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# Food waste in industry and research

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# 1. What is Food Waste?

- Food waste refers to food that is discarded or uneaten, even though it is still safe and edible. It happens at different stages—from production and transportation to supermarkets, restaurants, and households.
- Common causes of food waste include **overproduction, expiration, poor storage, and consumer habits like buying too much or not using leftovers.**
- Food waste is the loss of edible food that is discarded or left unused at any point in the food supply chain, from production and distribution to consumption. It occurs due to various factors, such as **over-purchasing, improper storage, spoilage, or simply throwing away leftovers.**
- It differs from **food loss**, which refers to food that is unintentionally lost before it reaches consumers, often due to inefficiencies in harvesting, transportation, or storage. Food waste, on the other hand, typically happens at the retail and consumer level.

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## 2. Some statistics about food waste in Europe



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- Food waste remains a significant issue in Europe. In **2022**, the **EU generated over 59 million tonnes** of food waste, which translates to **132 kg per person**. Households were responsible for **54%** of this waste, amounting to **72 kg per inhabitant**.
  - The European Commission has set a target for its member states to reduce food waste by 30% per capita. This target is shared by retail, food services and households.
  - The breakdown of food waste across different sectors in the EU is as follows:
    - **Households:** 54% (32 million tonnes)
    - **Food processing & manufacturing:** 19% (11 million tonnes)
    - **Primary production:** 8% (5 million tonnes)
    - **Restaurants & food services:** 11% (7 million tonnes)
    - **Retail & food distribution:** 8% (5 million tonnes)

# 3.The environmental impacts of food waste

Food waste has serious environmental consequences, affecting climate, water resources, and biodiversity. Here are some key impacts:

- Greenhouse Gas Emissions:** Food waste contributes to **8–10% of global greenhouse gas emissions**. When food decomposes in landfills, it releases **methane**, a gas **25 times more potent** than carbon dioxide in trapping heat.
- Water Waste:** Agriculture uses **70% of the world's freshwater**, and wasted food means wasted water. For example, producing **two pounds of beef** requires **50,000 liters of water**, which is lost if the food is discarded



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## 3.The environmental impacts of food waste

- Land Degradation:** Around **1.4 billion hectares** of land—**28% of the world’s agricultural area**—is used to grow food that is ultimately wasted.
- Biodiversity Loss:** Food production leads to deforestation, habitat destruction, and overfishing. When food is wasted, these environmental damages occur **for no benefit**.
- Energy Waste:** Food production, transportation, and storage require significant energy. Wasting food means wasting the energy used in these processes



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## 4. How to track food waste in businesses and organizations (hotels, schools, hospitals etc )

### Food Waste Audit (Baseline Assessment):

- Purpose:** To get a comprehensive understanding of current waste levels and types.
- Method:**
  - Categorize Waste:** Separate food waste into different categories (e.g., pre-consumer/kitchen waste like trimmings, overproduction, spoilage; and post-consumer/plate waste).
  - Weighing:** Use scales to accurately measure the weight of each category of food waste over a defined period (e.g., a few days to a week).
  - Document Reasons:** Train staff to identify and record the reason for waste (e.g., over-portioning, poor forecasting, expired ingredients, preparation errors).
  - For example Food Waste workshops for staff



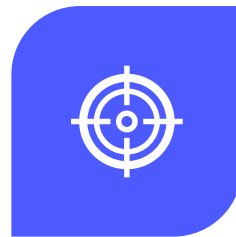
# 4. How to track food waste in businesses and organizations (hotels, schools, hospitals etc.)



**PROCESS: SET SCOPE:**  
DECIDE WHICH AREAS OR  
SHIFTS TO AUDIT.



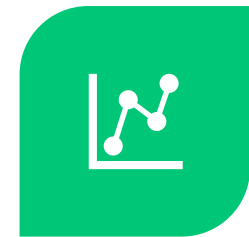
**PREPARE:** GET  
APPROPRIATE BINS, SCALES,  
AND TRACKING SHEETS.



**ECUCATING STAFF:**  
CRUCIAL FOR ACCURATE  
DATA COLLECTION AND BUY-  
IN.

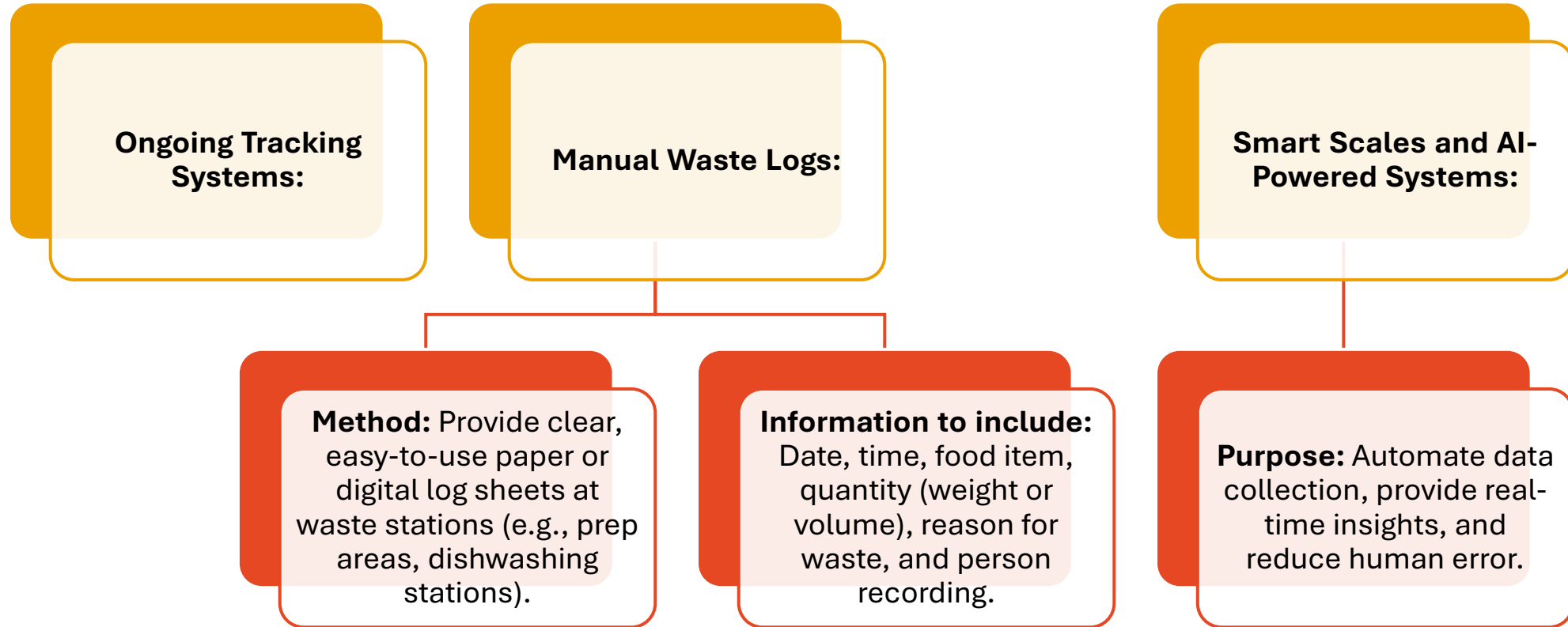


**COLLECT DATA:**  
CONSISTENTLY WEIGH AND  
RECORD WASTE.

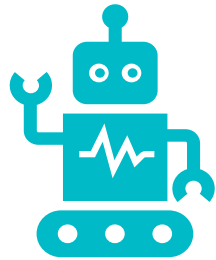


**ANALYZE:** REVIEW THE DATA  
TO IDENTIFY TRENDS, HIGH-  
WASTE ITEMS, AND PEAK  
WASTE TIMES.

## 4. How to track food waste in businesses and organizations (hotels, schools, hospitals etc.)



# 4. How to track food waste in businesses and organizations (hotels, schools, hospitals etc)



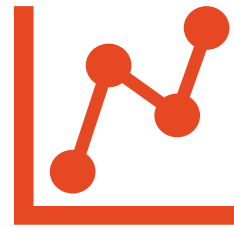
## Examples:

**Leanpath:** Uses AI-enabled cameras and integrated scales to track food waste in seconds.

**Winnow:** Helps cut food waste in half with easy recording (e.g., "Throw & Go" technology) and AI-powered insights.

**Orbisk:** Uses image recognition to automatically identify and quantify discarded food.

**SmartKitchen Food Waste Tracker:** Automated monitoring with wireless waste scales and an online service for analysis.



**Benefits:** Highly accurate data, real-time reporting, identification of patterns, and decision-making support.



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## 4. How to track food waste in businesses and organizations

- **Inventory Management Software:**  
**Purpose:** Integrates with waste tracking to help prevent waste by optimizing purchasing, managing expiration dates (FIFO - First-In, First-Out), and improving menu planning.
- **Examples:** JAMIX Kitchen Intelligence System, FoodReady.
- **Features:** Stock level monitoring, ingredient usage tracking, alerts for expiring items, and purchase recommendations.

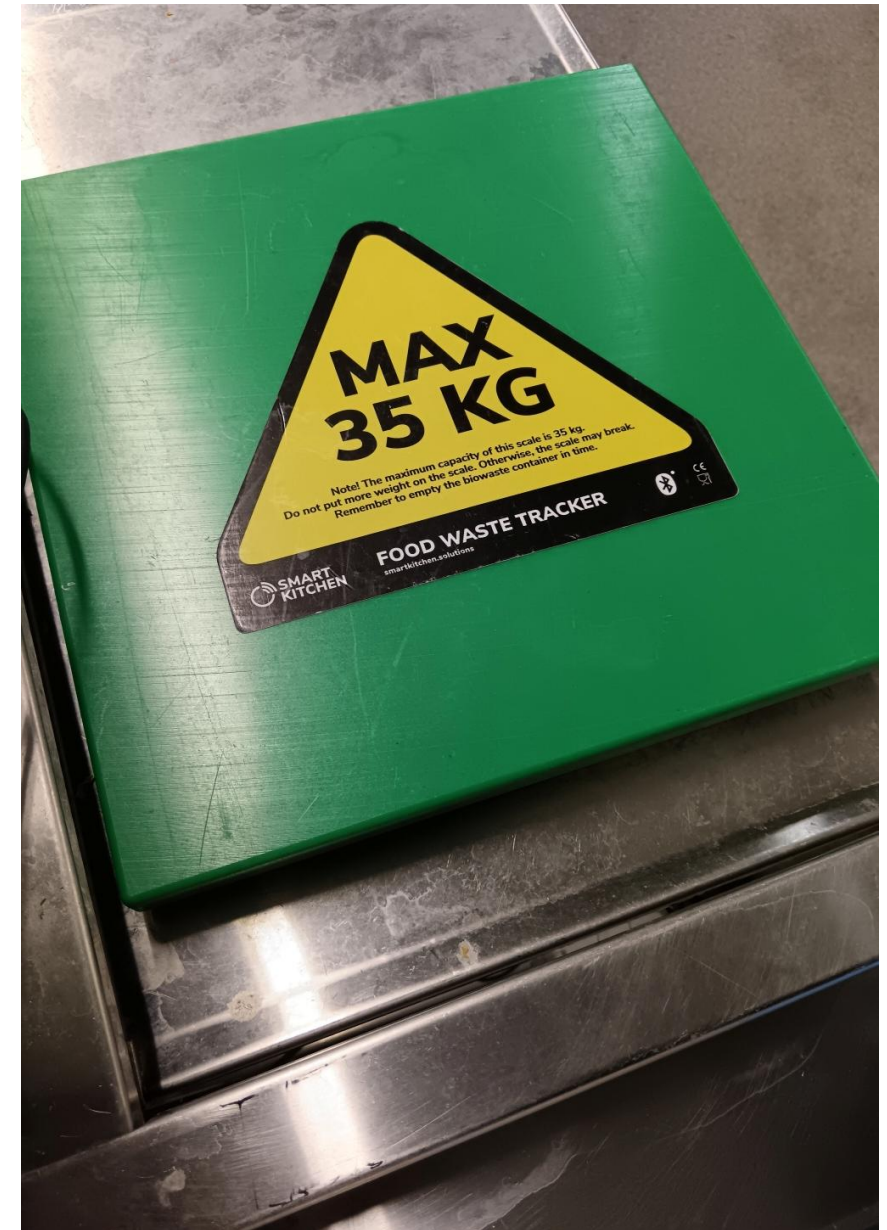
## 5. Smart Kitchen foodwaste tracker / Waste scale with touch screen



- Waste Scale with touch screen
- Measurement device for monitoring food waste in professional kitchens.
- Two scale models available: maximum load of 35 kg or 150 kg
- Android tablet
- The entity is pre-configured
- Warranty and support
- Easy Start packages
- Possibility to integrate with the POS or other systems used by the kitchen.

## 5. Smart Kitchen foodwaste tracker / Waste scale with touch screen

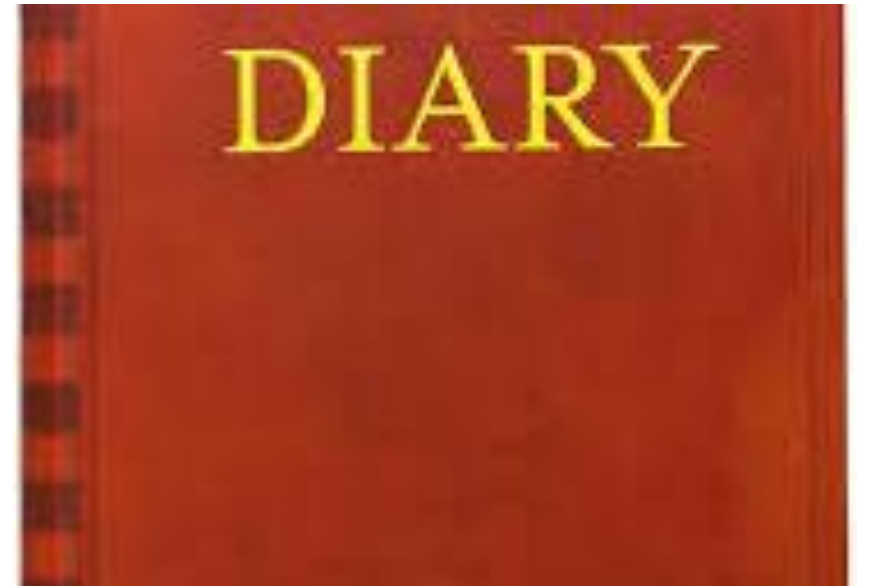
- **Easy to use:**  
Pour the waste into a container on top of the waste scale. Select the waste item on the touch screen. The information is stored directly in the Food Waste Tracker online service.



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## 6. Exercises

- 1. **Waste accounting:** The homework assignment is to record the edible food your family throws away and estimate its monetary value. The accounting is done in a diary-like manner. At the same time, it is worth recording the reasons for throwing away the food.
- For example, a banana – overripe; the rest of the soup in the pot – no one had the energy to eat it; a yogurt jar – forgotten at the bottom of the fridge. Recording the reasons also makes you notice unnecessary throwing away.



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## 6. Exercises

- **2. Operation Cupboard Cleanout:** Participants bring products from home that are approaching their expiration or best before dates and that they have no intention of using.
- Often, dry products, such as cereals and flakes, end up at the bottom of the cupboards and are not used. Together, we can think of new ways to use the small amounts of food left in the packaging.



## 6. Exercises

3. Go on the website : [Food waste and food waste prevention - estimates - Statistics Explained – Eurostat](#) to study the food waste statistics of EU countries and answer the following questions:

- 1) Which EU country produces the most/least household food waste?
- 2) Which country produces the most/least total food waste?
- 3) How much total food waste is produced in your home country?

