Food Packaging and Consumers

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Food waste is a significant environmental, economic, and social issue. In many cases, packaging protects food and prolongs its shelf life, reducing the overall environmental impact by reducing food waste.

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1. Packaging Perceptions

Recent research has found that consumers recognise the benefits of packaging to keep food fresher, hygienic, safe, clean, and protected from damage[1]. However, they are also concerned about the environmental impact of packaging—especially plastic packaging—after it has been discarded. While consumers in a study by the Industry Council for Packaging and the Environment (INCPEN) and Waste and Resources Action Programme (WRAP) recognised the capacity for packaging to reduce food waste, most (59%) believed that keeping food in its original packaging means it would go off quicker[1].

Research about consumer awareness of, and trust in, packaging technologies designed to reduce food waste, while limited, also suggests that consumer perceptions of packaging are inaccurate. For instance, in Poland, consumers had a low level of knowledge about emerging food packaging technologies, although more than half (53%) had come across active and intelligent packaging before[2]. Otto, Strenger, Maier-Nöth and Schmid[3] suggest consumers judge environmental sustainability by the ‘naturalness’ of the packaging, indicating that high-tech solutions are yet to be embraced by consumers. Another study showed that consumers misunderstood how to read or use these sorts of packaging technologies and that trust in these technologies was low [4]. These studies suggest a need for consumer education about packaging technologies [2][5][6], as well as a need to better understand how consumers perceive and engage with existing packaging technologies.

2. Labelling and On-Pack Information

Labelling and on-pack information, including date labels, can help consumers to better manage their food[7] and reduce food waste by communicating the best way to use and store food items[8]. Most existing research on food labelling and consumer food waste has focused on the role of date labelling for consumer decision-making and practices that lead to increased or reduced food waste[9]. Date and storage information on-pack has an indirect impact on a consumer’s decision to eat or discard food[10]. On-pack date labelling has also been found to contribute to consumer food waste[11]. For instance, research has suggested that date labelling on milk may lead to consumers discarding milk that is putatively past its consumption date but that would otherwise be considered acceptable for consumption if consumers were relying only on their sensory assessment[12].

Consumers are also confused by the different types of date labels[13][14][15][16] and have different ideas about the meaning of different date labels[17]. Date labels that suggest food safety concerns lead to a greater amount of food loss and waste (FLW)[18]. Perceptions of, and behaviour around, different types of date labels also depend on the food product—consumers were less likely to consume eggs after their ‘best if used by’ date, but more likely to consume deli meat and spaghetti sauce labelled similarly[19].

Several alternatives have been suggested to positively impact or reduce food waste. These include standardising date labelling—both in terms of text and graphics[20] or removing certain types of date labels altogether[21]. In the UK, food labelling guidance has recommended providing clear storage advice on-pack, supported by symbols or graphics where possible[20]. Others have suggested that technologies, such as smart packaging, be incorporated into conventional packaging design, rather than replacing conventional date labelling with these technological innovations[12]. Adopting a more holistic lens in understanding how consumers use date labels as part of their broader food practices[12][22], and

encouraging the translation of theoretical knowledge in the date labelling and food waste literature into designs that can be implemented by industry[12], have also been recommended.

The objective of this research is to understand more clearly how consumer perceptions of packaging—including packaging technologies that are designed to reduce food waste—might impact the acceptance and use of that packaging, and to use these insights to help inform future food packaging design. This paper expands existing research by exploring how date and storage information in on-pack labelling and packaging could influence consumers' decision-making about food waste. In line with suggestions for including descriptive text for different types of date labels, and graphic illustrations that communicate product shelf life and storage instructions[11], this paper explores visual design or communication elements that could enhance consumer decision-making about household food waste. Considering the sensory knowledge consumers use, and consistent with previous suggestions[11], the paper also offers guidance about integrating on-pack graphics or codes, which enable consumers to access more detailed information through their mobile devices into existing packing designs.

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