



EUROPEN

The European Organization for Packaging and the Environment

Packaging supply chain's good practices to prevent food waste

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Packaging prevents food waste



“Europeans waste 90 million tonnes of food every year. If we carry on using resources at the current rate, by 2050 we will need the equivalent of more than two planets to sustain us”.

European Commission

Packaging is part of the solution to tackle food waste.

Packaging prevents food spoilage, ensures food quality and safety along the supply chain and at home, informs consumers on how to use and store packaged food products, increases shelf-life and provides portion sizes answering the multiple needs of consumer lifestyles and demographic changes.

Packaging innovation and new technologies play a key role.

The packaging supply chain, represented by EUROPEN, will continue to strive to further innovate and develop new technologies that make packaging more active and intelligent in tackling food waste.*

As part of these efforts and to encourage continuous improvements in packaging, the EUROPEN Task Force on Food Waste, chaired by [Sealed Air Corporation](#), developed good practice examples of packaging innovations and technologies that help prevent food waste.

** EUROPEN represents the whole packaging supply chain in a material neutral way on issues related to packaging and the environment and is open to any company with an economic interest in packaging and packaged products.*

As one of the food supply chain members, EUROPEN co-signed the Joint Food Wastage Declaration, “[Every Crumb Counts](#)”, and committed to contribute to the objective of reducing food wastage throughout the food chain and to contributing to halving EU edible food waste by 2020, in line with the objectives of the [Roadmap to a Resource Efficient Europe](#).

More information on packaging’s contribution to food waste prevention on EUROPEN’s website: <http://www.europen-packaging.eu>



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Good Practice Examples of Packaging Technologies/Innovations to Prevent Food Waste

Information and aspects of the Packaging Solution initiative	Example 1
EUROPEN Member organisation responsible	Sealed Air Corporation
Type of Organisation & Stage of Packaging Supply Chain	Cleaning, Sanitation and Packaging Protection Material & Packaging Suppliers and Manufacture
Value Chain Stage(s) Targeted/ Benefited	Primarily Retail, but also benefited other stages
The Food Waste Issue	Bone punctures of precooked hams caused package failures during distribution, retail display and general handling. This led to food damage and waste.
Packaging Solution	Effective product protection needed to prevent damage and avoid waste by using abuse resistant packaging for products with sharp edges. This maintains packaging integrity during distribution and handling. The use of bone guard packaging (small patch) prevented damage.
Benefits and Amount of Food Waste Prevented	By addressing the hot spot in retail display, the entire supply chain benefited. The small increase in packaging was offset by significant savings in reduced product losses prior to sale. Net reduction in total carbon footprint across supply chain of nearly 6%. Reduced damage during retail display by 73%.



Information and aspects of the Packaging Solution initiative	Example 2
EUROPEN Member organisation responsible	Sealed Air Corporation
Type of Organisation & Stage of Packaging Supply Chain	Cleaning, Sanitation and Packaging Protection Material & Packaging Suppliers and Manufacture
Value Chain Stage(s) Targeted/ Benefited	Manufacture, Warehouse & Transportation, Retail, Consumer
The Food Waste Issue	Microbial cross contamination (Campylobacter) is a leading food safety concern for fresh poultry. There was a need for properly designed packaging systems to mitigate risks due to food contamination, thereby resulting in food being wasted.
Packaging Solution	Hermetic poultry packaging: Leak-Resistant Packaging Systems and seals to provide a barrier to micro-organisms. This prevents microbial cross contamination and enhanced food safety protection.
Benefits and Amount of Food Waste Prevented	Leak-resistant poultry packaging contributed to greater than 50% decline in campylobacteriosis in NZ Leak-resistant packaging has been shown in Ireland to reduce contamination by nearly 90%, in turn significantly avoiding associated food waste.



Sources
www.cdc.gov (2011)
www.fsai.ie (2011)

Information and aspects of the Packaging Solution initiative	Example 3
EUROPEN Member organisation responsible	Sealed Air Corporation
Type of Organisation & Stage of Packaging Supply Chain	Cleaning, Sanitation and Packaging Protection Material & Packaging Suppliers and Manufacture
Value Chain Stage(s) Targeted/ Benefited	Retail, Consumers
The Food Waste Issue	Consumers in developed countries waste as much as 30% of what they purchase Nearly 2/3 of the food loss is possibly avoidable. Reasons for this loss include too large portion sizes, thereby resulting in leftovers being thrown away.
Packaging Solution	Packaging designed to control portions, ensure easy product removal or enable reseal after use. Portion control packaging minimize amount of avoidable consumer food waste such as leftovers, cooking too much food, food being left in a larger pack and not consumed in time.
Benefits and Amount of Food Waste Prevented	Adequate packaging design and formats can prevent loss of edible food, reduce throwaways while providing convenience features. Overall impact is saving food costs, reducing environmental impacts and enabling food supply to feed more people Portioned poultry packaging for example reduces packaging by up to 40% while providing convenience for consumers Ready meal packaging for entrees reduces food losses during home meal preparation which can exceed 15%

Shelf-Stable Packaging



Portioned Packaging



Vacuum Skin Fish Packaging



Resealable Packaging



Information and aspects of the Packaging Solution initiative	Example 4
EUROPEN Member organisation responsible	Sealed Air Corporation
Type of Organisation & Stage of Packaging Supply Chain	Cleaning, Sanitation and Packaging Protection Material & Packaging Suppliers and Manufacture
Value Chain Stage(s) Targeted/ Benefited	Primarily Retail
The Food Waste Issue	Back-of-store preparation leads to high food loss and short shelf life, in turn creating food waste.
Packaging Solution	Use of case-ready packaging technology to extend shelf life of perishable meats has led to changes in supply chain. Market shifts occurring from back-of-store prep to centralized case-ready formats.
Benefits and Amount of Food Waste Prevented	Case ready centralizes food preparation, extends shelf life and creates supply chain efficiencies, thereby reducing downstream food waste at retail. Case ready packaging also minimizes amount of avoidable consumer food waste

Store-wrap package



Case-ready package



Information and aspects of the Packaging Solution initiative	Example 5
EUROPEN Member organisation responsible	Sealed Air Corporation
Type of Organisation & Stage of Packaging Supply Chain	Cleaning, Sanitation and Packaging Protection Material & Packaging Suppliers and Manufacture
Value Chain Stage(s) Targeted/ Benefited	Distribution, storage and within retail environment as consumer benefits through enhanced product quality
The Food Waste Issue	Product spoilage losses throughout the supply chain due to deterioration of pasta quality and short shelf-life, thereby creating food waste.
Packaging Solution	Overall impact on supply chain is to increase sustainability of distribution chain through enhanced packaging protection of distributed products, using Freshness Plus® Active Packaging Technology to achieve freshness preservation, avoid deterioration, and extended shelf life. Active packaging can eliminate need for additives and preservatives. Oxygen scavenging films eliminate oxygen from the interior of the package in addition to blocking oxygen migration.
Benefits and Amount of Food Waste Prevented	Product protection decreases product spoilage during distribution and storage while extending seasonal production. Extended distribution life gives greater distribution flexibility with reduced retail shrink. Increased product quality life results in cleaner labels and fresher product Fresh pasta shelf life extended by 50% by preventing mould growth



*Also used for other foods,
e.g. Processed deli meats
show improved color
retention and freshness*



Information and aspects of the Packaging Solution initiative	Example 6
EUROPEN member organisation responsible	Metsä Group
Type of organisation & state of Packaging Supply Chain	Forest industry group whose core operations consist of tissue paper, baking and cooking papers, paperboard, pulp, wood products, and wood supply and forest services.
Value Chain Stage(s) Targeted/ Benefited	Food service: professional cooks and kitchen superiors in institutional kitchens and catering services, and purchaser managers in communities
The Food Waste Issue	Food is cooked in steel trays resulting in food burning and sticking to the edges of the tray and therefore left uneaten when served, thereby producing food waste.
Packaging Solution	<i>SAGA Cook & Chill - Baking and cooking paper for professional</i> By using cooking paper to line the trays avoids food burning and sticking to the tray, resulting in the food waste avoidance.
Benefits and Amount of Food Waste Prevented	~Cooking paper prevents the food from burning to edges ~Food can be served as portions Reduce food spill up to 10% per GN (GastroNorm) tray.



Information and aspects of the Packaging Solution initiative	Example 7
EUROPEN Member organisation responsible	Nestlé
Type of Organisation & Stage of Packaging Supply Chain	Nutrition, Health and Wellness Company
Packaging type / related Product	7 to 25 Kg Bags for dry Cat & Dog food product
Food Waste Issue	Original paper bag structure was easily damaged along supply chain creating product loss / waste
Packaging Solution	The paper structure was changed to a more resistant structure to puncture and tearing for this kind of application
Benefits	The number of damaged bags and related product losses has been reduced by approx 50%
Country & Geographical Level of implementation	Europe and USA



Information and aspects of the Packaging Solution initiative	Example 8
EUROPEN Member organisation responsible	Nestlé
Type of Organisation & Stage of Packaging Supply Chain	Nutrition, Health and Wellness Company
Packaging type / related Products	All types of packaging for all kind of products
Food Waste Issue	In some cases, consumers buy too large pack format. The product is not totally consumed by the best before consumption date, the remaining product has to be discarded, resulting in food waste.
Packaging Solution	Offering smaller formats of the consumer unit, to propose consumer a controlled single serve portion pack. This can be applied almost in any kind of packaging type like flexible (bag , sachet, stick pack) but also to rigid container like plastic, glass, metal, board.
Benefits	Serving exactly the food portion needed, avoiding wasting the %urplus+
Country & Geographical Level of implementation	Worldwide



Information and aspects of the Packaging Solution initiative	Example 9
EUROPEN Member organisation responsible	Nestlé
Type of Organisation & Stage of Packaging Supply Chain	Nutrition, Health and Wellness Company
Packaging type / related Product	Pallets of bottled water, mainly 150cl bottles in 6-packs
Food Waste Issue	Pallet instability leads to pallet damage and consequently many bottles damaged, resulting in product loss
Packaging Solution	Change the wrapping parameters of the stretch film to increase the pallet stability
Benefits	Damaged packages have been reduced by 83% or 0.5 million bottles saved per month
Country & Geographical Level of implementation	Poland, but this could be extended widely



Information and aspects of the Packaging Solution initiative	Example 10
EUROPEN Member organisation responsible	Nestlé
Type of Organisation & Stage of Packaging Supply Chain	Nutrition, Health and Wellness Company
Packaging type / related Product	Any type of product and packaging
Food Waste Issue	Product waste do to lack of communication on preparation, dosing and storage
Packaging Solution	Give relevant communication to consumer on the product preparation, dosing and storage
Benefits	Correct dosing and preparation reducing food waste
Country & Geographical Level of implementation	Worldwide



Information and aspects of the Packaging Solution initiative	Example 11		
EUROPEN Member organisation responsible	Borealis Plastomers		
Type of Organisation & Stage of Packaging Supply Chain	Resin manufacturer		
Value Chain Stage(s) Targeted/ Benefited	Transportation and distribution		
The Food Waste Issue	<p>Seal failure is the main causes of packaging failure in the supply chain, causing food waste. A research, undertaken by the University of Lincoln in the UK, identified that 24% of heat seals were at risk of failure when leaving packaged food production plant and 1/3 of those packs may fail to provide sufficient protection of the food through the supply chain and into the home. This rate of seal failure is estimated to equate to around 480,000 tonnes of potential food waste in the UK. The most common reason for seal failure was product contamination in the seal area.</p> <p>Wasted food contained in failed packs may also contaminate or damage adjacent packs, further increasing food waste and putting consumers safety at risk.</p>		
Packaging Solution	<p>This packaging has specialty polymers which enhance seal-ability (capacity to provide strong and hermetic seals even if some food is present in seal area during packaging step) and abuse resistance (reducing mechanical failure) during packaging, transport and distribution steps of packed food. All resulting in avoided food waste.</p>		
Benefits and Amount of Food Waste Prevented	<p>Such materials allows for superior seal integrity on all forms of consumer products, resulting in food waste reduction during packaging, transport and distribution steps, while minimizing packaging waste.</p>		



Information and aspects of the Packaging Solution initiative	Example 12
EUROPEN Member organisation responsible	Total
Type of Organisation & Stage of Packaging Supply Chain	Raw Material Packaging Suppliers and Manufacture
Value Chain Stage(s) Targeted/ Benefited	Material Convertor, Packer, Assembler, Retail
The Food Waste Issue	Lack of product protection and robust sealability can damage and/or contaminate food leading to wastage.
Packaging Solution	Develop thinner and better performing films that reduce food waste as well as packaging waste
Benefits and Amount of Food Waste Prevented	The range of Total Lumicene® films are innovative solutions that offer higher technical standards for better sealing, barrier, etc. contributing to food waste reduction by improving product preservation and packaging's integrity during distribution, handling and storage, while reducing resource use and packaging waste.





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See also the following video on food waste prevention

<http://www.goodbadspudly.com>

Source: INCPEN