

Plastic Packaging Saves Food

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▪ **Food waste undermines resource efficiency**

Food waste represents not only a loss of the product itself, but also all those resources that have been used in the manufacturing process, e.g., land, fertilisers/pesticides, raw materials, ingredients, water, energy and manpower. To produce one kilogram of beef, for example, requires over 15,000 litres of water and leads to GHG emissions of over 22kg CO₂ ([Lesschen et al., 2011](#)). In total, the production and consumption of food is responsible for 20-30% of the EU's entire environmental impacts. According to the European Commission, approximately 90 million tonnes of food are still wasted in the EU each year. This means that on average every European citizen wastes 180kg of food every year, most of which (estimated to be between 40 and 60 percent) occurs in the home ([Roadmap to a Resource Efficient Europe \(COM\(2011\) 571\)](#)).

▪ **Plastic Packaging has a vital role in reducing food waste.**

Plastic packaging plays an important role in increasing the shelf life of food and protecting it from external factors such as: damage during transport and handling; deterioration caused by exposure to oxygen; spoilage by microbes and the absorption of malodours. To protect food packaging producers draw upon a wide portfolio of plastic materials that each have unique intrinsic performance properties. Packaging designers are therefore able to select the necessary material characteristics to meet the performance demands required to protect food along the supply chain. For example, Parmesan cheese, an expensive product susceptible to spoilage, is packed in a thin high-barrier film consisting of up to seven layers of different plastics, each of which contributes to the overall film performance. If such high-tech multi-layer films were not available, the shelf-life of the Parmesan would be significantly reduced leading to higher wastage.

▪ **Unrealistic (recycling targets) Extended Producer Responsibility (EPR) measures, based on recyclability, can hinder packaging innovation**

Some of the most resource efficient packaging is constructed from very thin layers of different materials (including different plastics) that are laminated or co-extruded together. Today, these film structures are not widely collected and therefore not available for recycling largely due to higher costs of collection and subsequent recycling challenges. However, from a resource efficiency perspective these packaging systems provide exceptional protection of foodstuffs by preventing damage and spoilage along the supply chain, from production to the consumers' fork. In such cases the recyclability of the packaging is of lesser importance than the greater benefits that the packaging provides throughout the products lifetime. A narrow focus on packaging recycling targets may discourage future innovations designed to deliver the most resource efficient solutions that improve food quality, shelf-life and consumer convenience, inadvertently leading to higher levels of food waste.

Key recommendations:

1. Acknowledge the role of packaging in strategies to reduce food waste

The unique properties of plastic packaging should be taken into consideration when developing strategies to reduce food waste. Future technological developments - such as smart tags that can alert the consumer to undesirable changes in temperature and humidity that negatively affect the food; or biosensors that detect spoilage resulting from micro-organisms - will further increase the role of plastic in saving food.

2. Set ambitious yet realistic plastic packaging recycling targets

To reduce the total impact of waste (packaging and food), food producers need different types of packaging/materials with differing characteristics, some of these packaging systems are not currently being separately collected and therefore are not recycled. Unrealistically high recycling targets for plastic packaging can prevent the most resource efficient packaging solutions from being used and may discourage innovation.

3. Do not favour recyclability over prevention when designing EPR schemes

Prevention is at the top of the waste hierarchy. Basing financial fees on the recyclability of packaging risks lower resource efficiency overall by: reducing the benefits of packaging in preventing food waste and increasing the ratio of packaging to packed goods placed on the market.