



Reducing food waste with nature's own resources

How bioprotection can reduce yogurt waste by extending shelf life

CHR HANSEN

Improving food & health



Food wastage affects us all

Up to one-third of all food is wasted, according to the Food and Agricultural Organization (FAO). Just 25% of this food would be enough to feed the more than 800 million people who currently suffer

from hunger and malnutrition (FAO, 2016). The social, environmental and financial consequences of food wastage cannot be ignored. It is an issue that requires global action and innovative solutions.

25%

less food waste

800 m

enough food to feed 800 million people who suffer from hunger

Dairy provides a vital opportunity

Characterized by high turnover, fragile supply chains and relatively short shelf lives, the consumption of dairy products in developed markets is a significant contributor to global food waste and losses (FAO, OECD).

20%

of all EU dairy products are wasted



This is equivalent to 29 million tons a year



Too much yogurt is thrown away

17%



of all yogurt goes to waste

1.5 m tons



thrown away annually

The date is the biggest problem

80%

of total yogurt waste happens because its use-by date expires somewhere in the supply chain



50%

of the yogurt thrown away by consumers is in unopened packaging

Dairy is the

No.1

food category

where consumers check the expiration date



Using nature's own resources to keep yogurt fresh

Using nature's own good bacteria to ferment food is a traditional way of preserving food and keeping it fresh for longer.

To help the dairy sector maintain the freshness of fermented milk products, such as yogurt, for longer

periods of time, Chr. Hansen has introduced natural microbial food cultures called FreshQ®.

These cultures are selected due to their ability to delay spoilage from contaminants such as yeast and mold in perishable foods, in a natural way.

“Consumers want fresh and natural products, free from artificial preservatives. We can help our customers meet this demand in a way that enhances quality and reduces food waste. It is a win-win scenario.”

Peter Thoeysen, Marketing Director, Chr. Hansen

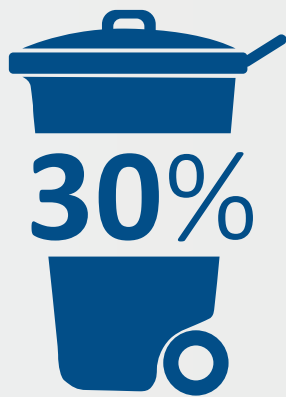




An extra 7 days would make a world of difference

The analysis of the impact of bioprotection on food waste in Europe is based on the premise that the shelf life of the EU's total yogurt production would

be extended by an average of seven days – a conservative estimate of the potential of FreshQ®!



annual reduction in yogurt waste with bioprotection

5%

of total yogurt production

440,000

tons



Annual net saving of EUR 250 million to the European economy

520,000

tons less CO₂



How longer shelf life will benefit the entire value chain

To facilitate waste reduction through quality improvement and shelf life extension, it is important that there is a financial incentive for all involved. This is particularly important for dairy manufacturers as they have to bear the cost of implementing bioprotection. The analysis indicates that dairy manufacturers, retailers and consumers can all get positive net savings from reducing yogurt waste.



most



Dairy manufacturing

Manufacturers

With fresher products and longer shelf life, dairy manufacturers could:

- ▶ Avoid reallocation costs, discounts to customers and reduce waste of products that cannot be sold due to the shelf life being too short.
- ▶ Increase batch volume and reduce batch frequency, thereby reducing production waste and improving production efficiency.
- ▶ Differentiate the brand with a new sustainability message.

Dairy manufacturers will benefit indirectly from a shelf-life extension of seven days as this will give retailers more time to sell their yogurt. Only one day is needed at the dairy to increase batch size and reduce production waste.

Dairy-retailer product return arrangement

If the dairy manufacturer and retailer have a deal that allows the retailer to return products that have passed their expiration date, the financial incentive to add bioprotection becomes even greater for the manufacturer. In Europe, these product return agreements are quite common. The waste involved in this arrangement varies from 0.1% up to around 2.0% of production.



40%
waste reduction



Retail

13%
waste reduction



Consumers

least →

Retailers

Retailers will also benefit from reducing yogurt wastage, as they can:

- ▶ Sell more yogurt before the expiration date.
- ▶ Reduce waste levels.

Consumers

Giving the consumer extra shelf life will allow them to:

- ▶ Enjoy more fresh yogurt.
- ▶ Waste less and thereby save money.

Will consumer demand go up or down?

If the consumer wastes less yogurt, there is a theoretical risk that they will also buy less. This could reduce the incentive for dairy manufacturers to extend shelf life. However, the study shows that the gains for dairy manufacturers in avoiding reallocation costs, discounts to retailers and returns from retailers more than offset the potential lost profit from reduced consumer demand. In addition, consumer surveys show that consumers are interested in products with a longer shelf life, provided these are free from artificial preservatives. Consumer demand could therefore also increase if the shelf life is extended - in a natural way.



What do consumers think?

A small survey of 70 consumers in Denmark indicates that:

- ▶ Most prefer to choose the yogurt with the longest shelf life remaining before the expiration date.
- ▶ Half would like to buy yogurt with an extended shelf life - if it enables them to waste less.



Time is relative

Consumer understanding and opinions of freshness and natural shelf life are based on experience and differ from country to country.

In some countries, a yogurt with 20 days of shelf life is accepted as fresh and natural, while in others it is 50 days or even more.

It needs to be natural

At the same time, consumers increasingly look at food ingredients and try to avoid foods with artificial preservatives. So, when extending shelf life, it is

important that the “naturalness” of the food and its “clean label” are not compromised in any way.



Protect your brand. Keep it great with FreshQ[®]

Bioprotection does more than extend shelf life. It also helps to build and protect brands. It gives products a competitive edge and strengthens the trust between dairy manufacturers, retailers and

consumers. It helps to ensure that when products reach the consumer, the taste and quality are just as intended, each and every time.





An impact study to facilitate change

In support of Chr. Hansen's sustainability strategy 2020, the socioeconomic consultancy QBIS, was commissioned to conduct a cost-benefit analysis of the economic incentives to reduce food waste with FreshQ® in Europe. For each of the stakeholders in the yogurt value chain, the following were considered:

- ▶ Cost savings from waste reduction
- ▶ Costs of applying FreshQ®
- ▶ Saved household income due to less waste
- ▶ Lost profit due to less consumer waste

The study was peer-reviewed by leading food waste experts from Wageningen University and the nonprofit organization WRAP UK.

- ▶ Input from seven retailers
- ▶ Three major dairies consulted
- ▶ Danish consumer survey to test tolerance of shelf-life extensions
- ▶ Collection of key production and waste figures from official databases (FAOSTAT, EUROSTAT)

“I think that the study can be a real catalyst for change.”

Tom Quested, Waste and Resources Action Programme (WRAP) UK

If you would like to find out more, the full study is available at www.chr-hansen.com/sustainability.

You are also welcome to contact us directly!



Join our fight against food waste



Dairy manufacturers

Add bioprotection to your products to enable longer shelf life and consider all measures to reduce production and consumer waste.



Legislators

Create incentives for producing yogurt with a longer natural shelf life in order to reduce waste. Change expiration dating to “best-before” dating on yogurts.



NGOs and international development agencies

Assess how bioprotective fermentation can help reduce hunger in developing markets by keeping perishable food, such as milk, fresh for longer.



Retailers

Make yogurt with a longer shelf life available to consumers. Encourage consumers to also buy products that are close to the expiration date.



Consumers

Buy yogurt with a naturally extended shelf life, as it allows you more time to enjoy a product that is fresh for longer.



Researchers

Provide insights into consumer behavior regarding food waste.



Follow progress on the [#FightAgainstFoodWaste](#)

About Chr. Hansen

Everyday 1 billion people consume a Chr. Hansen product. Chr. Hansen develops and produces cultures, enzymes, probiotics, plant protection and natural colors for a rich variety of foods, confectionery, beverages, dietary supplements and even animal feed. We have done this since 1874 and have more than 2,800 dedicated innovative and technically skilled employees in over 30 countries.

Chr. Hansen is committed to reducing yogurt waste by 700.000 tons by 2020 (2% of global production)



Improving food & health

www.chr-hansen.com/sustainability