

Tackling the food waste problem: is it time to rethink use-by dates?

Every year, the world wastes an incredible amount of food – 2.9 trillion pounds to be exact, according to figures published by the United Nations. This article examines whether it is time to rethink use-by dates and explains the latest shelf-life extension techniques, which are helping to tackle the food waste problem.

by Miguel Campos,
Advanta, UK.
www.advantapack.com

2.9 trillion pounds of wasted food. That is the same weight as around 120.8 million elephants, 7.2 million blue whales or 7.4 trillion bags of salad. But, consumers are not the only ones responsible for this waste, it is occurring across the entire food supply chain.

Take food manufacturers as an example. These large organisations are massively contributing to this waste if they are not making the best use of trimmings and rejects. Let's say a commercial bakery wastes one gram of flour for every 100 baguettes it produces. This does not seem like much, does it? However, considering 32 million baguettes are consumed every day – and that is just in France – you can see how this small wastage could stack up.

Similarly, the way manufacturers package food may be contributing to waste because the packaging is not always optimal for shelf life.

Retailers also face problems associated with product shelf life, inappropriate quality control, overstocking and inaccurate forecasting issues. These can all lead to food being thrown away, often before it is even stacked on the supermarket aisles.

Consumers are at the end of this chain and are binning food because of conservative use-by dates set by the manufacturer and poor stocking by retailers.

According to WRAP, a charity dedicated to improving resource efficiency, the average UK household wasted £470 worth of food annually – much of which is avoidable waste. This avoidable food waste generates

19 million tonnes of greenhouse gases over its lifetime. To put that into perspective, preventing this pollution would be equivalent to taking one in four cars off British roads.

Rethinking use-by dates

Retailers have shortened the use-by dates of food over the last decade, so it is no surprise that more people are throwing good food in the bin.

WRAP, the food standards agency and DEFRA released the pivotal labelling guidance document in 2017, stating that use-by dates should only be used where there is a food safety reason to use it, otherwise a best-before date will do. The document also calls for clarity of date labelling, eliminating the confusion between 'display until' dates and 'best before' dates.

"This guidance is a significant move in the fight against food waste," explained Dr Marcus Gover, CEO of WRAP. "It will help ensure shoppers are given consistent, clear advice around how to manage and store food at home."

It is inevitable that removing the confusion behind date labels would reduce a huge amount of avoidable food waste. It certainly begs the question, does the mentality behind use-by dates need a complete overhaul?

Smart labels

For highly perishable products, the shelf life is determined by food manufacturers and is often set rather conservatively, as a way to ensure food safety. This date is fixed, and supermarkets cannot legally sell a product after this date. However, rather than using a fixed shelf life, we may see more retailers choosing food products with technologically advanced packaging, to better illustrate the shelf life of a product.

For example, a product with a dynamic shelf life (DSL) can have its suggested use-by date adjusted according to the actual quality of the product, either by adjusting the date or by indicating the quality of a



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product with a different technique. One technique is time-temperature indicators (TTI), a device or smart label that shows the accumulated time-temperature history of a product.

Sainsbury's is testing this technology with the introduction of its 'Smart Fresh' label initiative. This smart label, now found on Sainsbury's own-brand cooked ham packaging, changes colour from yellow to purple over time. The cooler the ham is kept, the slower this reaction takes place. This means if the ham has been left in warm conditions for too long, the label will turn purple rapidly, indicating this product is no longer safe to eat.

Modified atmosphere packaging

While DSL and smart labels may go some way in reducing food waste, it does not fix the crux of the problem of actually extending the time a product is viable for. Take the shelf life of meat and poultry products as an example. With a typical protein shelf life of anywhere between 20 and 90 days, it is crucial for processors to identify new ways to extend shelf life. This is where modified atmosphere packaging (MAP) could increase in popularity.

Oxygen is one of fresh protein's biggest enemies. By controlling the composition of air and moisture in an airtight container, bacteria growth is discouraged and the deterioration

of the product is slowed down considerably. One way to alter the gas composition is by hermetically heat sealing meat in a smoothwall foil tray and applying gas flushing. The amount of oxygen can be reduced from 20.9% to zero, replacing the removed oxygen with nitrogen or carbon dioxide.

At Advanta, we have worked with one of our customers to help extend the shelf life of a pork rib ready meal. They used a winning combination of our smoothwall aluminium trays, slow-smoke cooking techniques and vacpacked product packaging to create a product with a mammoth shelf life of 143 days. This prolonged shelf life provides a buffer for the retailer to sell this product well ahead of the use-by date. Equally, the consumer has a surplus of time to eat the product, rather than throwing it in the bin. As a result, it is likely to reduce the 2.9 trillion pounds of food waste globally.

The increased uptake of smart labels across all supermarkets will provide better insight into the true safety and edibility of food products. Additionally, an increased use of MAP can reduce the likelihood of food going to waste.

The United Nations figures on worldwide food waste are damning, but it is not solely the responsibility of consumers to throw away less food.

Shelf life extension is a challenge that manufacturers and retailers must take responsibility for. ■