intention of table QR-4.1 is to give an overview of the type of data sources that are used for the in-depth measurement of food waste generation. Please indicate, for each stage of the supply chain in which you have made the measurement in the reference year, the types of sources used by marking with a cross the applied methodologies (as of Annex III).

You may mark several cells for the stages, where applicable. The stages where you have not made measurements in the reference year must remain empty.

Please notice that Annex I and Annex II in the Delegated Decision 2019/1597/EC are meant to provide you guidance for identifying the waste codes in Regulation 2150/2002/EC (column 1, here below in the picture).

4. Information concerning measurement using the methodology set out in Annex III Top			
4.1. General description of the sources of data for measuring food waste in the framework of the methodology set out in Annex III to Delegated Decision (EU) 2019/1597			
<i>Please indicate the sources of data on food waste amounts for each stage of the food supply chain (mark with a cross all the relevant cells).</i>			
Stage of the food supply chain	On the basis of the data collected for the purposes of Regulation 2150/2002/EC of the European Parliament and of the Council*	On the basis of a dedicated study (examples: scientific study, consultancy report)	Other sources or combination of different sources (please specify in point 4.2) (examples: administrative reporting, voluntary commitments of the industrial sector)
Primary production			
Processing and manufacturing			
Retail and other distribution of food			
Restaurants and food services			
Households			

* Regulation (EC) No 2150/2002 of the European Parliament and of the Council of 25 November 2002 on waste statistics (OJ L 332, 9.12.2002, p. 1).

QR section 4.2 Detailed description of the methods for measuring food waste within the framework of the methodology set out in Annex III to Delegated Decision (EU) 2019/1597

QR section 4.2 asks for a detailed description of the methods used for the in-depth measurement of food waste generation, applied to each stage of the food supply chain. As the activities and entities within the different stages of the food supply chain may be heterogeneous and / or superimpose, several methods of analysis may be applied for different sub-sectors of a stage. In this case please insert additional lines in table QR-4.2 and describe the methods separately for each analysis, and include scaling parameters.

For example, as from Annex II of Delegated Decision 2019/1597/EC, **code 20 01 08 biodegradable kitchen and canteen** waste can superimpose in food waste collection for the stages **Retail and other distribution of food, Restaurants and food services,**

Households, as the amounts might not be separately measured for commercial activities and households and so on. Therefore, please remember that you must provide scaling factors for analysing how the stage-related amounts can be derived from the total.

4. Information concerning measurement using the methodology set out in Annex III Top					
4.2. Detailed description of the methods for measuring food waste within the framework of the methodology set out in Annex III to Delegated Decision (EU) 2019/1597					
<i>For each stage of the food supply chain, please describe the methods for measuring food waste amounts, by reference to Annex III to Delegated Decision (EU) 2019/1597.</i>					
Stage of the food supply chain	Short description of the methods used (including methods used to measure amounts of food waste in mixed waste, where relevant)	Entities providing data on food waste [e.g. farmers, food companies (Food Business Operators), waste operators, municipalities, households]	In case of sampling and/or scaling please provide information about the size and selection of the sample and describe the methods of scaling	Description of the main issues affecting the accuracy of the data, including errors	Description of the data validation process, including possible sources of uncertainty and their likely impact on the results reported (examples: administrative reporting, voluntary commitments of the industrial sector)
Primary production					
Processing and manufacturing					
Retail and other distribution of food					
Restaurants and food services					
Households					

As for table QR-4.1, table QR-4.2 refers only to the reference year. Therefore, the table needs to be completed for only those stages that had been scrutinised in the reference year with an in-depth measurement. For these rows, all the columns must be filled in, inserting “not applicable” if the case does not apply (in the rare event, for instance, that for very small countries there might be no food production or no processing and manufacturing at all in a specific year, therefore any study is not applicable) and “not available” if the case had not been taken into consideration for an in depth measurement .

Please provide in **column Short description...** a summary of the methodology, under consideration of the methods defined in Annex III of Decision 2019/1597/EC. If the described methods are based on a dedicated study or a specific report, then please provide title, references and link to this document. In case data have been derived from composition analyses, please indicate the methodology or standard you have applied. Please describe also any further consideration, as for instance seasonal adjustment and how possible seasonal impacts have been considered in the methodology.

Please specify in **column Entities...** the type of entities from which the information on food waste generation is collected. If available, please indicate which information source is used to identify and to select the entities (e.g. statistical business register, administrative registers, data from associations, ..).

In case of sampling and/or scaling of data, please describe in **column sampling / scaling** the approach that you followed. The information on sampling should include, for example, the number of entities in the sample and their share in the statistical population of the given stage, the sampling method (for instance, if you have also applied stratified sampling and so on). Please indicate the multiplication or weighting factors used for the estimation of the totals.

Please describe in **column main issues** the main challenges and quality deterioration factors that are related to the methods applied. The description should allow an assessment of the overall accuracy and reliability of the measurement and describe in more detail the main quality issues including in particular the sampling errors, coverage errors, measurement errors, non-response errors and processing errors. With regard to the definition and description of the different quality aspects and suitable quality indicators please make use of the respective chapters in the [‘ESS handbook for quality reports](#).

In **column data validation process**, please give an overview of the validation process that is established to ensure a high data quality. Give an understanding about how data are monitored and used. Please include the results of this validation regarding the sources of uncertainty and their likely impact on the food waste totals.

QR section 5: Information concerning measurement using the methodology set out in Annex IV to Delegated Decision (EU) 2019/1597

Here you provide information regarding the application of any method according to Annex IV for the stages indicated in QR section 3. This methodology must be applied whenever there are no direct measurements according to Annex III for the reference year in the specific stage.

Annex IV of Decision 2019/1597 defines two types of methods (see paragraph Methodology of food waste measurement in the previous chapter):

Method (a): estimation using the available data of food waste from the measurements according to ANNEX III from previous years, applied to the related stage, and the total waste amounts from the Waste Statistics Regulation, that are used as weight for the estimate.

Method (b): estimation using the available data of food waste from the previous year for a specific stage multiplied for the ratio of the reference year versus past years socio economic indicators.

5. Information concerning measurement using the methodology set out in Annex IV to Delegated Decision (EU) 2019/1597 Top							
<i>Please provide information for each stage of the food supply chain, for which calculations have been made in the reporting year</i>							
Stage of the food supply chain	Data on food waste amounts used as a basis for the calculations		Socio-economic data used for the calculations				Description of the methods used for the calculations
	Value [t]	Year	Type of data (e.g. population, food production)*	Value*	Year*	Source*	
Primary production							
Processing and manufacturing							
Retail and other distribution of food							
Restaurants and food services							
Households							

* In case of more sources of data used, add additional rows within the relevant stage of the food supply chain, as appropriate.

Having in mind this, you have to insert, for each stage, the baseline values of food waste generated amounts coming from the previous years.

The first two columns will contain the data on food waste amounts from other years in depth measurements (according to Annex III), which are used for the estimates according to Annex IV method a. In practical term, you have to pick these values from the Table 1, column total food waste, submitted in the previous years and where those data are not indicated as estimate (the E of estimate in column “Standard footnote” covers Annex IV methods). If you have several in depth measurements available, you add as many rows so to cover the measured years. Remember that the value refers to the measures of food waste and has always to be provided in tonnes of fresh mass. Aside, you indicate the year to which the measure refers. Moreover, in the column **Description of the method...** the total waste amounts from the Waste Statistics Regulation that you are using for the estimation.

Similar logics applies for the socio economic data (columns 3 to 6), where in values you set the food waste amounts coming from the Table 1, column total food waste, submitted in the previous years that you will be use as baseline (these can be either direct measurement or estimates) aside the information of the year. In column type of data, for the corresponding year, and for each type you set the name of the type and the value of the type with its unit. In the column **Source** you provide the origin of the information.

Finally, in column **Description of the method...** you provide the methodology for calculation.

Here below an example with fake data on how it may look like, combining the two methods (for simplicity, Total Municipal Waste was inserted in column 3 to better show up the data, but you can provide it in the formula description):

5. Information concerning measurement using the methodology set out in Annex IV to Delegated Decision (EU) 2019/1597 Top							
<i>Please provide information for each stage of the food supply chain, for which calculations have been made in the reporting year</i>							
Stage of the food supply chain	Data on food waste amounts used as a basis for the calculations		Socio-economic data used for the calculations				Description of the methods used for the calculations
	Value [t]	Year	Type of data (e.g. population, food production)*	Value*	Year*	Source*	
Primary production	not available	2018	FoodProduction=200000 tonnes, TMunWaste=30000	not available	2018	EUROBASE tables (names of tables)	We have made the estimate from socio economic data-FoodProduction: $FW_{se2018} = ((10000 + 9500) / (190000 + 180000)) * 200000 = 10540$ tonnes of fresh mass; then we have estimated according to method (a) Annex IV according to total municipal waste: $FW_{mwe} = (10000 / 20000) * 30000 = 15000$ tonnes of fresh mass; finally, we have made the average of the values: $FW_{estimate} = 12770$ tonnes of fresh mass
	10000	2017	FoodProduction=190000 tonnes, TMunWaste=20000	10000	2017	EUROBASE tables (names of tables)	
	not available	2016	FoodProduction=180000 tonnes	9500	2016	EUROBASE tables (names of tables)	

Therefore, FW estimate for year 2018 will appear in table 1 as in the picture

Table 1: Data on food waste amounts				
<i>Unit: tonnes of fresh mass</i>				
	Total food waste according to Article 1 of 2019/1597*			
Stage of the food supply chain	Total food waste**	Flag	C	Of which: edible food waste*
Primary production	12770	E		
Processing and manufacturing				

QR 6 Voluntary reporting

Please provide in table QR-6 a description of the information used for the voluntarily reported data sets, separately for each data set and for each stage of the food supply chain. Provide a concise description of the way the data are collected and compiled and/or estimated. Please specify the data source(s), the entities providing the data and give an assessment of the overall accuracy of the data. An indication of the main issues affecting the accuracy of the data would be helpful. Relevant reference documents shall be listed in the last column of the table. Please add rows to the table as appropriate.

6. Voluntary reporting Top			
<i>Please provide information for each set of voluntarily reported data.</i>			
Name of dataset (referred to in points (a) to (e) of Article 3 of Delegated Decision (EU) 2019/1597)	Stage of the food supply chain	Short description of the data collection method	Source - link to the reference document (if applicable)
<i>Add rows as appropriate.</i>			

QR section 7 Methodological changes and problems notifications

7. Methodological changes and problems notifications Top		
7.1. Description of methodological changes (if applicable)		
<i>Please describe significant methodological changes in the calculation method for the reporting year, if any (please include in particular retrospective revisions, their nature and whether break-flags are required for specific reporting years). Please describe separately for each stage of the food supply chain and provide the precise location of the respective cell(s) (table name, stage of the food supply chain, column heading).</i>		
<i>Add rows as appropriate.</i>		
7.2. Explanation of tonnage difference (if applicable)		
<i>Please explain the causes of the tonnage difference (which stages of the food supply chain, sectors or estimates have caused the difference, and what the underlying cause is) where the variation is greater than 20 % compared to the data submitted for the previous reporting year.</i>		
Stage of the food supply chain	Variation (%)	Main reason for the difference
<i>Add rows as appropriate.</i>		
7.3. Notification of problems (if any)		
<i>In case, you have experienced problems with the attribution of food waste to a given stage of the food supply chain please provide a description of the problems. For every specific problem, please provide the precise location of the respective cell(s) (table name, stage of the food supply chain, column heading).</i>		

QR section 7.1 Description of methodological changes (if applicable)

Please describe in table QR 7.1 significant methodological changes in the calculation method for the reference year, if any. Please include in particular retrospective revisions, their nature and whether break-flags are required for specific reference years.

Please describe the methodological changes separately for each stage of the food supply chain and provide the precise location of the respective cell(s), i.e. the table number, the stage of the food supply chain and the type of food wasted or of food waste prevention.

QR section 7.2 Explanation of tonnage difference (if applicable)

Whenever the absolute value of variation in tonnage, in relative terms, is more than 20%, compared to the data submitted for the previous reference year within a stage please comment in table QR-7.2. Try to explain which sectors caused the differences and what the underlying causes are (example: increase/decrease of production due to favourable/adverse meteorological conditions). Please clarify whether the difference is coming from a real measurement (Annex III methodology) or whether it is likely to result from methodological changes in the food waste measurements.

The focus of table QR-7.2 is on the mandatory data on food waste generation. Member States are nevertheless invited to comment also on the variation of the voluntary data.

Please make clear to which cell the comment refers by specifying the tables, the stage of the food supply chain and the column heading. Add rows as appropriate.

QR section 7.3 Notification of problems (if any)

In this section you can provide free-text to describe any methodological issue you may have encountered.

QR section 8 Confidentiality

Eurostat is expecting confidentiality only for very small countries in processing stage. (less than 3 statistical reporting units rule). The rules regarding applicability of statistical confidentiality are set in this document: <https://ec.europa.eu/eurostat/web/research-methodology/statistical-confidentiality>. The C in the corresponding columns “confidentiality footnote” in the tables 1 and 2 must be selected; in the text note below you have to refer to the stage and column where you inserted the confidentiality and explain the reason of your argument

8. Confidentiality Top
<small>Please provide a justification to withhold the publication of specific parts of this report, if necessary. For every specific case, please provide the precise location of the respective cell(s) (table name, stage of food supply chain, column heading)</small>

QR section 9 Main national websites, reference documents and publications

Please provide links to main national websites, reference documents and publications used in the collection of data on food waste amounts. Add as many rows as necessary.

9. Main national websites, reference documents and publications Top	
<i>Please provide links to main national websites, reference documents and publications used in the collection of data on food waste amounts.</i>	
Stage of the food supply chain	References

Add rows as appropriate.

5 Good practice examples for the collection of food waste data

The general framework for the measurement of food waste is established through the following documents:

- [Food waste quantification manual](#), FUSIONS, 2016
- [Food Loss and Waste Accounting and Reporting Standard](#) (FLW Standard), version 1.0, 2016; further supportive documents and tools to the FLW Standard are available at the www.flwprotocol.org

[The official website of the European Union contains these additional important resources:](#)

- [Food waste measurement](#)
- [Towards a sustainable food system](#)
- [Scientific opinion - Sustainable food system \(March 2020\)](#)
- [SAPEA Evidence Review Report \(March 2020\)](#)

The list of studies and publications below shows existing good-practice examples from different countries. The studies were selected with the aim to provide examples for food waste measurement at all stages of the food supply chain and for the application of different methods. The stages addressed in the studies and the methods applied are indicated in the last two columns of the table.

Title of study	Author(s)	Publishing or funding institution	Year of publication	Language	Geographic coverage	Stage of food supply chain addressed	Method(s) applied
Food losses and waste in primary production	Hartikainen et al.	Nordic Council of Ministers	2016	EN	Country (FI, SE, NO, DK)	Primary Production	Coefficients & production statistics
MTT Raportti 170: Ruokahävikki alkutuotannossa ja elintarvikejalostuksessa - Foodspill 2 -hankkeen loppuraportti (<i>Food waste in primary production and food processing - Foodspill 2 Project Final Report</i>)	Hartikainen et al.	MTT Agrifood Research Finland, operating under the Finnish Ministry of Agriculture and	2014	FI	Country (FI)	Primary Production, Processing and manufacturing	Questionnaires & interviews

		Forestry					
Food waste in private households in Germany - Analysis of the results of a representative survey 2016/2017 of GfK SE –; Thünen Working Paper 92 Lebensmittelabfälle in privaten Haushalten in Deutschland – Analyse der Ergebnisse einer repräsentativen Erhebung 2016/2017 von GfK SE –; Thünen Working Paper 92	Schmidt et al.	Thünen Institute, operating under the German Ministry of Food and Agriculture	2019	EN, DE	Country (DE)	Households	Diaries; coefficients & production statistics
Lebensmittelabfälle in Deutschland– Baseline 2015 – Thünen Report 71 (<i>Food waste in Germany - Baseline 2015 – Thünen Report 71</i>)	Schmidt et al.	Thünen Institute, operating under the German Ministry of Food and Agriculture	2019	DE	Country (DE)	Retail and sale, Restaurants and food services	Coefficients & production statistics; counting
2017 Oregon Wasted Food Study: Residential Sector Waste Sort, Diary, and Survey Study	McDermott, C. et al.	Oregon Department of Environmental Quality	2018	EN	Federal state (Oregon)	Households	Questionnaires & interviews, diaries; waste compositional analysis; direct measurement
WRAP UK Down the Drain	Gray, S.	WRAP - Waste & Resources Action Programme	2008	EN	Country (GB)	Households	Questionnaires & interviews; diaries
Your Household's Food and Drink Waste Diary	Exodus Market Research	WRAP - Waste & Resources Action Programme	2012	EN	Household-Level	Households	Diary-template
Matavfall 2010 från jord till bord (<i>Food waste 2010 from soil to table</i>)	Jensen, C.	Swedish Environmental Protection Agency	2011	SE	Country (SE)	All stages	Waste composition analysis; questionnaires & interviews
Organische Verluste aus der Lebensmittelindustrie in der Schweiz (<i>Organic losses from the food industry in Switzerland</i>)	ZHAW - Zürcher Hochschule	BAFU Bundesamt für Umwelt Abteilung Abfall & Rohstoffe	2016	DE	Country (CH)	Processing & manufacturing	Mass balance; Questionnaire

	für Angewandte Wissenschaft en						s & interviews
Quantification of food losses and waste in primary production	Svanes et al.	Nordic Council of Ministers	2017	EN	Enterprise- Level	Primary production	Questionnaire s & interviews
Mapping method for food loss in the food processing industry	Møller et al.	Innovation Norway (organisation of the Norwegian Government)	2012	EN	Enterprise- level	Retail	Mass balance; questionnaire
Vermeidung von Lebensmittelabfall in Gastronomie, Beherbergung und Großküchen <i>(Prevention of food waste in gastronomy, accommodation and canteen kitchens)</i>	Schranzhofer et al.	United Against Waste (initiative for the prevention of food waste in the catering industry)	2015	DE	Country (AT)	Restaurants & food services	Direct measurement

6 Standards and guidelines for waste composition analysis

Waste composition analysis is a methodology for determining the material composition of mixed waste streams by means of sampling and sorting of the waste. Waste composition analysis is particularly important for the determination of the food amounts wasted by households, either as disposed in mixed food waste or separately collected in organic waste (bio-bin). As indicated in Annex III of Decision 2019/1597/EC, waste composition analysis may also be a suitable method for waste measurement of other stages of the food supply chain, e.g. waste from retail trade, restaurants and food service.

Waste analyses are costly surveys. A methodologically sound approach that ensures the achievement of reliable data with affordable means is crucial here. The conduction of waste analyses should therefore be based on established standards, of which several have been developed in EU Member States. In this light, please remember that the reporting is not covering residual of food attached to other types of waste (plastic, paper, tins) or accidentally conveyed in other type of waste collection, as well as you should not account other non-food material which were accidentally conveyed in food waste (Article 1, point 4, paragraphs c d and e of Delegated Decision 2019/1597/EC).

A list of established standards is provided in the following table. The methods partly differ with regard to the sampling approach, the sample size, the number of sortings campaigns, the stratification of the survey population or the accuracy and quality assurance. The selection of the appropriate method has to be taken under consideration of different factors like the waste collection system, the seasonal variation of waste generation and composition or the availability of data that are needed for the planning and evaluation of the surveys.

A good overview on the advantages and disadvantages of the different approaches is provided in the EU funded report on the 'Methodology for the Analysis of Solid Waste' (SWA-Tool 2004).

Finally, DG JRC has published on the 5 July 2021 a research report based on mass flow analysis for estimating food waste: [Building a balancing system for food waste accounting at national level - Publications Office of the EU \(europa.eu\)](#). Countries that intend to use the coefficients indicated in this scientific report must declare the estimation share in the quality report.

Table: Overview of standards and guidelines for the waste composition analyses

Title of document	Language	Publishing or funding institution
Methodology for the Analysis of Solid Waste (SWA-Tool) (2004)	EN	European Commission, funded under the 5 th Framework Program
Building a balancing system for food waste accounting at national level - Publications Office of the EU (europa.eu)	EN	European Commission, DG JRC, scientific report
Guide pour la réalisation de campagnes de caractérisation des déchets ménagers - Caradème (2014) (Guide for carrying out characterisation campaigns for household waste)	FR	ADEME – French Environment and Energy Management Agency

Title of document	Language	Publishing or funding institution
Richtlinie zur einheitlichen Abfallanalytik in Sachsen (2014) (<i>Guideline on uniform waste analysis in Saxony</i>)	DE	Landesamt für Umwelt, Landwirtschaft und Geologie, Freistaat Sachsen, Deutschland (<i>Agency for Environment, Agriculture and Geology, Saxony, Germany</i>)
Richtlinie für die Durchführung von Untersuchungen zur Bestimmung der Menge und Zusammensetzung fester Siedlungsabfälle im Land Brandenburg (<i>Guideline for performing surveys to determine the quantity and composition of municipal solid waste in the State of Brandenburg</i>)	DE	Landesumweltamt Brandenburg (<i>Environmental Agency Brandenburg, Germany</i>)
Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste , USA (2016)	EN	ASTM International (US standards development organization)
Solid Waste, Municipal: Sampling and Characterisation (NT ENVIR 001) , (1995)	EN	Nordtest (Nordic standards development organisation)
Mängd mat och dryck via avloppet – en enkätundersökning i svenska hushåll (<i>Amount of food and drink via the sewer - a survey in Swedish households</i>)	SE	Swedish environmental protection agency
Matavfall i Sverige, Uppkomst och behandling 2018 (<i>Food waste in Sweden, Generation and treatment 2018</i>)	SE	Swedish environmental protection agency
Consumo alimentario anual en los hogares españoles (2004-2018) (<i>Annual food consumption in Spanish households 2004-2018</i>)	ES	Spanish Ministry of Agriculture, Fisheries and Food
Matsvinn på sjukhus – Sammanställning av regionernas mätningar 2019 <i>Food waste in hospital - Compilation of the regions measurements 2019</i>	SE	Swedish food agency
Fakta om offentliga måltider 2019 <i>Facts about public meals 2019</i>	SE	Swedish food agency
Methodological explanation - food waste <i>Methodological report referring to the database and paper: Food waste generation by source and treatment (tons), Slovenia, annually (data)</i> <i>A resident of Slovenia discarded on average 68 kg of food in 2018</i>	EN	Statistical Office of the Republic of Slovenia
Unaprirednje sustava za prikupljanje podataka o biootpadu i otpadu od hrane izlazni rezultat 1 (<i>Improvement of the system for collection of data on biowaste and food waste output 1</i>)	HR	Croatian Ministry of Environmental Protection and Energy
Food waste statistics for Iceland in 2019 - Final methodological report	EN	Icelandic organisation against foodwaste
Abfallvermeidung in der österreichischen Lebensmittelproduktion (<i>Avoiding waste in Austrian food production</i>)	DE	Austrian Institute for Ecology
Vermeidung von Lebensmittelabfall in Gastronomie, Beherbergung und Großküchen (<i>Avoidance of food waste in gastronomy, accommodation and commercial kitchens</i>)	DE	United Against Waste - Austria
Kurzbericht: Food waste und landwirtschaft (<i>Short report: Food waste and agriculture</i>)	DE	Austrian organisation Global2000
Lebensmittelabfälle in Österreich (<i>Food waste in Austria</i>)	DE	WWF Austria and Pulswerk
Projektbericht „Abfallvermeidung im österreichischen Lebensmittelgroßhandel“ (2019) (<i>Project report “Waste prevention in the Austrian food wholesale trade ” 2019</i>)	DE	WWF Austria

Other interesting documents and initiatives about food waste analysis and food waste prevention are here below reported in the following table:

Table: Other information on food waste analysis and food waste prevention

Title of document	Language	summary
Food waste in private households in Germany – Analysis of findings of a representative survey conducted by GfK SE in 2016/2017	EN	Study from the German Federal Ministry of Food and Agriculture
wrap.org.uk Food Waste Trends Survey 2019 UK progress against Courtauld 2025 targets and UN Sustainable Development Goal 12.3 Courtauld Commitment 2025 Annual Report 2020 Courtauld Commitment 2025 Milestone Progress Report	EN	Wrap.org is one of the major UK organisation dealing with food waste and food waste prevention
Food among Waste	EN	A user friendly graphic analysis on the full process chain from food supply chain to food waste in Slovenia, 2016
https://www.sprecozero.it/	IT	Italian web site devoted to strategies on waste prevention, in particular food waste prevention
https://www.menosdesperdicio.es/definiciones-cifras/cifras	ES	Spanish web site devoted to strategies on waste prevention, in particular food waste prevention
https://stopwastingfoodmovement.org/ https://stopwastingfoodmovement.org/our-projects/	EN, DK	Danish food waste prevention, food donation organisation with projects against food waste, including food surplus redistribution systems
https://www.menosdesperdicio.es/definiciones-cifras/panel-de-cuantificaci%C3%B3n-del-desperdicio-alimentario-en-los-hogares-espa%C3%B1oles	ES	Panel of quantification of food waste in Spanish households
http://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/428707/ http://www.fao.org/3/a-i3901e.pdf http://www.fao.org/3/a-i3901f.pdf	EN, FR	Food Losses and Waste in the Context of Sustainable Food Systems. Committee on World Food Security (CFS 41, 2014). Policy Recommendations

Annex 1: Waste codes included in the European list of wastes which typically include food waste (Annex II of Delegated Decision (EU) 2019/1597)

LoW Sub-chapter		LoW entry		Primary production	Processing, manufacturing	Retail / distribution	Restaurants, food services	Households
Code	Description	Code	Description					
02 01	wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing	02 01 02	animal-tissue waste	X				
		02 01 03	plant-tissue waste	X				
02 02	wastes from the preparation and processing of meat, fish and other foods of animal origin				X			
02 03	wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation				X			
02 04	wastes from sugar processing				X			
02 05	wastes from the dairy products industry				X			
02 06	wastes from the baking and confectionery industry				X			
02 07	wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)				X			
16 03	off-specification batches and unused products	16 03 06	organic wastes other than those mentioned in 16 03 05			X		
20 01	separately collected fractions (except 15 01)	20 01 08	biodegradable kitchen and canteen waste			X	X	X
		20 01 25	edible oil and fat			X	X	X
20 03	other municipal wastes	20 03 01	mixed municipal waste			X	X	X
		20 03 02	waste from markets			X		

Annex 2: Glossary of terms, list of abbreviations and relevant legal acts and related documents

Abbreviation	Definition	Legislation
Food legislation		
GFLR (General Food Law Regulation)	Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety	OJ L 31, 1.2.2002, p.1
Waste legislation		
WFD (Waste Framework Directive)	Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives	OJ L 312, 22.11.2008, p.3
DD2019/1597	Commission delegated decision (EU) 2019/1597 of 3 May 2019 supplementing Directive 2008/98/EC of the European Parliament and Council as regards a common methodology and minimum quality requirements for the uniform measurement of levels of food waste	OJ L 248, 27.9.2019, p.77
ID2019/2000	Commission implementing decision (EU) 2019/2000 of 28.11.2019 laying down a format for reporting on food waste and for submission of the quality check report in accordance with Directive 2008/98/EC of the European Parliament and of the Council	OJ L 310, 2.12.2019, p. 39
Glossary		
food or foodstuff, food supply chain	<p>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> <p>Food encompasses food as a whole, along the entire food supply chain from production until consumption. Food also includes inedible parts, where those were not separated from the edible parts when the food was produced, such as bones attached to meat destined for human consumption. Hence, food waste can comprise items which include parts of food intended to be ingested and parts of food not intended to be ingested</p>	<p>Article 2 of GFLR (Regulation (EC) No 178/2002)</p> <p>DD2019/1597</p>

food waste	<p>Food waste is any food and inedible parts of food, that has entered in the food supply chain, that then has been removed or discarded from the food supply chain or at the final consumption stage, that is finally destined to be processed as waste, either separately collected as food waste or collected in municipal waste</p> <p>Food waste is any food, and inedible parts of food, removed from the food supply chain to be recovered or disposed</p> <p>food waste means all food as defined above that has become waste.</p> <p>Food waste does not include losses at stages of the food supply chain where certain products have not yet become food</p>	<p>My formulation inspired by furion</p> <p>https://www.eufusions.org/index.php/about-food-waste/280-food-waste-definition</p> <p>Article 3 point 4a of WFD</p> <p>DD2019/1597</p>
food loss	<p>According to FAO, Food loss is the decrease in the quantity or quality of food resulting from decisions and actions by food suppliers in the chain, excluding retailers, food service providers and consumers. Empirically, it refers to any food that is discarded, incinerated or otherwise disposed of along the food supply chain from harvest/slaughter/catch up to, but excluding, the retail level, and does not re-enter in any other productive utilization, such as feed or seed.</p> <p>Please note that concept of food loss as presented above is not used in the EU legislation in the same meaning. 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. It is worth noting that FAO Indicator called Food Loss Index actually measures food waste (from primary production and processing and manufacturing) according to EU rules.</p>	<p>http://www.fao.org/food-loss-and-food-waste/en/</p>
drained food	<p>Food drained as or with waste waters. This type of waste is not considered as food waste.</p>	<p>Article 3 point b DD2019/1597</p>
eu-platform on food losses and food waste	<p>EU Platform on Food Losses and Food Waste (FLW) aims to support all actors in: defining measures needed to prevent food waste; sharing best practice; and evaluating progress made over time</p>	<p>https://ec.europa.eu/food/safety/food_waste/eu_actions/eu-platform_en</p>
Feed or	<p>'feed' (or 'feedingstuff') means any substance or</p>	<p>Article 3 point 4 of GFLR (Regulation</p>

feedingstuff	product, including additives, whether processed, partially processed or unprocessed, intended to be used for oral feeding to animals	(EC) No 178/2002
placing on the market	'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;	Article 3 point 8 of GFLR (Regulation (EC) No 178/2002)
primary production	Primary production means the production, rearing or growing of primary products including harvesting, milking and farmed animal production prior to slaughter . It also includes hunting and fishing and the harvesting of wild products Please note that majority of material lost in primary production (pre-harvest losses, losses at harvest, animals dead before slaughter) is not regarded as food waste, as it has not been regarded as "food" yet (see paragraphs 3.1 and 3.2).	Article 3 point 17 of GFLR (Regulation (EC) No 178/2002)
Process and manufacturing	This stage of the food supply chain refers to the first processing and manufacturing of food after the primary production and before the retail and other distribution stage of the food supply chain. It is usually the only phase where the slaughtering of animals is foreseen and admitted by law. It is also the phase in which food is transformed, canned, packed and finally made available for retail and distribution	
Retail and other distribution of food	This is a stage of the food supply chain concerning the handling of food and its storage at the point of sale or delivery to the final consumer, and includes distribution terminals, shops, supermarket distribution centres and wholesale outlets; it does not exactly correspond to the definition of retail in GFLR	Derived from Article 3 point 7 of GFLR (Regulation (EC) No 178/2002)
Restaurants and food services	This is a stage of the food supply chain concerning the processing of food at the point of sale or delivery to the final consumer, and includes catering operations, factory canteens, institutional catering, restaurants and other similar food service operations; it does not exactly correspond to the definition of retail in GFLR	Derived from Article 3 point 7 of GFLR (Regulation (EC) No 178/2002)
households	This is a stage of the food supply chain concerning the processing and consumption of the food in the households or small residential facilities which are	

	processing the food themselves	
Edible food parts	Edible food parts are the components associated with a food, in its fresh mass status, that are usually consumed by humans in the MS, either as is (raw consumption) or after processing or cooking. The definition of edible food parts might differ from country to country, or from region to region, according to local culture and habits. Eurostat strongly recommends the reporting country to define a list of inedible parts of the food considered whenever they voluntarily provide information on the measurement of edible food waste; this list will permit the comparability of information.	Suggested methodology available from www.wrap.org.uk : www.wrap.org.uk/sites/files/wrap/Household%20food%20waste%20restated%20data%202007-2015.pdf
Food donation	Food donation is any initiative that supports the prevention of food waste by redistributing food surplus according to a set of safety rules, set down in the guideline EU Food Donation Guidelines adopted on 16 October 2017	Derived from the initiative: https://ec.europa.eu/food/safety/food_waste/eu_actions/food-donation_en
Former foodstuff	'Former foodstuffs' means foodstuffs, other than catering reflux, which were manufactured for human consumption in full compliance with the EU food law but which are no longer intended for human consumption for practical or logistical reasons or due to problems of manufacturing or packaging defects or other defects and which do not present any health risks when used as feed. The setting of maximum contents as referred to in point 1 of Annex I to Regulation (EC) No 767/2009 shall not be applicable to former foodstuffs and catering reflux. It shall apply when further processed as feed.	Annex Part A point 3 of Regulation (EU) No 68/2013
food business operator	'food business operator' means the natural or legal persons responsible for ensuring that the requirements of food law are met within the food business under their control;	Article 3 point 3 of GFLR (Regulation (EC) No 178/2002)
feed business	'feed business' means any undertaking whether for profit or not and whether public or private, carrying out any operation of production, manufacture, processing, storage, transport or distribution of feed including any producer producing, processing or storing feed for feeding to animals on his own holding;	Article 3 point 5 of GFLR (Regulation (EC) No 178/2002) Please refer also to the more recent article Article 3(b) of Regulation (EC) No 183/2005, which comprises also rulings on feed hygiene
feed business operator	'feed business operator' means the natural or legal persons responsible for ensuring that the requirements of food law are met within the feed business under their control;	Article 3 point 6 of GFLR (Regulation (EC) No 178/2002)

tonne of fresh mass	<p>The amounts of food waste shall be measured in tonne of fresh mass.</p> <p>Therefore the unit to apply for food waste quantities in any part of this report (data and methodology) is always tonnes of fresh mass, that means the amount of waste either directly measured in ideal condition (when the waste measure is made during the processing of fresh food) or as estimate (when part of the food waste is dried up, the estimate of the weight of the water content when it was fresh has to be summed up to the currently measured weight of the food waste)</p>	Article 2 point 5 of DD2019/1597
Zoonosis, epizootic diseases	<p>Animals diseases which are finally provoking the suppression and incineration of animal individuals or entire flocks, to avoid epidemics. These animals are not food waste, as they never entered in the food chain, moreover they are excluded from WFD as of Article2-point2(c) (carcasses of animals that have died other than by being slaughtered, including animals killed to eradicate epizootic diseases, and that are disposed of in accordance with Regulation (EC) No 1774/2002;)</p>	Article 2 point 2(c) of WFD:
Animal by product	<p>Animal by-products (ABPs) are materials of animal origin that people do not consume as food and are then used as animal feed, organic fertilisers and soil improvers, pet food, hides and skins for leather, wool, blood for producing diagnostic tools. ABPs are sub-products resulting from slaughterhouses, plants producing food for human consumption, dairies and as fallen stock from farms. Regulation (EC) 1069/2009 categorise ABPs according to their associated risks (BSE, dioxins...).</p>	<p>https://ec.europa.eu/food/safety/animal-by-products_en</p> <p>Regulation (EC) 1069/2009.</p>
Plant mycosis,	<p>Mycosis is one of the first cause of risk of intoxication, due to mycotoxins residuals. These represent the principal harm for humans and animals. Such plants are usually incinerated in dedicated facilities</p>	
Fruit and vegetables by-products	<p>These are materials of vegetal origin used as by products for instance for pharmaceutical products, for biogas production, for bioplastic production, etc</p>	
Waste legislation		
WFD (Waste Framework Directive)	<p>Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives</p>	OJ L 312, 22.11.2008, p.3
DD2019/1597	<p>Commission delegated decision (EU) 2019/1597 of</p>	OJ L 248, 27.9.2019, p.77

	3 May 2019 supplementing Directive 2008/98/EC of the European Parliament and Council as regards a common methodology and minimum quality requirements for the uniform measurement of levels of food waste	
ID2019/2000	Commission implementing decision (EU) 2019/2000 of 28.11.2019 laying down a format for reporting on food waste and for submission of the quality check report in accordance with Directive 2008/98/EC of the European Parliament and of the Council	OJ L 310, 2.12.2019, p. 39
	Communication from the Commission to the Council and the European Parliament Commission on the Interpretative Communication on waste and by-products	COM(2007) 59 final
Food legislation		
GFLR (General Food Law Regulation)	Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety	OJ L 31, 1.2.2002, p.1
EU guidelines on food donation	Commission Notice: EU guidelines on food donation	OJ C 361, 25.10.2017, p.1
Feed legislation		
	Regulation (EC) No 767/2009 of the European Parliament and of the Council of 13 July 2009 on the placing on the market and use of feed, amending European Parliament and Council Regulation (EC) No 1831/2003 and repealing Council Directive 79/373/EEC, Commission Directive 80/511/EEC, Council Directives 82/471/EEC, 83/228/EEC, 93/74/EEC, 93/113/EC and 96/25/EC and Commission Decision 2004/217/EC	OJ L 229, 1.9.2009, p.1
Regulation on the Catalogue of feed materials	Commission Regulation (EU) No 68/2013 of 16 January 2013 on the Catalogue of feed materials	OJ L 29, 30.1.2013, p.1
	Commission Notice Guidelines for the feed use of food no longer intended for human consumption (2018/C 133/02)	OJ C133, 16.4.2018, p.2
Animal by-product legislation		
	Regulation (EC) No 1069/2009 of the European Parliament and of the Council of 21 October 2009 laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No 1774/2002 (Animal by-products Regulation)	OJ L 300, 14.11.2009, p.1
	Commission Regulation (EU) No 142/2011 of 25 February 2011 implementing Regulation (EC) No 1069/2009 of the European Parliament and of the Council laying down health rules as regards animal	OJ L 54, 26.2.2011, p. 1

	<u>by-products and derived products not intended for human consumption and implementing Council Directive 97/78/EC as regards certain samples and items exempt from veterinary checks at the border under that Directive</u>	
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Annex 3: Methodological review on the Eurostat food waste plug-in

A3.1 The food waste plug-in

Eurostat has been working together with Member States to see how food waste data could be collected within the data collection framework set by the Waste Statistics Regulation (WStatR) (EC 2150/2002). The project was therefore set up to answer the following question: “What can be gained from WStatR data about food waste generation and treatment?” The underlying idea of the project on the food waste plug-in was that the easiest way of collecting data with reasonable effort is to collect them given the existing legal framework in the EU, i.e. the Waste Statistics Regulation.

A3.2 Data collection on waste generation

In order to get more information on the EWC-Stat items that might contain food waste, the food waste plug-in consisted of a disaggregation of some data by List of Waste code and by NACE activity.

The EWC-Stat and NACE categories collected in the Waste Statistics Regulation, which are considered relevant for food waste data collection, and therefore needed disaggregation, are shown in Table 1.

Table 1 Relevant waste categories and economic activities in WStatR for calculating Food waste estimates

Item	NACE ACTIVITIES		A01-A03	C10 - C12	G - U	Household	Total	
	EWC-STAT		Agriculture, forestry and fishing	Manufacture of food products, beverages, tobacco	excl. G46.77 Service activities	s		
31	09.1	Animal and mixed food waste	Data reported for the Waste Statistics Regulation (WStatR) – waste generation					
32	09.2	Vegetal wastes						
34	10.1	Household and similar wastes						
51	TT	Total						

As can be seen in Table 1 (in blue cells), the WStatR breakdown of the EWC-Stat allows the distinction of the following waste types containing food waste:

- 09.1 “animal and mixed food waste”,
- 09.2 “vegetable waste”,
- 10.1 “household and similar waste”.

However, these waste categories include more waste than just food waste. The level of aggregation in WStatR data does not allow to easily determine the food waste content of these collected items. Therefore, in order to improve the accuracy of data collected that may consist of food waste, the so-called “food waste plug-in” was developed. This plug-in breaks down the EWC-Stat data according to the underlying List of Waste (LoW) categories. This is shown in Table 2 with the blue cells representing data that are already available from the WStatR. The green cells indicate the breakdowns of EWC categories to LoW codes needed to complete the food waste plug-in.

Table 2 LoW-entries that may contain food waste

09.1 Animal and mixed food waste		
	02 01 02	animal-tissue waste
	02 02 01	sludges from washing and cleaning
	02 02 02	animal-tissue waste
	02 02 03	materials unsuitable for consumption or processing
	02 05 01	materials unsuitable for consumption or processing
	02 03 02	wastes from preserving agents
	02 06 02	wastes from preserving agents
	19 08 09	grease and oil mixture from oil/water separation containing only edible oil and fats
	20 01 08	biodegradable kitchen and canteen waste
	20 01 25	edible oil and fat
09.2 Vegetal wastes		
	02 01 07	wastes from forestry
	20 02 01	biodegradable waste
	02 01 01	sludges from washing and cleaning
	02 01 03	plant-tissue waste
	02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation
	02 03 03	wastes from solvent extraction
	02 03 04	materials unsuitable for consumption or processing

	02 06 01	materials unsuitable for consumption or processing
	02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials
	02 07 02	wastes from spirits distillation
	02 07 04	materials unsuitable for consumption or processing
10.1 Household and similar wastes		
	20 03 01	mixed municipal waste
	20 03 02	waste from markets
	20 03 07	bulky waste
	20 03 99	municipal wastes not otherwise specified
	20 03 03	street-cleaning residues

This breakdown allows distinguishing between the categories that mainly contain food waste and the ones that do not (or at least should not) contain it. For instance, in item 09.1 “animal and mixed food waste”, “animal-tissue waste” (02 01 02) should mainly include food waste, whereas “sludges from washing and cleaning” (02 02 01) should not contain food waste, according to the definition in the Waste Framework Directive that specifies that water from washing and cleaning is excluded from the scope of the definition.

Another example would be item 09.2 “vegetal wastes” that includes “wastes from forestry” (02 01 07) which should not contain food waste but that also includes “plant-tissue waste” (02 01 03) which should mainly consist of food waste.

WStatR data are provided for 19 sectorial activities. In the scope of this project, only the NACE activities related to the food supply chain are considered. The NACE activities are further split into sub-categories at division or group level (see Table 3). The red cells represent data that are collected under the Waste Statistics Regulation, while the “skin” coloured cells are a further disaggregation on which countries are asked to report data. For instance, the breakdown allows to better understand the waste production from NACE divisions 10, 11, and 12, especially from division 10 (manufacture of food products), which is further split into its group level (3 digit) codes. It also allows a clearer insight into the wholesale, retail and food service sectors.

Table 3 NACE activities that may be relevant for the food waste generation estimate

A 01-03		Agriculture, forestry and fishing	
C 10-12		Manufacture of food products ; beverages and tobacco	
	10	Manufacture of food products	
		10.1	Processing and preserving of meat and production of meat products
		10.2	Processing and preserving of fish, crustaceans and molluscs
		10.3	Processing and preserving of fruit and vegetables
		10.4	Manufacture of vegetable and animal oils and fats
		10.5	Manufacture of dairy products
		10.6	Manufacture of grain mill products, starches and starch products
		10.7	Manufacture of bakery and farinaceous products
		10.8	Manufacture of other food products
		10.9	Manufacture of prepared animal feeds
	11	Manufacture of beverages	
	12	Manufacture of tobacco products	
G – U excl.		Service activities	
G46.77			
G	46	Wholesale trade, except of motor vehicles and motorcycles	
	47	Retail trade, except of motor vehicles and motorcycles	
I	55	Accommodation	
	56	Food and beverage service activities	
P	Education		
Q	86	Health	
Households			
TOTAL ALL NACE + HOUSEHOLDS			

A3.3 Data collection on waste treatment

Data on waste treatment consisted of the treatment of disaggregated EWC-Stat waste categories in LoW codes that might contain food waste (the same LoW codes than those collected for waste generation – see Table 2) according to the 6 treatment operations covered by the WStatR.

These six treatment operations (with their database codes in parenthesis) are:

- Deposit onto or into land (**DSP_D**)
- Land treatment and release into water bodies (**DSP_O**)
- Incineration / disposal (D10) (**INC**)
- Recovery other than energy recovery – Backfilling (**RCV_B**)
- Incineration / energy recovery (R1) (**RCV_E**)
- Recovery other than energy recovery - Except backfilling (**RCV_O**)