

MILKING IT



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BACK**

No use crying over spilled milk? How inaccurate date labels are driving milk waste and harming the environment

Around 20% of household food purchases becomes waste – of every five bags of groceries, one will never be eaten¹. In the UK, these bags are most likely brought home from one of a handful of supermarkets. Together, Tesco, Sainsbury's, Morrisons and Asda account for 69% of the UK's market share². They are so dominant in our food market that it would be difficult to feed oneself without them – 98% of British shoppers say they use a supermarket for some of their grocery shopping every month³. As we highlighted in our Supermarket Food Waste Scorecard⁴, there are strong links between supermarkets' business models, their role in shaping our food culture, and endemic levels of household over-purchase and waste.

Amid this overall picture of over-purchase and waste, milk stands out as a particularly egregious example. Milk is the third most wasted product at household level (after potatoes and bread)⁵. Every day we throw away around a whopping 3.1 million glasses⁶. While 16% of all avoidable food waste at household level is associated with food exceeding its date label before being used, with milk that proportion rises to 19%⁷. Every year that equates to around 85 million pints of milk thrown away in households across the country because of 'Use By' labels or 'once opened use within' guidance⁸.

How much of this discarded milk was still safe to drink? Anecdotally we all know that milk kept in a fridge generally remains good to drink for several days after its 'Use By' date. But we at Feedback wanted to know if anecdote was backed by science. We commissioned laboratory testing at the University of Chester NOW Food Lab⁹ to see how long milk really keeps. The food scientists found that milk from the four UK supermarkets with the largest market share (Tesco, Sainsbury's, Asda and Morrisons), kept at the recommended temperature for a household fridge (4° Celsius – the WRAP recommendation is below 5° Celsius) and unopened until tested, remained safe to drink seven days after their 'Use By' dates. Relaxing date labels by a few more days could save UK households – and the planet – from the impacts of wasting millions of pints of milk a year.

VALUING MILK

For a low-cost product, milk generates an outsized environmental impact: even more reason to take all measures available to reduce how often it is wasted. All food waste is a major challenge to our ability to build a food system supportive of planetary health, but dairy waste is particularly pernicious. Globally, the meat and dairy industries exact a huge toll on our global environment and are major drivers of climate change, estimated to account for 15 per cent of total global emissions - more than the entire global transport sector¹⁰. Research from Oxford University on the global impacts of food production show that one litre of milk can account for up to 4.5kg of CO₂¹¹. UK industry reports highlight that there is a large range concerning the environmental impacts of different farms (the carbon footprint range from 832g to 2808g CO₂ per litre)¹² – showing that much can be done to reduce the carbon intensity of dairy production. At consumer level, although milk is not the most wasted food, milk waste represents the highest contribution to greenhouse Gas Emissions compared to other food as it is so widely consumed and resource-intensive to produce¹³.



Outside of carbon emissions, milk waste also represents a waste of water; research by the UK Institution of Mechanical Engineers shows that on average it takes 1000 litres of water to produce just one litre of milk¹⁴. The water used to produce milk that is ultimately thrown away as a result of date labels is enough to fill 20,000 Olympic swimming pools. More milk waste also means more single-use plastic waste, with plastic bottles making up over 60% of household plastic packaging¹⁵. All this implies that the milk that we do produce and purchase should be properly valued.

With scientific consensus urging a widespread reduction in meat and dairy consumption in order to meet human health challenges and remain within planetary boundaries¹⁶, as well as halving currently unacceptably food waste across the board¹⁷, action is urgently needed on every level to enable waste reduction both in homes and in the supply chain.

And yet despite these large environmental costs of milk and dairy, milk remains one of the cheapest products in most shoppers' baskets. Indeed, supermarkets price and position milk as a 'loss leader': a product priced at a loss in order to attract customers into stores. For supermarkets, milk is a marketing tool, and it is clearly in their interests for customers to repurchase milk frequently, increasing the number of times they need to visit a shop and the likelihood of other purchases.

The low value supermarkets place on milk should be considered in the context of the plight of the UK dairy industry, especially small dairy farms. In 2015, the Sustainable Food Trust reported that half of UK dairy farmers had gone out of business in the past 10 years, with smaller farms the worst casualties¹⁸. The UK dairy industry, the 10th largest milk producer worldwide, has undergone a long-term trend of intensification. Between 2001 and 2014 the number of dairy farms in England and Wales decreased by 49%, while the average number of dairy cows per holding increased by 54% and yield also rose¹⁹. This paints a picture of an industry in the midst of intensification, a process which is accompanied by increased reliance on purpose-grown feed such as maize. Reliance on imported feed has well-documented negative impacts on global biodiversity, Greenhouse Gas emissions and pressures on land use²⁰. In 2012 an industry-commissioned study found that around a quarter of emissions from dairy production came from feed use²¹.

A common-sense way to reduce the 'hoof-print' of milk production, and properly value farmers' product, is to stop wasting so much of it. It is time to revalue milk by encouraging citizens to follow storage guidance and use their senses to determine whether milk is still good to drink. Alongside this, retailers and dairy producers must reassess their 'Use By' date policies and reduce the buffer period incorporated into 'Use By' dates to reduce the risk of customers inadvertently pouring more good milk down the drain.

DATE LABELS AND SUPERMARKETS: THE BIG PICTURE

Date labels on food are an invention of the 1970s – the years when supermarkets began the rise to their current pre-eminence in the UK's food economy. Prior to this period, citizens would have relied on their own knowledge and senses to assess food's freshness. While date labels are appreciated by some customers as a mechanism to plan when to use foods, there is also a risk that over-reliance on date labels, linked to a loss of confidence in assessing product freshness through our senses, leads to food that could be eaten going to waste. Every year, households throw away around 7.1 million tonnes of food²².



Many products are self-evidently not in need of a date label: fresh produce is easily assessed for freshness and product life will vary so widely according to storage conditions that date labels such as 'Best Before' are a very loose guide, at best. In the past year, several supermarkets have responded to demand from customers and food campaigners, including Feedback, and removed 'Best Before' labels from some fresh produce ranges. Feedback continues to advocate for no 'Best Before' label on any product where food safety is not an issue and spoilage is self-evident, such as fresh produce.

'Use By' dates are a legal requirement on products including milk and cooked meats, and the official guidance from the Food Standards Agency encourages citizens not to use any product after its 'Use By' date, even if it appears and smells fresh. 'Use By' denote food safety cut-off dates and thus clearly have a role to play in making sure food is only consumed when safe – especially in the case of bacterial growth that does not cause an obvious change in the consistency or smell of food and where there is a risk of serious illness if spoiled food is eaten. However, advances in supply chain practice have significantly reduced the risk of pasteurised dairy products carrying dangerous bacteria. Cases of listeriosis, an infection which can be caused by listeria infection of dairy products, dropped by 17.7% in the period 2011-2017, to just 135 cases. Of the 4 listeriosis outbreaks investigated by Public Health England, none were linked to pasteurised milk²³.



Retailers and manufacturers build a buffer into 'Use By' dates in order to take account of the variation in how long milk stays outside the fridge en route from supermarket to home, and what temperature household fridges are set to. But how cautious should these buffers be? Following our testing showing milk continued to be safe to drink for at least seven days after its 'Use By' date, albeit in optimum chilled conditions, we suspect that this buffer could be reduced by several days, possibly halved, without raising any food safety concerns. Less conservative 'Use By' dates ought to be accompanied by clearer guidance on storage conditions, including linking the 'Use By' date to correct fridge storage temperature of below 5° Celsius.

The consequences for total household milk waste of this small change in policy could be substantial. WRAP has suggested that increasing the average 'Use By' date of milk by just one day could reduce milk waste by 20,000 tonnes (around 30 million pints) equating to £10 million pounds²⁴.

LABORATORY TESTING: METHODOLOGY

Feedback commissioned laboratory test of milk from four major UK supermarkets – Tesco, Sainsburys, Asda and Morrisons. Rigorous food safety testing was conducted at the NoWFood centre at the University of Chester. The AOAC 3M petrifilm accredited method for Aerobic Colony Count was employed to assess the remaining shelf life of milk. Milk was stored at optimum conditions (which meant that the milk was unopened until it was tested, and stored at the recommended fridge temperature of below 5 degrees Celsius). The dilution factors were chosen to cover the range of expected growth. Samples were sequentially diluted in a Peptone solution. Each dilution was a factor of 100. Three samples were tested from each supermarket every day (totalling eight days), meaning in total twenty-four samples from each supermarket were tested. Every sample was found safe for consumption.

Milk was stored at 4° Celsius in line with guidance provided by WRAP (WRAP recommends below 5 degrees). The temperature recorded ranged from 4-6 degrees when the door was opened to remove samples, providing some similarity to temperature fluctuations to be expected in a household fridge

RECOMMENDATIONS TO REDUCE MILK WASTE IN HOUSEHOLDS

Conservative 'Use By' dates on milk are seen as a precautionary measure by food retailers. But it is important to consider the wider context, including large quantities of household level food waste in the UK, much of it ultimately linked to a culture of frequent food shopping and over-purchase. Widespread cultural, commercial and systemic change will be needed to meet the UN's Sustainable Development Goal to halve food waste by 2030: if we do not meet this goal, we stand very little chance of reducing food production's contribution to climate mitigation.

To end the scandal of wasted milk, people must change how they store and use milk, but food retailers and manufacturers must adapt their practice too.

CHANGING PRACTICES AT HOME

Citizens can do much to reduce how much, if any, milk they waste at home. The food waste body WRAP recommends:

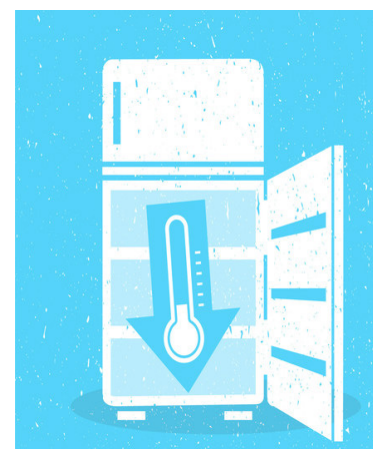
- Always keeping your fridge at or below 5° Celsius.
- Minimise as much as possible the amount of time milk spends outside your fridge.
- Freeze milk you think you may not use as soon as possible

In addition, Feedback recommends:

- Where you feel confident to do so, use your senses, including the 'sniff test' and checking the texture of milk, to determine whether milk is still good to drink.
- Use up milk that is 'on the turn' in recipes such as pancakes and scones.
- Cut down on the amount of milk you buy to reduce the environmental impact of your diet.
- Try and limit how much of your food is purchased in supermarkets where you are likely to buy more than you need, using local, independent or cooperatively owned food stores where possible.

CHANGING RETAIL PRACTICE

Following many years of campaigning by Feedback, all major retailers announced last year that they would publish their food waste data by September 2019. They also committed to halving their food waste from farm to fork by 2030²⁵. If supermarkets truly want to reduce household food waste, they will have to address date labels and extend their ambitions to their customers fridges.



WRAP - Chill the Fridge Out campaign

Feedback is calling on supermarkets to review their approach to milk labelling:

- Aim to extend the 'Use By' date by three to five days, both through innovation in the supply chain and through accompanying 'Use By' dates with on pack guidance on storage best practice, including fridge temperature for citizens.
- Disclose how supermarkets currently determine 'Use By' dates for milk.
- Feedback welcomes the ongoing discussion within the dairy industry on moving milk from a 'Use By' date to a 'Best Before' date.

Monitoring success: while many supermarkets provide information or marketing materials intended to help customers reduce their food waste at home, none have commissioned adequate research to explore how effective their efforts are at ending the culture of over-purchase and waste. We recommend that all supermarkets fund independent household waste compositional analysis, broken down by where households shop, in order to demonstrate the relevant efficacy of different approaches.

- 1 http://www.wrap.org.uk/sites/files/wrap/Product-focused%20report%20v5_3.pdf
- 2 <https://uk.kantar.com/consumer/shoppers/2018/may-grocery-market-share/>
- 3 <https://www.igd.com/about-us/media/press-releases/press-release/t/igd-uk-food-and-grocery-forecast-to-grow-by-15-by-2022/i/16927>
- 4 https://feedbackglobal.org/wp-content/uploads/2018/06/Supermarket-scorecard_136_fv-1.pdf
- 5 <http://www.wrap.org.uk/sites/files/wrap/Household%20food%20waste%20restated%20data%202007-2015%20FINAL.pdf>
- 6 <http://www.wrap.org.uk/sites/files/wrap/Household%20food%20waste%20restated%20data%202007-2015%20FINAL.pdf>
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- 8 <http://www.wrap.org.uk/sites/files/wrap/Report%20-%20Opportunities%20to%20reduce%20waste%20along%20the%20journey%20of%20milk%20PUB%2011.2018.pdf>
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- 17 <https://www.nature.com/articles/s41586-018-0594-0>
- 18 <https://sustainablefoodtrust.org/articles/explaining-britains-dairy-crisis/>
- 19 <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0195286>
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- 21 https://dairy.ahdb.org.uk/media/623464/greenhouse_gas_emissions_on_british_dairy_farms.pdf
- 22 <http://www.wrap.org.uk/sites/files/wrap/Household%20food%20waste%20restated%20data%202007-2015%20FINAL.pdf>
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- 25 <https://feedbackglobal.org/feedback-welcomes-big-change-to-business-as-usual-on-food-waste/>

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by transforming our food system.

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