



Brandcheck Perspective Series:
Fighting Food Waste

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About Brandcheck

Brandcheck is a consulting service focused on packaging. The strategists use expertise in the packaging industry, human behaviours, and creative design to get packaging right. Brandcheck uses these insights to provide brand and product strategy, competitor analysis, and graphic and structural redesign for brands, internationally.

About Brandcheck perspectives

Brandcheck Perspectives is a series of white papers and reports designed to bring Brandcheck's insights to life. Opinions expressed are our own.

We invite your feedback. Visit brandcheck.ca and let our team know what you think.

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Analyze the client's brand and product family

Benchmark the client's packaging against, compare vs. domestic & global competitors

Graphic and structural redesign to improve fit between brand & strategy

Identify cost reduction opportunities that make sense & create value

EXECUTIVE SUMMARY

Food wastage is a serious problem. Around the world, on an annual basis, approximately one third of all food produced for human consumption is lost or wasted. The mass of food lost or wasted totals around 1.3 billion tons per year and has significant impacts on greenhouse gas emissions, ecosystem degradation, freshwater consumption and land use. Food is lost within the supply chain, and wasted inside consumers' homes, manufacturers and foodservice establishments.

The issue of food wastage is becoming more prevalent in the public mind. High-profile publicity campaigns, news articles, books, and documentaries are contributing to increased public awareness of the issue and a desire on the part of the public for action. The recent "Save Food Congress 2014," held in partnership with UN organizations FAO and UNEP at the Interpack trade show, was an opportunity to discuss the issue of food wastage and exchange solutions to the problem.

Food brand owners will face increasing pressure to address food wastage throughout their operations. Packaging has a role to play as part of a company's overall food wastage strategy.

Our Thinking...

PACKAGE SIZE

Package size can be optimized so consumers waste less food. Large packages can be subdivided into multiple packages that the consumer can open on demand, reducing spoilage.

PACKAGE DESIGN

Package design is a major factor in food waste. Sizing a package incorrectly means veggies that are too big to fit will be discarded. Features like reclosable zippers can help reduce food waste in consumers' homes. Lightweighting packages will reduce packaging waste, but overdoing it will lead to more damaged food that ends up in the bin.

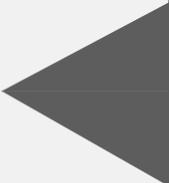


GRAPHIC DESIGN



Graphic Design tells consumers how to reduce food waste. Consumers want and need guidance on how to store, prepare, preserve and use up the leftovers of food products. Graphic design reinforces good food habits and enhances brand reputation around the issue of food wastage. Finally, brand owners must consider “use by” or “best before” dates; are they necessary and do they convey useful information, or do they prompt consumers to throw away perfectly good food?

TECHNICAL SOLUTION



Technical solution like shelf-life extending films, smart packaging, and protective atmospheres can reduce food waste. The challenge is to integrate this technology, where appropriate, into the brand promise and value proposition of the product.

INTERNAL EFFORTS



Internal company efforts to reduce food waste like “zero-waste” factories and partnerships with food recycling charities should be highlighted on packaging. New products can be created out of food that would have been wasted.

Food brands that embrace the campaign to reduce food wastage have the opportunity to burnish their reputations. Packaging is a key component of food waste reduction and is the key channel through which consumers get information about a company’s food wastage reduction efforts.

Scope of the Problem

Food Waste is a Serious Issue



Food waste is both a serious economic cost and a threat to the planet's ecosystem.

Around one-third of all the food produced on the planet each year is lost within the supply chain or wasted in consumers' homes or foodservice establishments.

Each year, food worth more than \$750 billion is wasted or lost. This figure (which does not include the value added during processing and transportation) is equivalent to the annual GDP of Switzerland.¹ In North America and Europe, food wastage adds up to around 300 kg per person, per year. Of that 300 kg per person, roughly a third is wasted at the consumer level (the rest is lost or wasted upstream during harvest, transport, processing and distribution).²



Roughly **61%** of food waste at the consumer level is avoidable, meaning it is discarded food that could have been eaten if it was stored or managed properly.³

The carbon footprint of lost or wasted food is approximately 3.3 billion tonnes of CO₂ equivalent per year. If food wastage were a country, it would be the third-biggest greenhouse gas emitter on earth, just behind the USA and China.⁴

The amount of agricultural land used to grow food that is lost or wasted represents 1.4 billion hectares, about the size of Canada and India put together.⁵ The freshwater used each year to grow food that is not consumed but is lost or wasted, roughly 250 km³, approaches the volume of Lake Winnipeg, or the total annual discharge of Russia’s Volga river.⁶

The difference between food loss and food waste – position in the value chain



Food Loss
 Food Waste

PACKAGE SIZE

(smaller is better)

ONE OF THE **MOST** IMPORTANT WAYS THAT PACKAGING INFLUENCES FOOD WASTAGE IS THROUGH **SELECTION OF PACKAGE SIZE.**

Reducing package size is often the simplest way to reduce food waste. Resizing the package so it matches consumer needs reduces spoilage, because consumers do not have to open a large package of something, use a portion, and watch the rest of the product go bad if they fail to consume the remaining portion in time. Reducing the package size to reflect actual consumer usage can deliver a significant reduction in food waste, with the additional benefit of making consumers feel they received maximum value from their purchase. Right-sizing a package requires insight from consumers.

Brand-owners have valid concerns about “ring”; larger packages sell for more money, making transactions more efficient and reducing handling costs. The way to address this concern is to divide one large package into two smaller packages which are bundled together and sold at one time. A good example is the saddle pack for deli meats, in which two packs (each roughly 300g) are sold together. This package style is doubly efficient because the packaging machinery used at the meat plants can produce these saddle packs with only a minor change in setup.

Sometimes, packaging can combine two different products into one package, saving the consumer from having to buy two different products to combination package, giving consumers variety whilst reducing the waste that would result from consumers buying two loaves of bread.

A pear grower in the US created a “now and later” pear pack for Sam’s Club. A paperboard box held two separately-wrapped PET trays of fresh pears.

THE CONCEPT WAS SIMPLE: CONSUMERS COULD PUT ONE TRAY ON THE COUNTERTOP TO EAT STRAIGHT AWAY, WHILE THE OTHER TRAY COULD BE PUT IN THE FRIDGE, WHERE IT WOULD STAY CRISPY AND FRESH UNTIL IT WAS NEEDED.

Smart portioning and splitting large packages into two smaller ones is an effective way to reduce food waste whilst maintaining transaction value.

PACKAGE DESIGN

ONCE THE PACKAGE SIZE HAS BEEN PORTIONED TO REDUCE FOOD WASTAGE, THE NEXT STEP INVOLVES **OPTIMIZING PACKAGE DESIGN.**

Package features like reclosability can cut food waste, by making it easier for consumers to seal up packaging so it continues to protect the food inside.

A key package design consideration is the interaction between the product and the package. For example, trimming green beans so they fit inside a rigid plastic punnet leads to a wastage rate of 40%; redesigning the package so that the punnet could accommodate larger beans, or getting rid of the punnet in favour of a more flexible package, would reduce this high wastage rate.

If consumers can freeze food inside its package, they will reduce the amount of food they throw out. Brands should make it easier to freeze their products, by selecting materials that perform well in the freezer and by highlighting freezability on the package copy. A bakery uses a slightly heavier gauge of polyethylene film to package loaves of bread because the thicker plastic reduces freezer burn. But is the package copy calling attention to this feature (answer: no)?

REDUCING THE **THICKNESS OR AMOUNT OF**

PACKAGING USED ON A PRODUCT (CALLED **LIGHT-WEIGHTING**) IS A GREAT WAY TO REDUCE PACKAGING WASTE.

But going too far will result in higher rates of food wastage due to handling damage. Careful analysis is required to determine if the light-weighting has resulted in a package that is unable to protect the food inside from damage, but as a rule of thumb, wasted food represents a greater environmental loss (due to wasted energy, water, CO₂ emissions, and fossil fuel usage) than the amount of packaging material waste saved by over-lightweighting a package.

Additionally, brands should think about how their package can be disassembled to make it easier to recycle food. Charities that reclaim surplus food from grocery stores, processors and foodservice operations report that food in tightly-sealed packages is difficult to recycle because of the challenge of getting inside the packaging. Making a package out of materials that are easier to open and separate will improve the efficiency of food recycling operations.

GRAPHIC DESIGN

THE COPY AND IMAGES ON A BRAND'S PACKAGING IS THE BEST CANVAS TO COMMUNICATE MESSAGES ABOUT FOOD WASTAGE.

Consumers are aware of the food waste problem and want to know:

- **How** they, as consumers, can reduce food wastage
- **What** the brands they buy are doing to reduce food wastage

Many surveys report that consumers want packages with information about how to store the food products they buy. As one report observed, "84% of British consumers surveyed say they would be 'very' or 'fairly' likely to use clearer and more prominent on-pack storage advice if it was highlighted to them."⁷ A significant amount of consumer food waste is linked to improper storage practices: keeping food on the countertop when it will last longer in the refrigerator, for example, or wrapping leftover produce stored in the refrigerator so it does not become dehydrated. By telling consumers how to properly store food by printing storage instructions on the package, brands will reduce the amount of food wastage at the consumer level.

In addition to storage instructions, consumers need help understanding how to use packaged

foods. Some consumers waste food because they overestimate what a serving size looks like. As a result, they use or cook too much and discard the waste. Brands should tell consumers what a serving size looks like by printing it on the package. Lines on a spaghetti package can show the right amount to cook for one serving, two, or four when the pack is held sideways, for example.

Highlight when food can be frozen right inside the pack for longer storage life (for example, on bread bags).

Instructions can also tell consumers what to use and what to discard. Produce brands can have fun suggesting consumers try re-growing plants from scraps (potato eyes or avocado pits, for example). On a more practical level, telling consumers that trimmings and bones can be turned into soups or stocks can help prevent wasted food.

Cooking instructions and recipes should be easy to follow.

TOO MANY BRANDS RUN PACKAGING WITH ONLY ONE RECIPE ON THE PACK, YEAR AFTER YEAR; BRANDS SHOULD **ROTATE RECIPES** ON A PACKAGE SO CONSUMERS ARE SEEING **FRESH IDEAS** TO USE THE PRODUCT AT EACH VISIT TO THE GROCERY STORE.

Position recipes to appeal to key demographics and use cases (quick dinner ideas, weekend brunches, work lunches, etc.) and ensure recipes are on-trend and current. Include recipes for leftovers on the pack as well; this encourages consumers to use up extras, positions the food brand as a problem solver (by helping the consumer use up leftovers) and gives consumers the perception that they received a lot of value of the money they paid.

Finally, tell consumers when the product inside the pack should not be used. All food eventually becomes stale or loses its freshness; all food eventually decays and becomes unsafe to eat. While government regulations often mandate best before dates or use-by dates, too many food products have dates that are arbitrarily calculated and have no relationship to eating quality or food safety. Determine if it is really a legal or customer requirement to have best before date on the package. If dates are not actually required, brands should consider replacing a date with information that is actually useful to the consumer by describing the quality indicia for the food inside, i.e. “discard if this yoghurt becomes discoloured” or “discard when this bread becomes stale and loses its fresh-baked aroma.”

TECHNICAL SOLUTIONS

PACKAGING COMPANIES HAVE DEVELOPED **POWERFUL TECHNICAL SOLUTIONS** TO REDUCE FOOD WASTAGE.

The best technology reduces the spoilage of fresh food without impacting the eating quality or “fresh” nature of the product inside, without using artificial preservatives or additives.

Modified atmosphere packaging (MAP) changes the concentration of gases inside the package to inhibit microbial activity or plant metabolism. The gas concentration is changed by:

- Making the packaging specially permeable to certain types of gases and not others (permeable films, laser perforation holes to admit some gases and not others)
- Removing the air inside the package and replacing it with a different mixture of gases, surrounded by barrier films to keep the gas mixture inside the pack (gas-flushed meat packs)
- Making the packaging out of a material that absorbs or removes certain gases (oxygen scavengers in drinks packaging, ethylene-removing plastic films for fresh vegetables)

For example, many tray-packed deli meat products have nitrogen and carbon dioxide injected into the “headspace” or air space inside the package to inhibit the growth of harmful

bacteria, dramatically extending product shelf life. Barrier films keep the special gas mixture inside the pack.

SMART PACKAGING IS PACKAGING THAT **MONITORS** THE CONDITION INSIDE THE PACKAGE AND **REACTS** TO THOSE CONDITIONS.

Examples include: Bio-sensitive films that detect the presence of pathogens like salmonella or listeria and change colour to warn the consumer. Films that release anti-oxidants or other materials into food to keep it fresh.

Care must be taken with technical food waste reduction technologies. Is the technology easy for consumers to understand? Does it keep the brand promise, or is it a contradiction? For example, a food product with a rustic, artisanal character may not make sense to consumers if it is packaged inside a high-tech sealed pack; the packaging is impairing part of the brand promise.

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Save food congress 2014

The Save Food Congress 2014 took place on May 7 – 8 in Dusseldorf, Germany, coinciding with the Interpack packaging trade show.

The Congress brought together academics, non-governmental organizations, campaigners, governments and businesses to discuss the problem of food waste and present solutions.

Participants emphasized the important role that packaging plays in reducing food waste.

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