

GrAins

Greening Agrifood
in Social Economy



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The incidence of food waste in agri-food chains and tools for their reduction

Barbara Pancino, Università degli Studi della Tuscia
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FOOD WASTE

- How much impact does producing food have
- Why wasting is unsustainable

CONTRASTING TOOLS

- The current International and European political agenda
- How to achieve the objectives
- Key messages



Food waste: an economic, environmental and social problem

Food waste negatively impacts the sustainability of food systems

- ☐ **Environmental aspects:** waste of resources, "useless" emission of pollutants, waste management
- ☐ **Social aspects:** paradox between food waste (including overeating) and food security (also in Europe)
- ☐ **Economic aspects:** market failure, an entire supply chain is activated to produce, transport and sell a product that will not be consumed



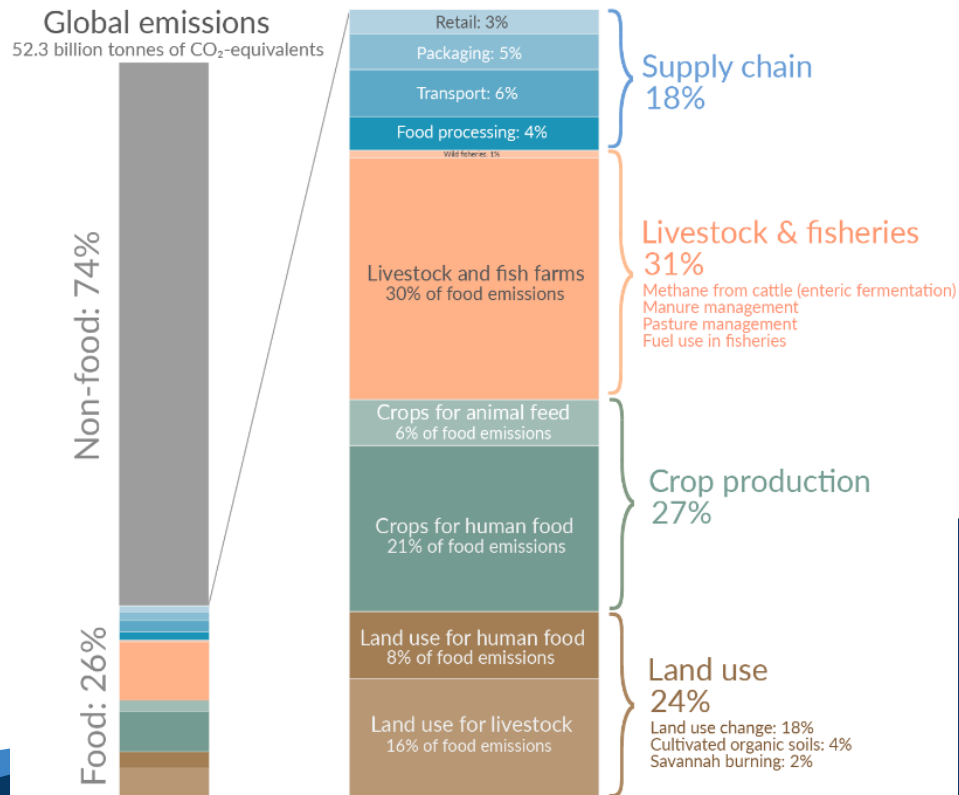
Impact of agri-food supply chains



GREENHOUSE GAS EMISSIONS FROM AGRI-FOOD SYSTEMS

- Food production is responsible for 26% of global climate-altering emissions
- Especially due to the agricultural phase, and in particular animal farming

Source: Our World in Data 2019
(<https://ourworldindata.org/food-ghg-emissions>)
basato su Poore, J., & Nemecek, T. (2018). Reducing food's environmental impacts through producers and consumers. Science, 360(6392), 987-992.



Unsustainability of food waste

GREENHOUSE GAS EMISSIONS FROM AGRI-FOOD SYSTEMS

- In some sectors, such as beverages and mineral water, packaging and transportation cause a significant part of the impacts
- In some highly industrially transformed products, it may happen that the industrial phase itself generates the greatest environmental impacts
- The use of greenhouses, heating and long-distance transport (especially by plane) increase the environmental impact of food

Unsustainability of food waste

- A significant portion of climate-altering emissions generated in agri-food production depends on the production of food that will never be consumed
- Food loss and waste

Emissions from food that is never eaten accounts for 6% of total emissions



International agenda



- Agenda 2030 sottoscritta da 193 paesi membri delle Nazioni Unite nel 2015
- **SDG target 12.3**
- Ci siamo impegnati a ridurre gli sprechi alimentari del 50% entro il 2030

[video](#)

TARGET 12.3



HALVE GLOBAL PER CAPITA FOOD WASTE



Target 12.3

By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.

To check progress: https://sdgs.un.org/goals/goal12#progress_and_info

European political agenda

- To address the challenges of climate change and environmental degradation, in December 2019 the European Union launched the Green Deal
- A strategic programme to transform the EU into a resource-efficient and competitive economy, ensuring:
 - Zero net greenhouse gas emissions by 2050
 - Economic growth decoupled from resource use
 - No person and no area of the EU left behind



The first climate-neutral continent

by 2050

At least 55% less

net greenhouse gas emissions by 2030, compared to 1990 levels

3 billion

additional trees to be planted in the EU by 2030



The European Farm-to-Fork Strategy

- The **Farm-to-Fork** strategy is at the heart of the European Green Deal
- It aims to make European agri-food systems more sustainable, while pursuing environmental, social and economic objectives
- The Farm-to-Fork strategy envisages that improving the sustainability of agri-food systems will also make them more resilient in the event of shocks (e.g. Covid pandemic)
- producers, ensuring the competitiveness of supply chains

**Moving towards a more healthy and sustainable EU food system,
a corner stone of the European Green Deal**



Make sure Europeans get
healthy, affordable and
sustainable food



Tackle climate
change



Protect the environment
and preserve biodiversity



Fair economic
return in the food
chain



Increase organic
farming

The European Farm-to-Fork Strategy

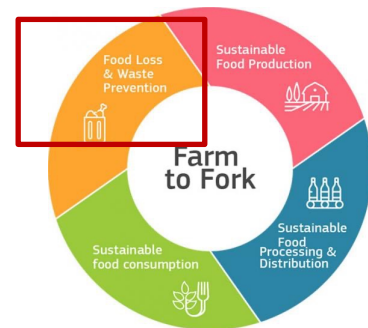
- The Farm-to-Fork strategy is divided into 4 pillars:
 1. Sustainable agricultural production
 2. Sustainability of industrial processes and distribution
 3. Sustainable food consumption
 4. **Prevention and reduction of food waste**



The European Farm-to-Fork Strategy

PREVENTION AND REDUCTION OF FOOD WASTE

- Monitoring of food waste
- Objectives for reducing food waste
- Proposals for changes to the labelling relating to the expiry dates “best before” and “use by”



European political agenda



- In order to accelerate the EU's progress towards Sustainable Development Goal 12.3, the Commission has proposed to set legally binding targets for food waste reduction to be achieved by Member States by 2030, as part of the revision of the **Waste Framework Directive**, adopted by the Commission on 5 July 2023.
- More specifically, Member States are required to adopt the necessary measures to reduce food waste by the end of 2030:
 - by **10%** in the processing and production phases,
 - by **30%** (per capita), in the trade and consumption phases (restaurants, food services and households).



European political agenda

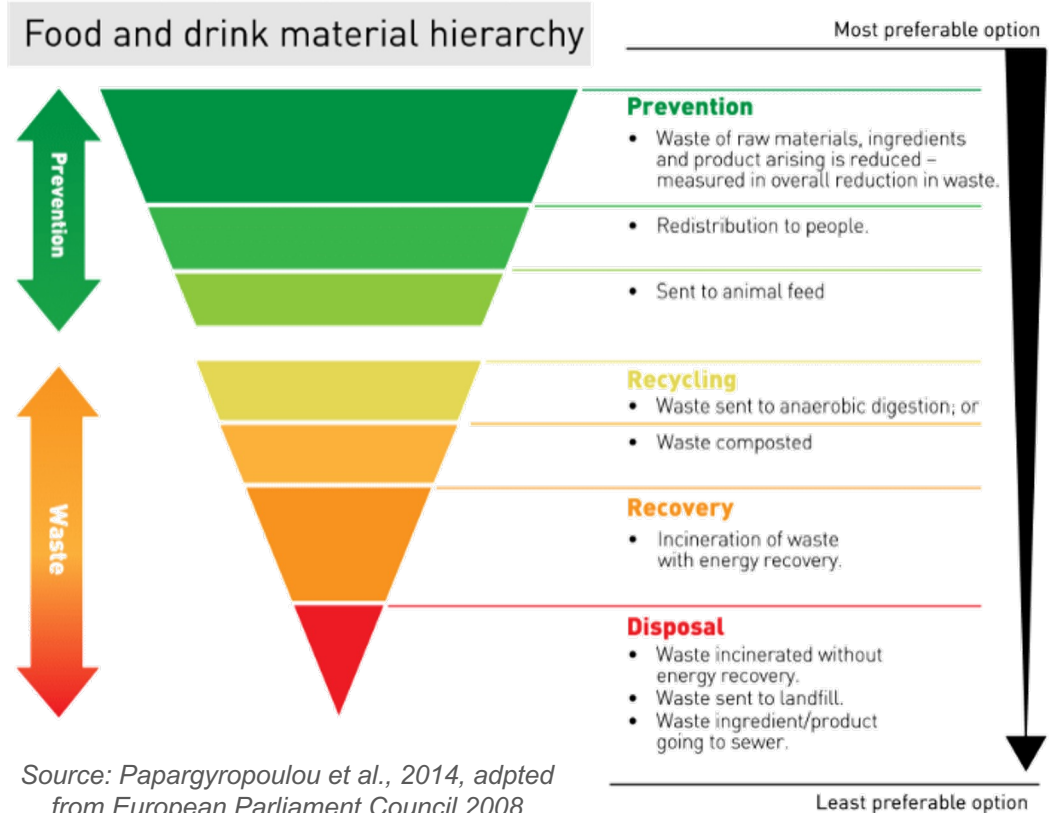


- National legislation: Currently only France (Law No. 138, approved on 11 February 2016) and Italy (Law No. 166, approved on 19 August 2016) have enacted **national laws** specifically addressing the issue of food waste.
- Some countries, such as Denmark and Portugal, are now implementing **action plans** with detailed actions against food waste, which include many cross-sectoral initiatives to establish national laws in the coming years.
- Others, such as the Czech Republic and Sweden, include food waste policies within **waste management** legislation.
- Despite the lack of national regulations in several EU countries, local and urban initiatives and projects are very common in European regions and cities (EU Platform for Food Losses & Waste)



How to reduce food waste

- Prevention first
- Reuse and redistribution
- Animal feed
- Recycling
- Material/energy recovery
- Disposal



Source: Papargyropoulou et al., 2014, adapted from European Parliament Council 2008

PREVENTION OF FOOD WASTE – AT HOME

What can be done?

1. Store food correctly
2. Reuse leftovers
3. Make a shopping list

Every now and then, measure food waste for a week!!



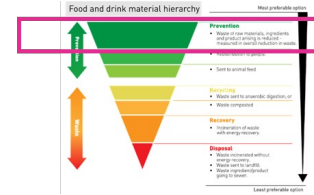
How to reduce food waste

FOOD WASTE PREVENTION – OUTSIDE HOME (canteen, restaurant,...)

Different types of waste: unserved food, food left on plates

What can be done?

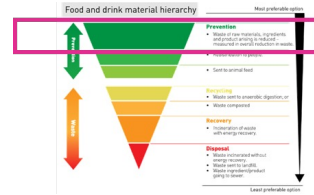
1. Involve users (families) in defining school menus to make them more enjoyable
2. Promote the recovery of food not served by restaurants for charity
3. Take away what we can't eat when we go to a restaurant



How to reduce food waste

FOOD WASTE PREVENTION – LARGE RETAILERS

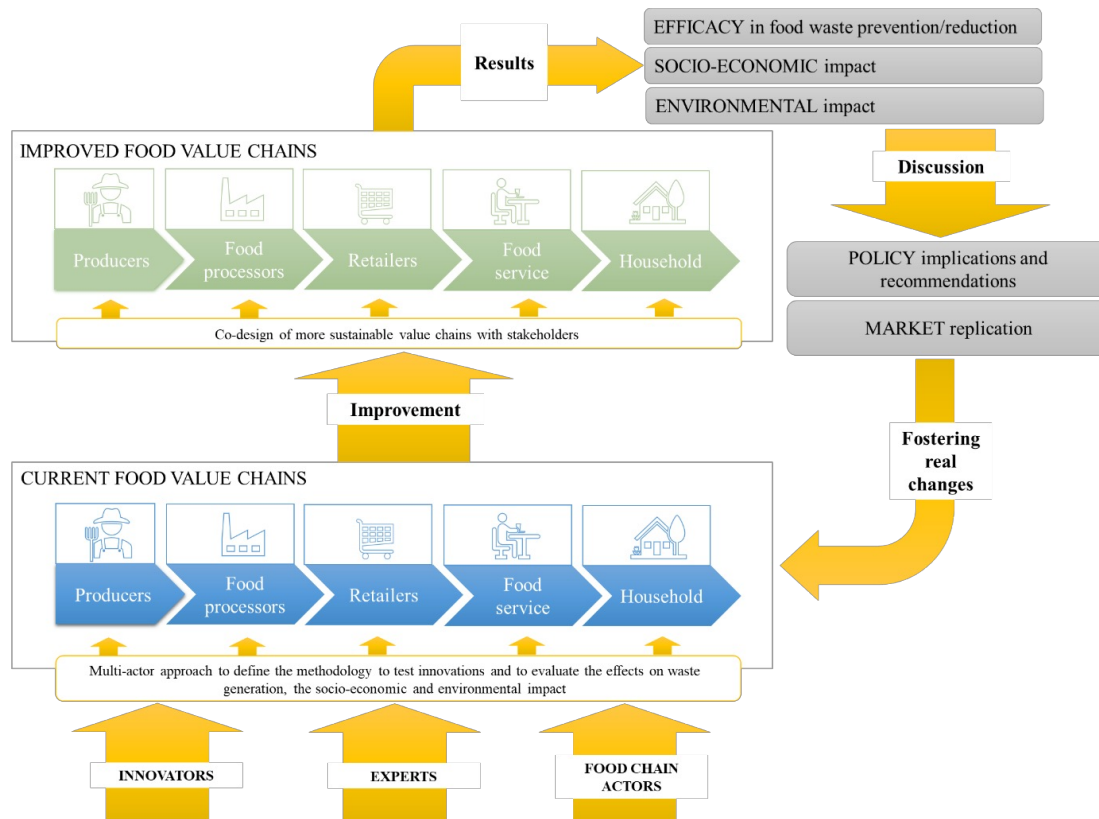
- 35% of discarded products are perfectly consumable
- Packaging damage
- Close to expiration



What can be done?

- More accurate sales forecasts, to avoid excess orders
- Promote the recovery for charity of food that is no longer saleable but still perfectly consumable
- Project **LOWINFOOD**

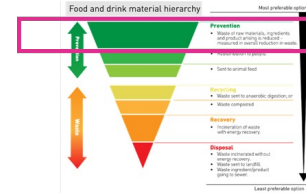




How to reduce food waste

FOOD WASTE PREVENTION – PRODUCTION

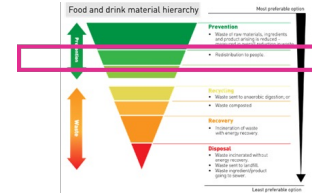
- Lack of data on the actual amount of food waste in these phases
 - Products discarded due to blemishes
 - Industrial waste
- What can be done?
 - Research to understand the dynamics of food waste in these phases
 - Acceptability of "imperfect" products in distribution
 - Circular economy paths for non-edible waste



How to reduce food waste

REDISTRIBUTION AND REUSE

- Donate surpluses (perfectly edible) to associations that deal with Food Assistance to the needy
- Withdrawals from the market by European organizations (cereals, legumes, fruit and vegetables)
- Laws and policies to promote redistribution, especially aimed at defining the responsibilities of those who donate and those who receive
- Logistical aspects and "critical mass"
- Incentives

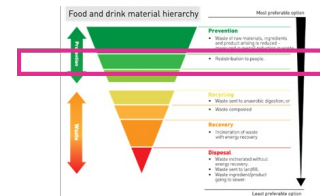


How to reduce food waste

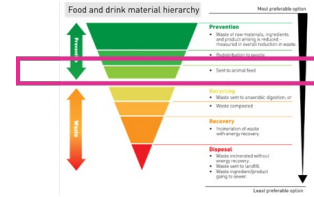
REDISTRIBUTION AND REUSE



Source: European Commission, Directorate-General for Health and Food Safety, Food redistribution in the EU – Mapping and analysis of existing regulatory and policy measures impacting food redistribution from EU Member States, Publications Office, 2020, <https://data.europa.eu/doi/10.2875/406299>



How to reduce food waste

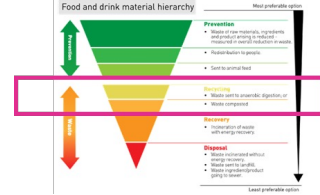


ANIMAL FEEDING

- Until 2001, the use of food waste for animal feed was quite common
- BSE and other health problems in livestock farming have raised many doubts about this practice, which has been greatly limited by EU Regulation No. 1069/2009
- The use of organic waste for animal feed is prohibited
- The feeding of herbivorous animals with animal proteins is prohibited
- The use of food waste in pig farming is regulated
- The use of industrial waste for animal feed is more widespread (but strongly regulated)

How to reduce food waste

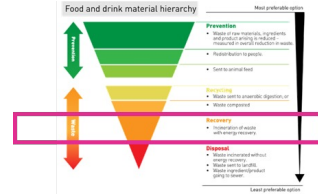
RECYCLING AND RECOVERY OF MATERIAL/ENERGY



- To promote the recycling and recovery of organic waste, it is essential to ensure proper separate collection
- Having a homogeneous base material allows for an efficient recycling/recovery process
- Two main treatment methods for organic waste
 1. Compost production (aerobic degradation)
 2. Biogas production (anaerobic degradation)

How to reduce food waste

RECYCLING AND RECOVERY OF MATERIAL/ENERGY



- Incineration is a practice used when organic waste is not collected separately from other waste
- It is a highly inefficient method because organic waste has a humidity of up to 80%
- It requires more energy to be incinerated, and can decrease the calorific value of the entire matrix inserted into the incinerator



Key messages

- Food waste occurs at all stages of the supply chain
- Food waste negatively impacts the sustainability of food systems
- The EU and international agenda sets targets for reducing food waste
- There are many possible actions, but we are still far from the target

Comments ?

Questions ?



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Thank you !

For more information

bpancino@unitus.it



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