

Food loss and waste prevention in the dairy chain



I. The European dairy manufacturers take action and safeguard resources

The **European dairy industry** processes milk and dairy ingredients in around 12,000 plants around the EU, and partners with around 750,000 farmers to assure an efficient and sustainable delivery of dairy products every day, ultimately being a key contributor to **sustainable food systems**. Tackling food waste is an essential part of that effort.⁽¹⁾

Dairy products contribute essentially to **high value nutrition for humans** – and the dairy industry wants to further improve this value to consumers and contribute to **food security** worldwide.



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.

With almost **one-third of all food produced globally** being lost or wasted between the farm and the fork – globally 1.3 billion tonnes of food wasted annually⁽²⁾, around 88 million tonnes of food in the EU (FUSIONS, 2016)⁽³⁾ – food loss and waste continues to be an essential component of the EU's sustainability objectives. This has also translated into the dairy sector's continuous efforts and achievements in reducing food losses and waste, not only during the production cycles but also at consumer level, to accelerate progress toward **halving food waste by 2030 (SDG 12.3)**.

The dairy industry supports international initiatives like the **Waste and Resources Action Programme (WRAP)**, which collaborated with other actors to develop the Food Waste Reduction Roadmap to Achieve SDG 12.3 and a sector specific guidance for monitoring and reporting food waste in the dairy sector.

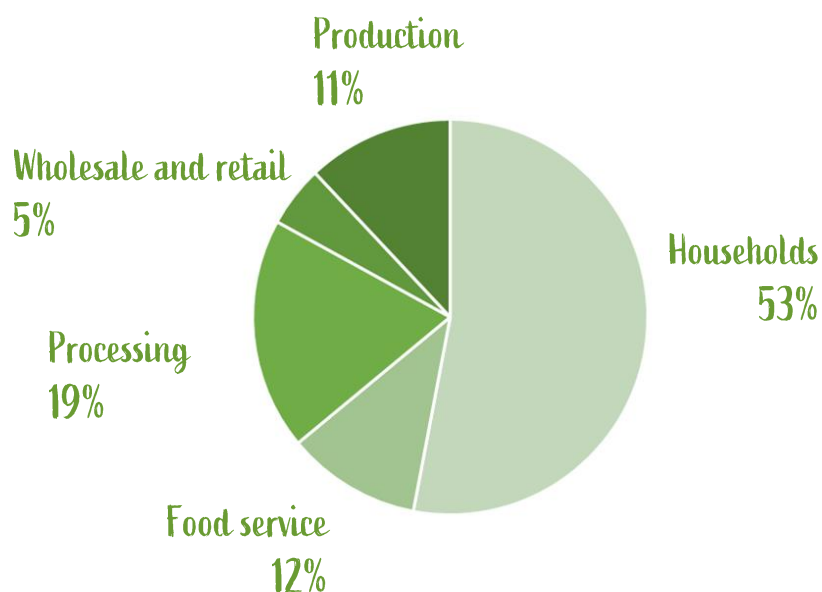
Save the date!



Keep in mind that the **International Day of Awareness of Food Loss and Waste** takes place on 29 September!

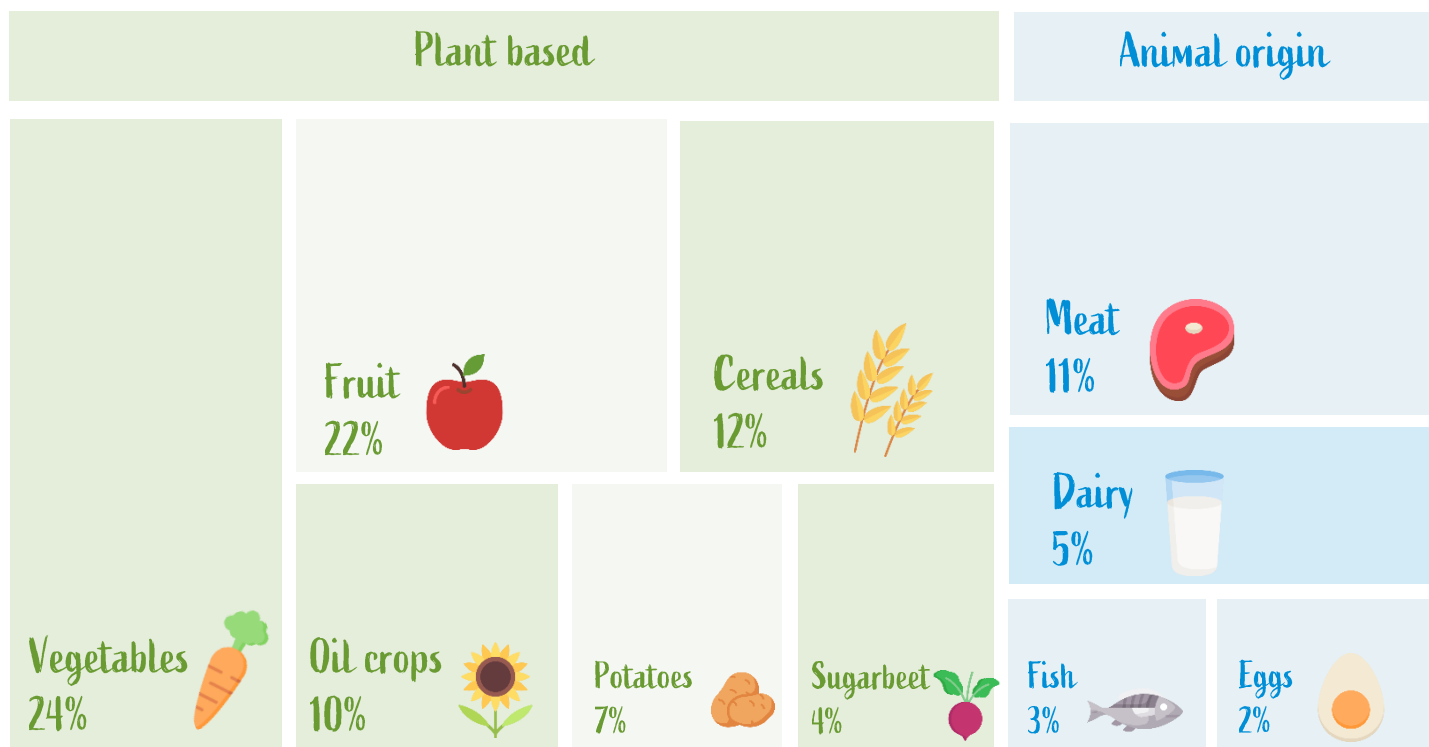


Split of EU-28 food waste in 2012 by sector⁽⁴⁾:



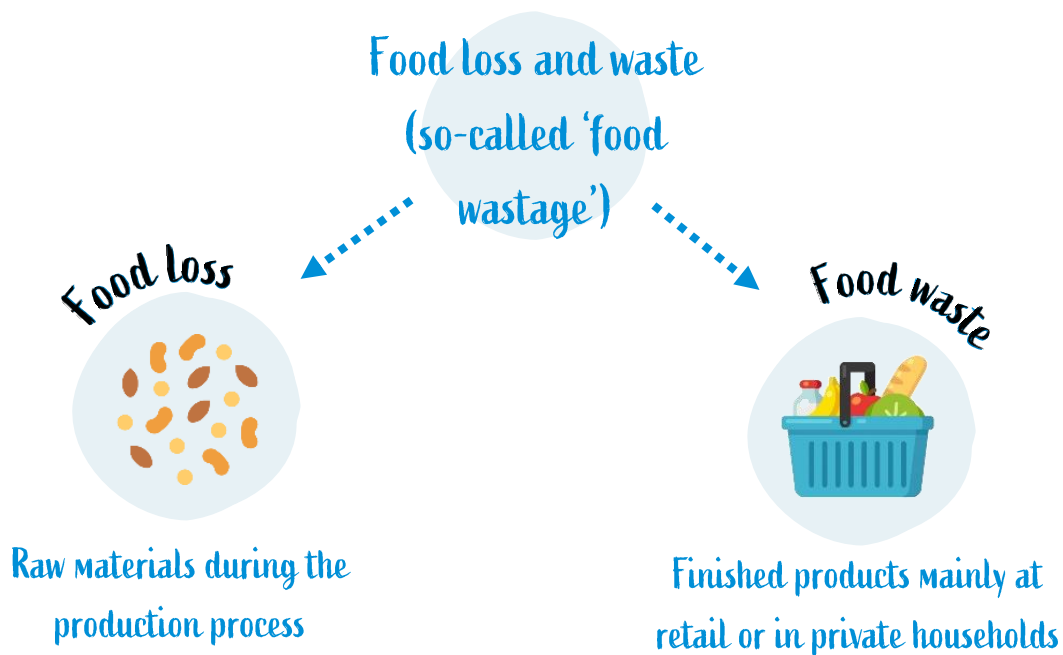
Total waste in EU-28:
129 Mt fm

EU-28 food waste quantification in 2011⁽⁵⁾ⁱ:



ⁱ According to a Mass Flow Analysis by Caldeira et al. (2019a). This estimate is higher than that of the FUSIONS project (88 Mt), which was used as a reference for policymaking (e.g., in the Farm to Fork Strategy (EC, 2020)).

II. Integrated part of the strategic approach of companies and associations



Efficient use of resources is a main pillar of an efficient sector, and further reducing losses of food is a continuous challenge that the dairy sector takes very seriously. As such, it is an integral part of the sustainability strategies of many dairy companies and overall **dairy strategic approach**.

Reasons for dairy companies to reduce food wastage:



Improving efficiency in the value chain, with the potential to improve profitability for farmers, dairy processors, dairy customers and consumers.

1



Ethical aspects: avoiding the waste of nutritious food by applying a redistribution to those in need, helping to eradicate hunger.⁽⁶⁾

2



Supporting climate change mitigation and reduce overall environmental impact from the dairy industry by improving resource efficiency of the system.⁽⁶⁾

3



III. EU legislative framework

Food waste reduction is at the heart of the **Farm to Fork strategy** for sustainable food and **Circular Economy Action Plan**ⁱⁱ, and a key component of the **European Green Deal**ⁱⁱⁱ.

Definition of Food waste in EU legislation:

“Food waste” means all food as defined in [Article 2 of Regulation \(EU\) 178/2002](#) that has become waste:

- **Food** – i.e. any substance or product, whether processed, partially processed or unprocessed, intended to be, or reasonably expected to be ingested by humans, and referring to entire food (including all its parts, both edible and not intended to be eaten).
- **Which has become waste** – i.e. which the holder (in this case a food business operator or household) discards or intends or is required to discard.

Waste Framework Directive

[Directive 2008/98/EC](#) lays down the basic concepts and definitions related to waste management, including definitions of waste, recycling, and recovery. It describes when waste is not to be considered waste anymore and becomes a secondary raw material (so called end-of-waste criteria), and how to differentiate between waste and by-products.⁽⁷⁾

Basic waste management principles

Waste to be
managed without



Endangering human health and harming the environment
(in particular, without risk to water, air, soil, plants, or animals)



Causing a nuisance through noise or odours

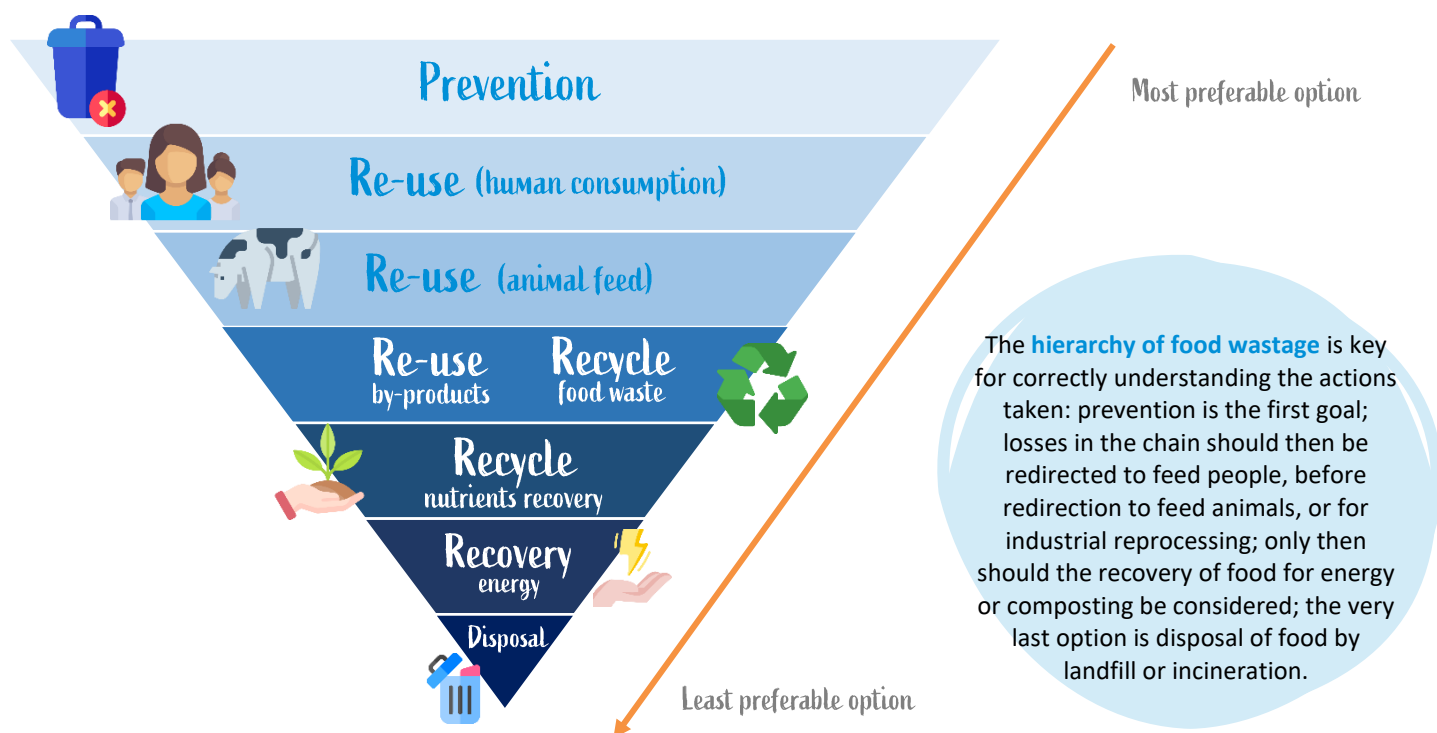


Adversely affecting the countryside or places of special interest

The following **waste management hierarchy** must be at the basis of the waste legislation and policy in the EU Member States.⁽⁸⁾

ⁱⁱ EDA Position paper on the Circular Economy Action Plan

ⁱⁱⁱ The Dairy sector & the Green Deal



EU Platform on Food Losses and Food Waste (FLW)

The **EU Platform on Food Losses and Food Waste (FLW)** is established in 2016 – led by DG SANTE – and brings together EU institutions, experts from the EU countries, and relevant stakeholders. In addition to plenary meetings, the Platform operates in sub-groups to examine specific aspects and/or questions related to food waste prevention: **food donation, food waste measurement, action and implementation, date marking**.

EDA has been bringing its knowledge and willingness to further improve – **in line with SDG target 12.3** – into the Platform and its sub-group on date marking right from their establishment.

Food waste measurement

Better food waste measurement is key to reduce food waste, and this is now simpler after the adoption in May 2019 of the **EU common food waste measurement methodology**. The Commission will set mandatory targets on food waste in 2023, based on the data annually reported by Member States from 2020 onwards. This reporting exercise will contribute to achieving the current indicative **EU wide food waste reduction target of 30% by 2025 and 50% by 2030**, in alignment with SDG target 12.3.⁽⁹⁾



See the EU Statistical Office (Eurostat)
Questionnaire and a Guidance document
for more information!

In this framework, the dairy sector can contribute by providing Member States with better data.

The **Delegated Act (DA) laying down a common food waste measurement methodology** has been developed to support Member States in quantifying food waste at each stage of the food supply chain. According to the DA, Member States will have to report by end of June 2022 on food waste generated in 2020 following a specific format for data reporting and submitting a quality check report. In addition, voluntary reporting is envisaged for edible fraction of total food waste, unsold food turned to animal feed, and food waste disposed via the sewer.

IV. Best practices in the dairy chain

The **dairy sector is interlinked with other sectors**, as dairy cows can eat some of the by-products from other sectors, upgrading inedible resources (e.g., by-products from the production of grains, sugar, rapeseed-oil, beer, juice, biofuels etc.), and our by-products are used as feed and biomaterials for other sectors.

We are doing our part in **preventing food wastage along the value chain** through actions and initiatives targeted at **promoting innovation and optimisation** in close cooperation with other partners in the supply chain, NGOs, and governmental bodies. We are also steadily increasing **food donation** as well as the use of previously discarded dairy **by-products**. In addition, food wastage along the value chain is reduced through improving efficiency at dairy sites and in **logistics**. Finally, moving volumes from incineration and biogas to **biomaterial** reprocessing and **feed** is also a mitigation option.

Collaboration between food chain and key stakeholders



- ✓ Aligning reporting to international standards and EU-regulation
- ✓ Coordinating data collection

Primary production



Manufacture



Retail



Food service



Household



Examples of actions and initiatives aimed at reducing food waste across the dairy supply chain:

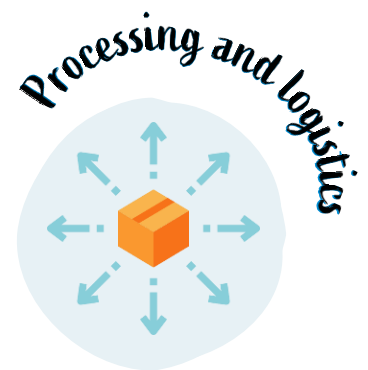


It is important to address food waste at farm level, where milk is discarded because of many reasons, one being antibiotic use when the milk cannot be delivered to the dairy within a set quarantine-time.

Of course, dairy operators do not want such a valuable raw material to be wasted, thus they maintain a constant dialogue with farmers to:

- ✓ Further improve their animal health performance, minimising antibiotic use by preventive action.⁽¹⁾
- ✓ Ensure that more raw materials meet regulatory, commercial and food safety standards, thus helping them to reduce food losses.
- ✓ Or alternatively review standards to identify those that contribute to increasing food loss and waste while a less restrictive standard could reach the same goal.

- ✓ Improving production efficiency and creating innovative solutions to halve the food waste in the dairies' own operations.
- ✓ Strive to achieve zero waste for disposal in our manufacturing sites.
- ✓ Reduction of losses along the supply chain, e.g., companies are also taking initiatives to improve delivery route efficiencies to reduce damaged products, returns and missed delivery windows.
- ✓ Collaboration with customers to reduce waste by improving efficiency in the system (can be delivery windows as well as more efficient processes to optimize logistics, etc.).





With a significant part of food wastage taking place at the end of the chain, decreasing waste of dairy products not only requires initiatives on the manufacturing side, but also innovative solutions to help consumers reduce waste.⁽¹⁾

In this context, the dairy sector has engaged – amongst others – in raising awareness at consumer level and improving packaging (see related chapter below).

- ✓ Giving consumers anti-waste tips and tricks, offering different package sizes to enable consumers to match their purchase with their needs, providing clearer storage, freezing, and preparation instructions, designing packaging that is easy to fold and fully empty, supporting consumer campaigns, addressing how to maximize the freshness and shelf life of dairy products, **making date labels** better understandable to consumers.

Date marking

A Commission study published in February 2018⁽¹⁰⁾ evaluated that up to 10% of the 88 million tonnes of food waste produced every year in the EU is linked to date marking⁽¹¹⁾. Thus, **better understanding and use** of date marking on food, i.e. "use by" and "best before" dates, by all actors concerned can prevent and reduce food waste in the EU.

- **Use by** indicates the date until when the food can be eaten safely. "Use by" dates appear on highly perishable food.⁽¹²⁾ You should not eat, cook, or freeze it after the date displayed, even if it looks or smells fine.
- **Best before** indicates the date until when the food retains its expected quality. Often food is still safe to consume after the indicated "best before", but only if storage instructions are respected and packaging is not damaged. However, it might start to lose its flavour and texture.⁽¹²⁾

Food business operators must follow a **risk-based approach** when deciding on the type of date marking, shelf life and the related food information that should be provided on the label to ensure food safety.⁽¹¹⁾

Some companies are **improving their label** by adding voluntary information to encourage customers to smell and taste the products before throwing them out once the "best before" date has passed.⁽¹⁾





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Where surpluses cannot be avoided, we work to redirect fresh, quality dairy products which would otherwise be destined for disposal to food banks across Europe or to local charities, in line with the food waste hierarchy.

Foods suitable for donation may include, for example, products which : do not meet manufacturer or customer specifications; have altered packaging and/or labelling but do not compromise either food safety or consumer information; are time-marked (such as products intended for a specific holiday season or promotional activity); have passed the 'best before' date but can still safely be consumed; have been collected and/or confiscated by regulatory authorities for reasons other than food safety.⁽¹³⁾

Food donation



Milk is a completely homogeneous product compared to other agricultural products. It can therefore be used in its entirety and transformed into a variety of products. From the start of the milk collection until it is processed and leaves the factory, steps have been built in to prevent the waste of valuable milk components, and the residual flows are also collected and made into value.

The search for new solutions and opportunities to use or repurpose previously discarded dairy by-products/co-products is continuously on the agenda of actors in the dairy sector.

Whey: a successful story of product revalorisation

The dairy sector succeeded in transforming a previous food waste product – whey – into a nutritious and highly valuable food product. **Whey is a co-product of the cheese-making process** that in the past was mainly reused as feed for animals despite being very nutrient rich. Today, whey protein is being used as **high-value protein concentrate** for specific human nutrition (sports, infants, the elderly, pregnant women, people with special needs, etc.) in a growing market, and in special cases, for young animal feed.⁽¹⁾

V. The role of packaging in food waste prevention

Packaging must be as sustainable as possible, but never at the expense of its **primary role**, which is to protect the food inside from spoilage, prolong its shelf life and reduce food waste, whilst maximising efficiency in the food supply chain. If the function of packaging is compromised, then more resources are lost in the end than are saved.

Appropriate packaging reduces waste by:

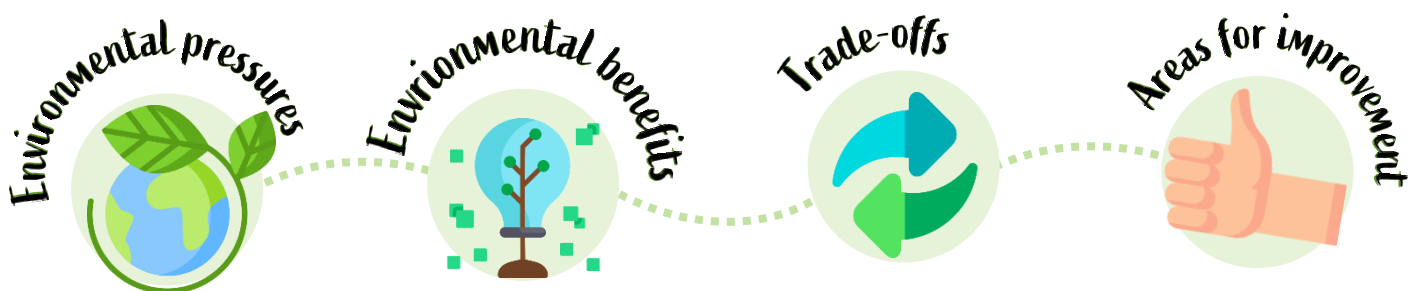
- ✓ providing a **physical barrier** to food in order to prevent the item from damage (mechanical, physical, microbial contamination, etc.)
- ✓ allowing efficient **transport distribution**
- ✓ prolonging **shelf life** (milk is the best example of a food product whose shelf life can be extended from hours into weeks and months thanks to processing technology, packaging material and techniques)
- ✓ informing the consumer about **key information** of the packed product (including durability dates)
- ✓ maintaining the best product **quality**



Packaging materials in general are required to be inert and not to interact with the packed dairy product. However, current trends tend towards the development of innovative packaging that includes certain interactions extending its shelf life and giving information on its freshness. This is possible thanks to so-called **active, smart or intelligent packaging techniques**.⁽¹⁴⁾

The importance of a life cycle approach

The packaging choice must be done carefully by taking a life cycle approach, taking into account:





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The environmental impact of the product in most cases is more than ten times the impact of its packaging⁽¹⁵⁾ – for example, around **3% of the carbon footprint of a packaged food product is linked to packaging and 97% to food⁽¹⁶⁾**, without forgetting the **other relevant environmental indicators** as outlined in [the Dairy PEF](#). This shows the importance of protecting the food adequately along the chain.

To know more about the high legal and safety requirement for packaging in the dairy industry, [check out our fact sheet!](#)

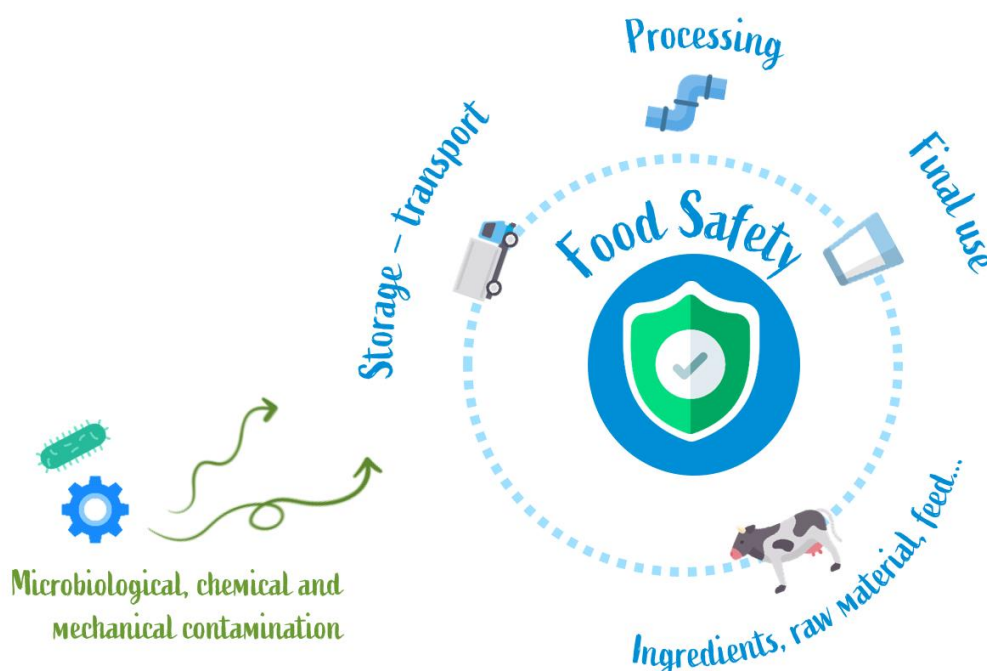
Spotlight on food safety!



Both on farm and on the manufacturing sites, there is a **maximum effort to protect the product safety and quality**. **Good agricultural and manufacturing practices** associated with an efficient **control system** bring to a minimum the risks of a failure in the production chain that might require dairy products to be thrown away.

The dairy sector has strong requirements on cooling of the milk and pays utmost attention on not breaking the cool chain to ensure the longest possible shelf life.⁽¹⁾ Special attention is paid to hygiene on milk production holdings and during transport, to animal health, prudent use of medication such as antibiotics, milk equipment, heat treatment and storage. In addition, appropriate feed prevents contamination of the milk, and strict quality requirements apply to all water sources.

To know more about the food safety requirements in the dairy sector, [check out our fact sheet!](#)



VI. Case studies and initiatives

The European dairy industry is fully aware of the importance of a **continued effort to further reduce losses of valuable resources and waste of final dairy products**, especially given the huge share of overall greenhouse gas emissions linked to it, and the negative impact of packaging on the natural environment.

In certain Member States targets have been approved in cooperation with the industry, NGOs or governmental bodies; in others the continuous improvement process is more silent – but nonetheless existent. We are confident that the **efforts of all parts of the chain and its benefiterers** (from feed production to consumer) will add up to the joint success.

Lactalis

In Sweden, in 2020, 10,6 tons of overstocks and lower shelf-life products were donated to charity organization Stadsmissionen for people in need.

Savencia

St Môret brand collects unsold and damaged products since 2016, donate them to local charities and offers the equivalent weight in St Môret tubs.

Glanbia

2016-18 Glanbia Performance Nutrition achieved its zero-landfill goal with sites eliminating circa 4,500 tonnes of landfill.

Bel

In Bel Group factories, more than 99% of the Group's by-products are valorised.

Dairy UK

By 2025 – 30% reduction in food waste generated on site (from 2015 baseline).

Arla

Reduced food loss and waste in production by 27% 2015-2019.

Danone

Danone invested in social B-Corp enterprise Phenix, a start-up leading food waste reduction thanks to its network of associations, charities and professionals.

Savencia

Employees sensitised by organizing activities during Sustainable Development Week.

FrieslandCampina

For reducing leftovers, cartons with extra folding lines to make it easier to empty them have been introduced.

Nestlé

Food waste levels reduced by 8.2% since 2016 by adopting WRAP and IGD developed 'Target, Measure and Act' approach and UK Measurements and Reporting Guidelines.

Arla

Food donations to food banks amounting to 1600 tonnes in 2019 across markets.

Danone

50% intensity reduction on non-recovered food waste by 2025 (from 2016 baseline) within Danone Operations Intensity (kg non recovered* food waste/tons of sold product).





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Arla

Target to halve food waste in processing operations and logistics 2015-2030, as a % of raw material intake, by improving efficiency and innovative solutions.

Dairy UK

By 2025 – Increase in product and packaging design that help prevent consumer food waste.

Glanbia

Glanbia Ireland plans to construct the first industrial biorefinery that transforms dairy waste products into lactic acid, a building block for biodegradable plastics.

Nestlé

Efficient delivery of raw materials to factories and precise capturing of volumes and possible losses at different stages in the supply chain.

Savencia

Produits Laitiers France with PHENIX committed to an anti-waste approach.

Lactalis

In Belgium, the Lactel brand joined the WAW brands coalition in partnership with Too Good To Go, raising awareness on food waste among employees and Apps users.

Bel

In 2020, launch of a communication campaign on date marking with its Brand The Laughing Cow and Too Good To Go directed both to consumers and employees.

Danone

Danone joins the 10x20x30 platform, committing to reduce by half its food waste intensity in its operations.

Bel

During distribution + 99,9% of Bel finished products are commercialized or given to associations.

Danone

The Brand Aux Fruits D'Ici incorporated in its recipes strawberries which would have been lost post-harvest during the Covid-19 crisis.

Dairy UK

Signatory of the Courtauld Commitment 2025 – aiming for a 20% reduction in the carbon, water and waste associated with food and drink production by 2025.

FrieslandCampina

On-pack there is the text "Prevent waste. Even after date often good: look, smell, taste".

Nestlé

Measures to reduce milk losses, including decreasing spillage, and applying a very strict cut-off time between milking, chilling, and processing.

Lactalis

In Croatia, the Dukat brand reduced its quantity of discarded products by donating 373 tons of dairy products to humanitarian institutions dedicated to vulnerable groups.





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References

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