EXECUTIVE SUMMARY OF
FOOD WASTE REDUCTION CASE STUDIES

JANUARY 2017

PAC FOOD WASTE launched the *Food Waste Reduction Case Studies* project to identify and build an inventory of global packaging case studies for food waste reduction. The PAC website now features 19 case studies and plans to include additional examples in the near future.

THE VALUE OF PACKAGING

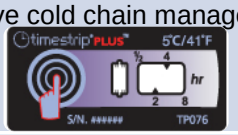
The case studies identify six food chain areas where packaging can play a key role to help reduce food waste. The packaging solution presented in each case study impacts one or more food chain area with the majority (10 of 19 case studies) affecting Point of purchase, followed by Consumer.

FIGURE 1 – Food chain areas identified in the case studies

The case studies highlight various developing and in-market solutions. All focus on the key functions of packaging to tackle food waste – to protect the product, extend shelf life and promote behavior change in the home.

FUNCTION TYPE	BENEFITS
PROTECT PRODUCT	Food handling and safety, damage protection, product monitoring, tamper-proofing, cold chain management
EXTEND SHELF LIFE	Barrier technology, spoilage and contamination prevention
PROMOTE BEHAVIOR CHANGE	Dosage and portion control, resealable features, freshness indicators

KEY FINDINGS - PACKAGING SOLUTIONS FOR FOOD WASTE REDUCTION

	Packaging Technology	Case Study Examples	Solution & Impact to Food Chain Area(s)
PROTECT PRODUCT	**REUSABLE PALLET SYSTEMS**	IFCO Polymer Logistics	Robust packaging materials used to provide pallet stability; reduces hygiene risks and physical damage to fresh produce during storage and transport
	THERMAL PROTECTIVE PACKAGING	Dupont	Maintains proper temperature control and protection from airborne contaminants; improved cold chain management
	TEMPERATURE INDICATORS	TimeStrip®	Heat-sensitive smart label; indicates temperature breach to improve cold chain management 
EXTEND SHELF LIFE	**MODIFIED ATMOSPHERE PACKAGING (MAP)**	Tempo Plastics Sunset® Innovia Films Amcor RAP SINTEF	Shelf-life extension by controlling atmosphere and barrier properties; micro-perforations may be used for gas permeability (oxygen and CO_2) based on produce requirements and respiration rates; anti-fog, moisture control  
	ETHYLENE ABSORBERS	It'sFresh! Chantler Packaging Inc.	Strips or films that absorb ethylene - a hormone that causes fruit to ripen; increases shelf life by reducing premature aging and degradation
	SENSORS (OXYGEN, CO_2)	Sensor Spot Insignia Technologies SINTEF	Sensors that work in conjunction with MAP to monitor oxygen (ie. SINTEF and Sensor Spot) or carbon dioxide (ie. Insignia); sensor may be applied to smart label to indicate freshness - *Insignia label shown right* 
PROMOTE BEHAVIOR CHANGE	**PRODUCT REMOVAL**	LiquiGlide™	Permanently wet, liquid-impregnated surface coating; Enables consumer to remove product entirely from packaging 
	PORTION PACKAGING	Fyffes & Midlands Co-op Bemis Mother Parkers	Right-size packaging for sale (ie. Fyffes) or consumption (ie. Mother Parkers and Bemis) to prevent waste; allows for controlled portions or doses; resealable feature may be used preserve freshness  

Reducing food waste provides a wide range of benefits across the packaging value chain:

- Reduction of wasted inputs used to produce food that is wasted (e.g. water, fertilizer, pesticides, fuel and packaging)
- Cost savings to businesses, consumers and municipalities
- Reduction in CO_2 emissions from energy use and transport; reduction in methane emissions from landfills (methane is a potent greenhouse gas)
- Increased food system productivity and efficiency

These benefits directly impact packaging manufacturers and suppliers, retailers, waste handlers and consumers. For example, a study[1] showed that consumers, who saved money by reducing their food waste, reinvested a large part of the money they saved into buying more "premium" food products.

It is important to note that the packaging solutions listed in the summary chart on the previous page are not the only options to tackle food waste. Aseptic and anti-microbial packaging can also extend shelf life of food as well as other technologies that are actively being developed.

Next Steps

PAC FOOD WASTE works to unite leading North American organizations throughout the packaging value chain to collaboratively explore, evaluate and mobilize sustainable packaging solutions for the prevention and reduction of food waste. PAC FOOD WASTE invites you to publicly document and share your packaging case studies as we continue to promote the value of packaging and its role to help reduce food waste.

Your feedback is welcome and appreciated. Please send your questions and comments to Rachel Morier, Director of Sustainability, at rmorier@pac.ca.

Call For Case Studies

Showcase how your packaging reduces food waste!
Submit your case study online here.

PAC FOOD WASTE features the packaging case studies on the PAC website.

[1] WRAP, 2015, Banbury, Strategies to achieve economic and environmental gains by reducing food waste.