



# An evaluation of food waste prevention actions and the updated food use and waste hierarchy

EU Platform on Food Losses and Food Waste (16th Meeting)

12 November 2024

Valeria De Laurentiis  
European Commission, Joint Research Centre  
Unit D.3 - Land Resources and Supply Chain Assessments

Joint  
Research  
Centre

# Outline

1

Update of the food use hierarchy

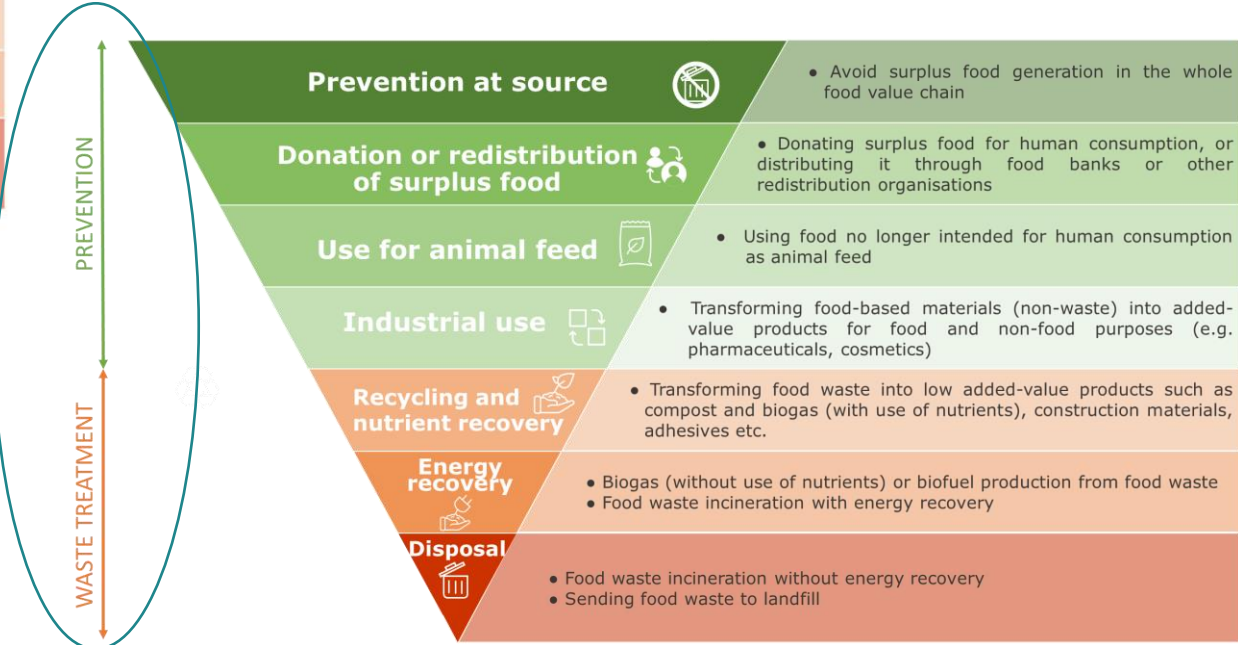
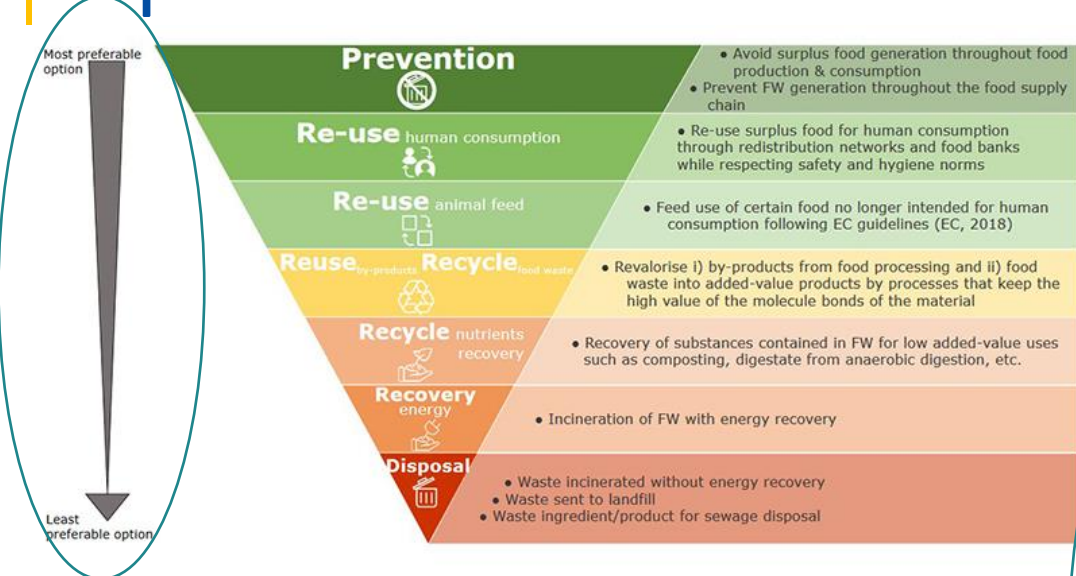
2

Evaluation of food waste prevention actions

3

Updated food waste estimates

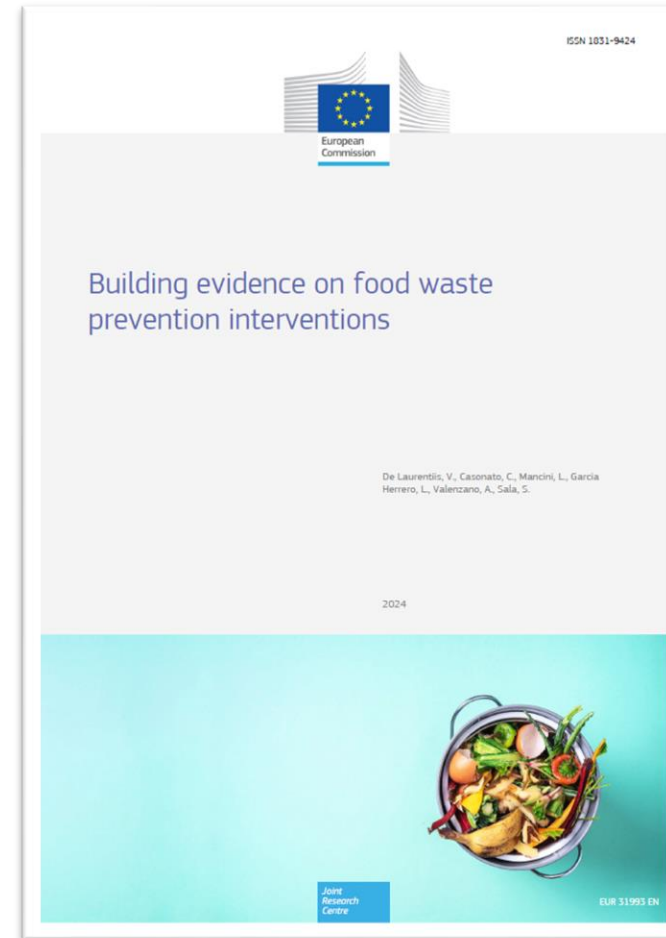
# Update of the food use and waste hierarchy



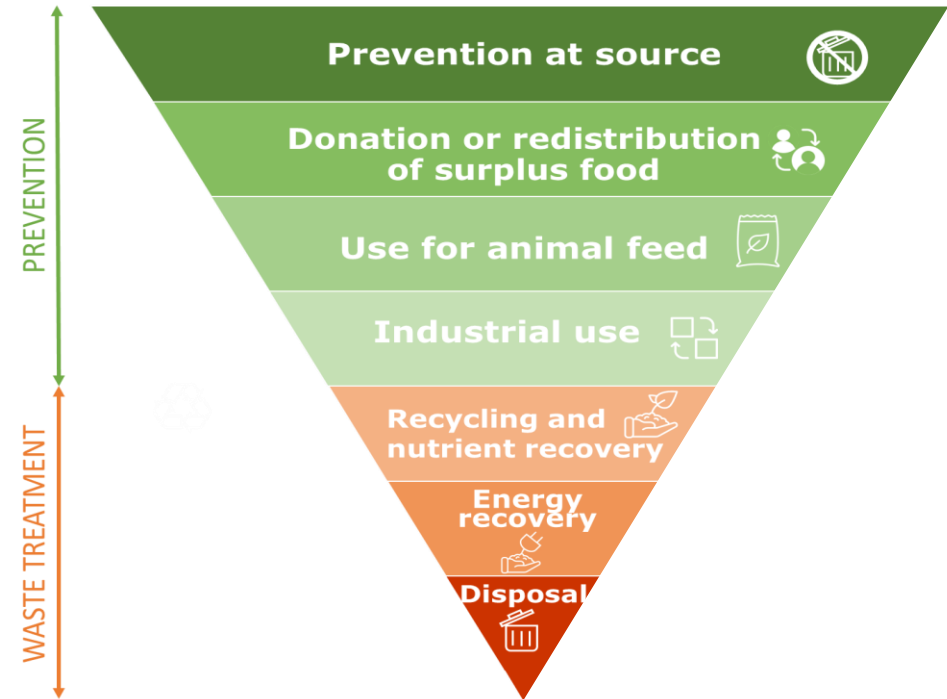
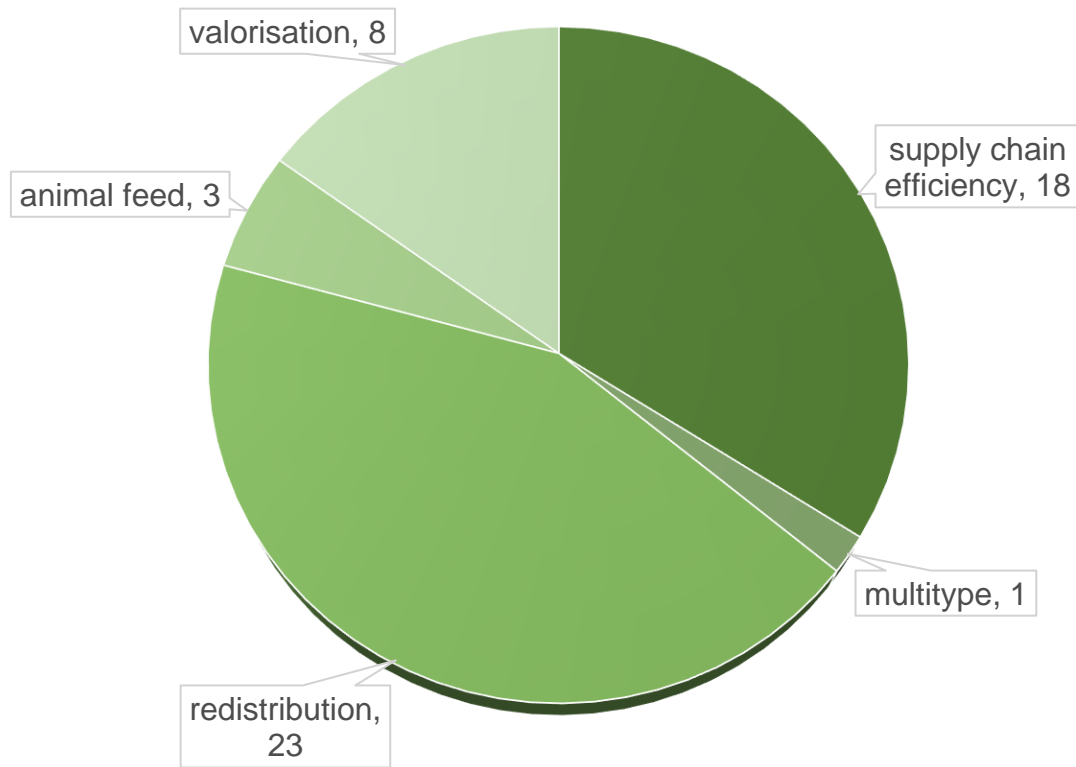
Source: [Brief on food waste in the European Union, JRC 2020](#)

# Evaluation of food waste prevention actions







- 98 initiatives collected via a **survey** distributed through the EU platform in the context of the impact assessment of the revision of the WFD (building on a similar exercise done in 2019)
  - 15 analysed in the context of the European Consumer Food Waste Forum ([Swannel et al., 2023](#))
  - 12 out of scope (not food waste related)
  - 18 incomplete submissions
- **53** initiatives analysed



# Overview of the initiatives analysed

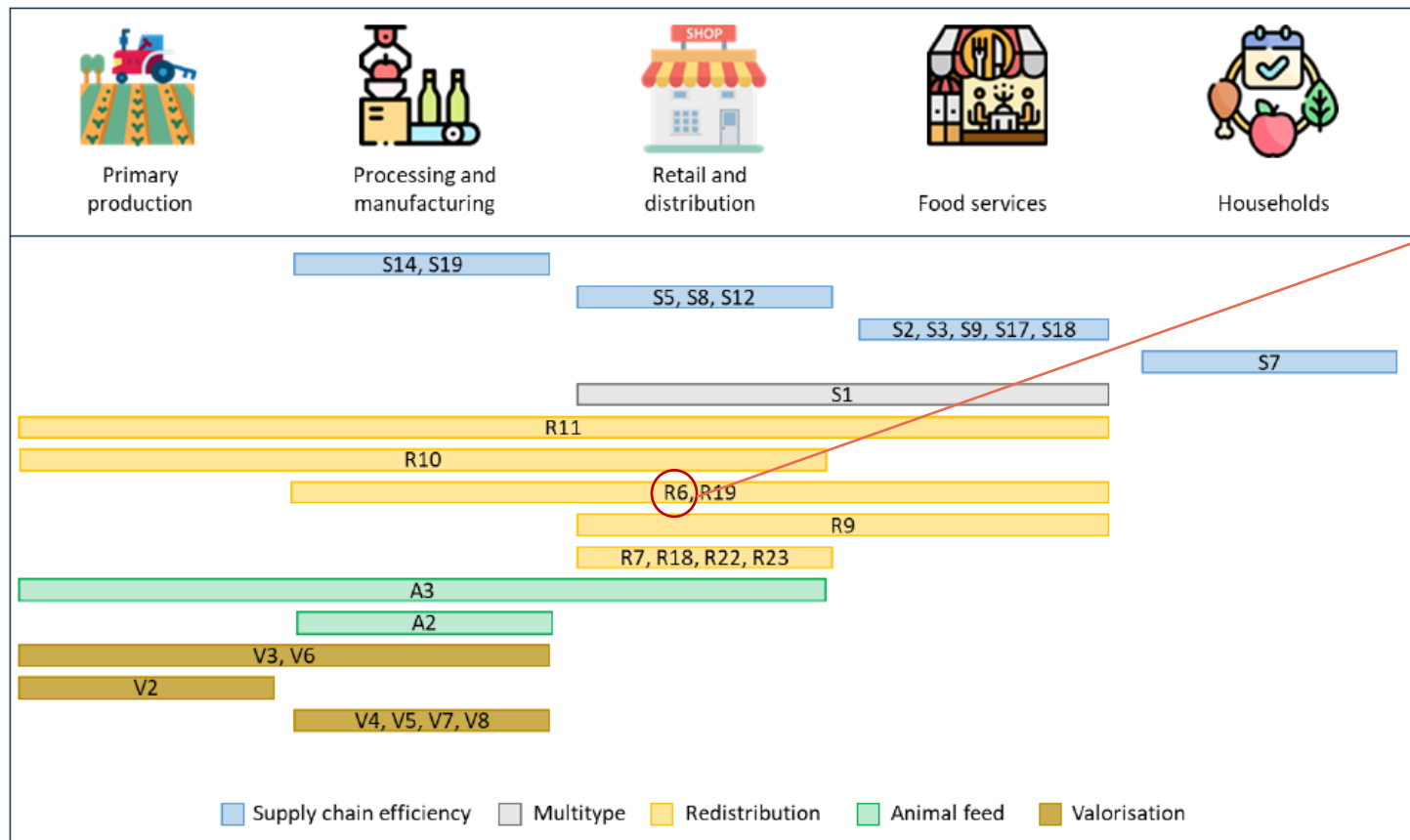


# Evaluation framework

Criteria	Description
 <b>Quality of the intervention design</b>	Objectives and aims are defined, appropriate targets and related KPIs are established both in terms of impacts (food waste reduction quantities) and/or outcomes (behaviour change or outreach), presence of a consistent monitoring plan, identification of food waste drivers and levers in the design of the intervention.
 <b>Effectiveness</b>	Whether the intervention reached the objectives set out in the design phase, preferably providing quantitative evidence of food waste reduction or consumer behaviour change.
 <b>Efficiency</b>	A ratio measuring the performance of an intervention (results achieved/ resources spent).
 <b>Perceived wider systemic effects of the intervention</b>	Assessing the possible connection between the food waste prevention intervention and other impacts on the food system (positive or negative). For example, the intervention could result in a more healthy diet or may lead to increased use of packaging.
 <b>Sustainability over time</b>	The longevity of the intervention (how long the effect of the intervention was maintained), if known, and the availability of resources needed to maintain the effect (funds, dissemination efforts).
 <b>Transferability and scalability</b>	Whether an intervention can be transferred to a different context or geographical area and if it can be scaled up.

Source: Candea et al. (2023)

# Factsheets of selected actions



**EFFICIENCY**

**Reference period:** 1 year (2022)

**Results**

**Food waste prevented:** 1 640 tonnes

**Economic benefits\*:** 10 946 268 euro

**Environmental benefits\*:** climate change 9 866 205 kg CO<sub>2</sub> eq – water use 7 259 047 m<sup>3</sup> water eq

**Social benefits:** 5 people are employed through the intervention and 95 volunteers take part in the initiative (about 20.000 hours of volunteer work). 8100 families corresponding to approximately 20 730 people benefitted from the donations.

---

**PERCEIVED SYSTEMIC EFFECTS**

The initiative relies on the cooperation with local foundations, municipalities and public entities for social services and beneficiary associations. Furthermore, it collaborates with other associations to allow the replication of the model to other contexts.

---

**SUSTAINABILITY OVER TIME**

The following elements were put in place to ensure the sustainability of the initiative over time: ensuring availability of human resources, infrastructure and technology needed in the long term; ensuring the economic sustainability of the initiative; training of staff.

---

**TRANSFERABILITY AND SCALABILITY**

The initiative has been transferred to multiple municipalities, this was supported by organizing training activities. The main challenge to transferring the program is that it needs a complex management system: administrative, legal, logistic, security, networking with social public service. The same model was adopted by another association (LIONS Club) in Bergamo and Mantua.

---

**RECOMMENDATIONS FOR ACTION OF THE EU PLATFORM ON FOOD LOSSES AND FOOD WASTE ADDRESSED**

Promote the use of surplus food for food donation both in quantity and quality.

---

**KEY SUCCESS FACTORS AND BARRIERS**

The success of the initiative is due to two main factors:

- the organisational model perfected over the past 20 years and the relationship of trust built in the by Cauto and Maremossio;
- the widespread presence of the beneficiary associations in the territory of Brescia Province.

Critical issues: the current situation of production crisis and growing poverty resulting in a reduction of recoverable surpluses. Over the past year, Dispensa Sociale has seen a 30% decrease in the recovery of surpluses from the large-scale retailers and other donors, and a 40% increase in management costs (logistics, transport and electricity), resulting in a decrease in the distribution capacity and ability to meet charities' needs.

# Evaluation of food waste prevention actions

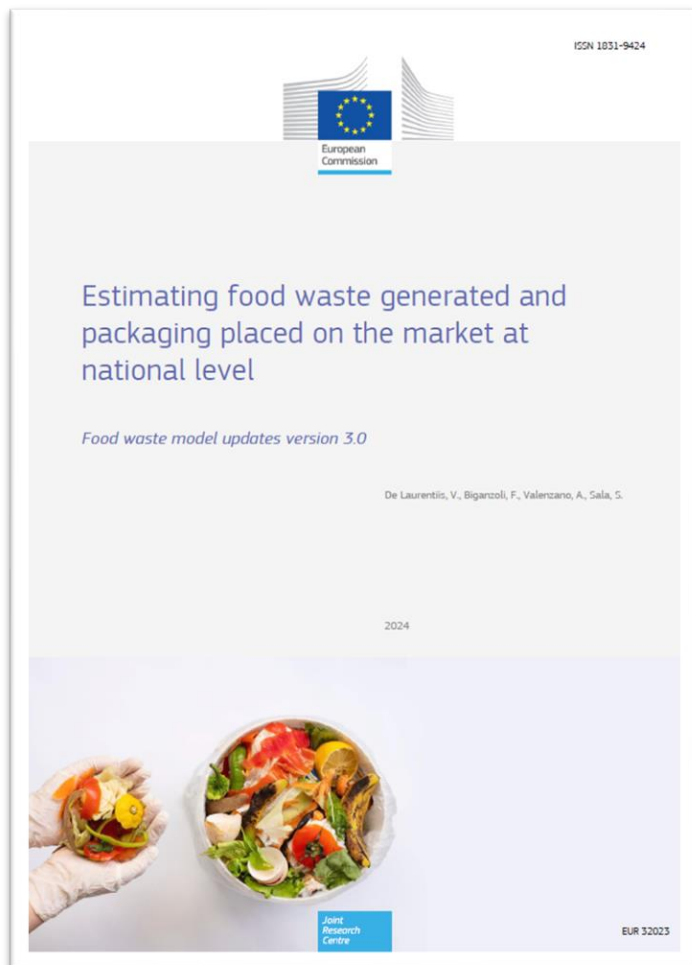
		Supply chain efficiency including multitype (19)	Redistribution (23)	Animal feed (3)	Valorisation (8)
Quality of intervention design	Baseline established	10	4	0	1
	Monitoring	17	20	1	6
	Setting clear KPIs	17	19	1	7
	Setting targets	11	8	1	4
Effectiveness	Reaching targets	7	5	0	1
Efficiency	Reporting food waste avoided	14	19	0	0
	Reporting costs	15	18	0	0
	Data to assess environmental impact	2	9	0	0
	Food types breakdown	8	7	0	0
	Creating new jobs	4	11	0	5
	Training staff	9	11	0	5
	Involvement of volunteers	2	17	0	0
Sustainability over time	Reporting measures	16	20	3	4
Transferability and scalability	Transferred	6	6	0	0
	Upscaled	14	15	2	4
Systemic effects	Intersectorial cooperation	10	19	0	1
	Other positive/negative effects	9	4	0	1



## Evaluation of food waste prevention actions: main findings

- Overall **more quantitative data** compared to what found in 2019. Use of innovative technological solutions (e.g. image processing, machine learning, AI) to facilitate data collection and analysis
- **Better evaluation of effectiveness and efficiency** thanks to increased use of KPIs, monitoring, target setting
- **Key success factors**: intersectorial cooperation, effective communication, support of volunteers
- **Recurring barriers**: securing funds, lack of legislation to support food donation (mentioned by 2 extra-EU initiatives), resistance to change of some stakeholders
- Several interventions being **upscaled** or **transferred** to different contexts
- **Unexpected positive effects**: increased awareness, changes in consumption patterns

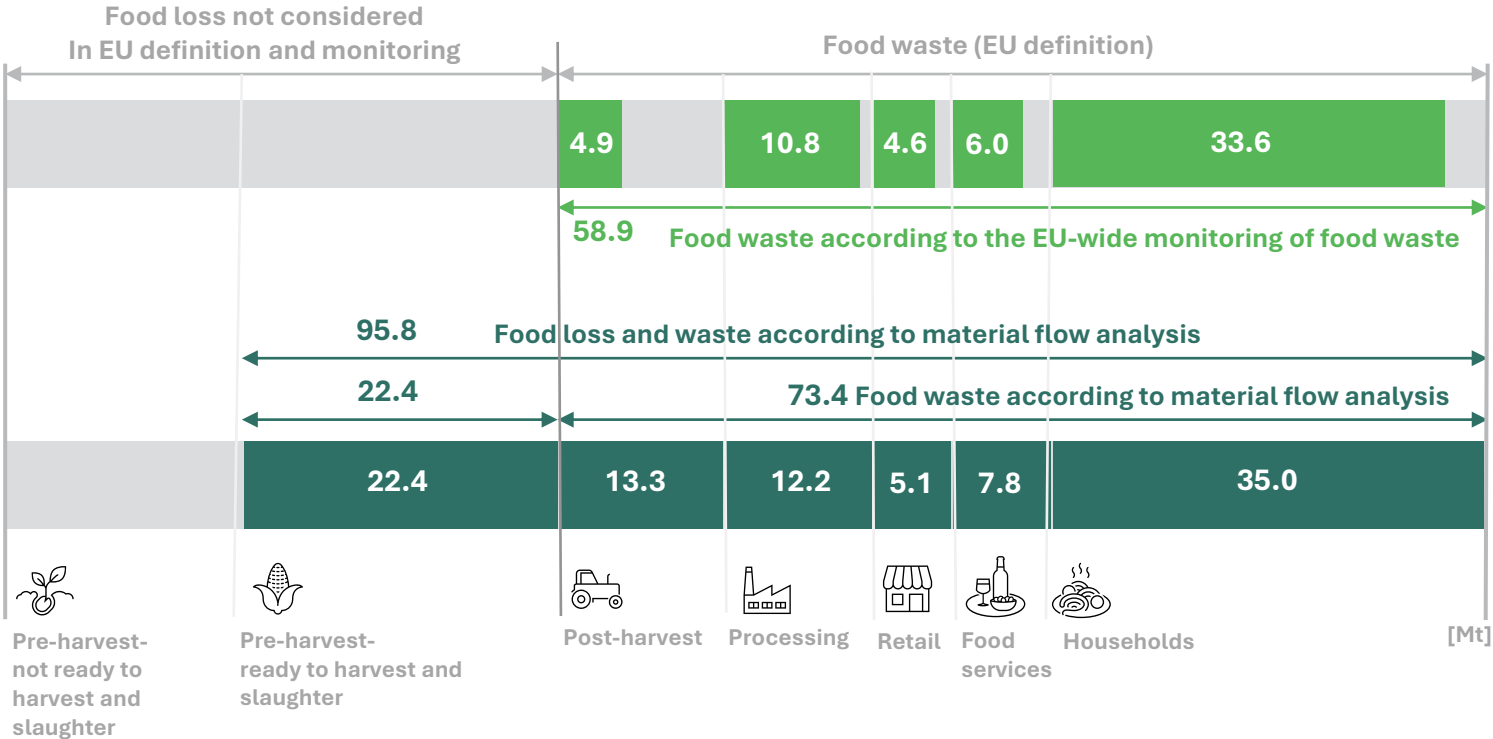
# Updated food waste estimates



- Updated food waste estimates in EU Member States, differentiating by stage of the food supply chain and food group, available for years 2003-2021
- Used for benchmarking purposes by Eurostat



# Updated food waste estimates



Data reported by MSs to Eurostat (ref year 2021)

Data estimated by the JRC model (ref year 2021)

Figure adapted from [Agora Agriculture \(2024\)](#): Agriculture, forestry and food in a climate neutral EU. The land use sectors as part of a sustainable food system and bioeconomy.

# Other activities in support to FW reduction

Comprehensive set of actions for **evidence-based policymaking** across the whole **policy cycle**, based on **life cycle thinking**

- Assessing the **environmental impacts** associated to food waste generation
- Supporting **impact assessment** for the revision of the waste framework directive
- Contributing to an **EP project addressing consumer FW**
- Providing **guidance for stakeholders** and **communicate** our findings to different audience

# Thank you and keep in touch

**JRC-FOOD-WASTE@ec.europa.eu**



© European Union 2024

Unless otherwise noted the reuse of this presentation is authorised under the [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/) license. For any use or reproduction of elements that are not owned by the EU, permission may need to be sought directly from the respective right holders.



**EU Science Hub**

[Joint-research-centre.ec.europa.eu](https://joint-research-centre.ec.europa.eu)