

UNPACKED

HOW SUPERMARKETS
CAN CUT PLASTIC
PACKAGING IN HALF
BY 2025

GREENPEACE



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KEY RECOMMENDATIONS

RETAILERS AND BRANDS SHOULD:

Commit to tackle the issue

- Set ambitious targets to at least halve single-use plastic by 2025.
- Set targets to ensure at least 25% of this is met by systems of reusable packaging.

Halt damaging pack formats

- Urgently eliminate all non-recyclable packaging, including laminates and films.
- End UK sales of single-use water bottles.

Actively promote available solutions

- Promote sales of concentrates and naked products.
- Develop in-store and home delivery reuse options for the major categories identified in this report.

Work together

- Collaborate on supply chain projects.
- Unite to resolve any legal and infrastructure challenges around switching to reuse.
- Collaborate to standardise reusable packaging.

GOVERNMENT SHOULD:

- Set legally binding targets in the Environment Bill to reduce single-use plastics by 50% by 2025.
- Provide tax discounts for reusable packaging and financial incentives to help the sector shift over to reuse.
- Ensure that reform of Extended Producer Responsibility (EPR) legislation incentivises reuse and reduction of single-use packaging.



INTRODUCTION

Choking sea creatures, littering beaches, and increasingly finding their way into our bodies, we all know the dangers of single-use plastics.

Yet, despite scientific evidence and mounting public pressure, UK supermarkets are putting more plastic on their shelves than ever: over 880,000 tonnes in 2017, up to over 900,000 tonnes in 2018¹. This is something their customers simply do not want; more than two million of them have already signed Greenpeace's petition calling for supermarkets to ditch throwaway plastic².

Which is where this report comes in

To put an end to plastic pollution, we need to eliminate single-use plastics. This is why Greenpeace is calling on retailers and the Government to set firm targets to at least **halve usage of single-use plastics in supermarkets by 2025**.

But reducing plastic in one area can cause problems elsewhere. For example, shifting to pulp and paper packaging could further impact our disappearing forests. Similarly, swapping plastics for so-called bioplastics³ (which can be made from crops rather than oil) risks taking up more land to make packaging rather than feed the world's growing population⁴.

Where and how can we reduce plastic packaging?

To find this out, Greenpeace commissioned sustainability advisors 3Keel in 2019 to work with the UK supermarket sector exploring how effective reduce and reuse models could be at cutting down the amount of single-use plastics used by supermarkets every year.

Sections of the industry shared confidential information with Greenpeace, enabling 3Keel to create unique datasets indicating which categories of grocery products sold by UK supermarkets use the most single-use plastics.

By using this as a baseline estimate for the entire UK, and overlaying it with opportunities for reuse systems, we have been able to outline how **supermarkets can achieve a minimum 50% reduction in single-use plastic packaging, purely via reduction and reuse**. In fact, we propose that half of this reduction (25%) should come from a shift to reusable packaging systems.

Our data reveals the 13 categories with the highest potential for cuts, and shows that for some products, such as vegetables, fruit and salads, the elimination of packaging would be required in favour of loose produce.

While for other categories – such as water, carbonates (or fizzy drinks), milk, other kinds of still, juice, dilutable and energy drinks, household cleaning, detergents, softeners, bath and shower products, and rice – the shift would need to be largely towards reuse-based systems.

We also explore how the growth of home delivery due to Covid-19 presents a huge opportunity for businesses to switch over to reusable packaging. Although the outbreak of Covid-19 initially increased the plastic waste problem, it has also, by fast-tracking home delivery, shown us that reusable packaging can become mainstream – making now the perfect time for supermarkets to change their packaging models forever.

Will supermarkets make the change?

These findings pose a challenge to the UK supermarket sector. If retailers work together they can play a major role in not just tackling the plastic pollution problem, but also in creating the more circular sustainable economy we need to build for the future of our planet.

How is this report and its findings different to previous studies?

Since 2018, Greenpeace and the Environmental Investigation Agency (EIA) have conducted annual surveys of the top ten UK supermarkets' use of single-use plastic packaging, including items like plastic bags, straws and stirrers, and ranking them on their 'plastic footprint'. The surveys are based on supermarkets filling in a questionnaire to self-report data about the total weight and number of items of plastic packaging they sell, along with meetings to clarify results.

This report takes a different approach, however. It is based on very detailed product sales data shared in confidence by one UK supermarket, and was cross-referenced with other industry-wide data. This allowed us to map plastic packaging in terms of its weight, number of items and components for the first time. It also allowed us to clearly identify which product categories are using the most plastic packaging, and therefore pinpoint where to focus in order to drive dramatic reductions in plastic pollution.

PART 1: THE PROBLEM



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Plastic pollution first came to public attention as an ocean problem

The equivalent of a truckload of plastic enters our seas every single minute⁵. Once there, it disintegrates into ever smaller pieces. Because plastic is so long-lasting, as much as **50 trillion plastic particles** are already estimated to be floating around the world's oceans.

The impact that larger items like plastic bags, bottles and straws are having on seabirds, whales, dolphins and turtles is well documented. Less well understood are the pernicious effects microplastics are having on both underwater creatures and the building blocks of marine ecosystems, like corals and plankton.

But plastic isn't just an ocean problem

We now know that microplastics are also contaminating our rivers, soil, foodstuffs (like honey and salt), and even the air we breathe. And this isn't just happening in urban areas, but in remote and uninhabited regions too. Microplastics have even been found in Antarctic sea ice⁶.



An old Nescafe 3-in-1 sachet was trapped in between corals in Verde Island Passage, the epicentre of global marine biodiversity, in Batangas City, the Philippines.

© Noel Guevara / Greenpeace



It's also a human health problem

It's estimated we could be ingesting the equivalent of a credit card's worth of plastic every week⁷. We simply don't yet know what impact this will have on our health, but the effects scientists have discovered in other creatures – impeded growth, organ damage and hormone disruption – gives us a glimpse of the complications that could well arise in the future.

Plastic is even part of our climate problem

99% of plastic is made from fossil fuels and it causes CO₂ emissions at every stage of its lifecycle; from when the oil and gas used to make it is extracted through to when it finally decays. It has been predicted that **plastic production could take up 13% of our global carbon budget by 2050⁸**.

And it isn't going away

Despite massive public concern, statements and commitments by governments and companies, this is a problem that continues to worsen. **In 2019 alone, we calculated that UK supermarkets pumped out at least 114 billion pieces of plastic packaging.** If we continue with business as usual, the World Economic Forum predicts plastic production will double over the next 20 years – and quadruple by 2050.⁹

Above: A sea-horse tries to camouflage inside a big plastic bag, Philippines.

© Greenpeace / Danny Ocampo

Below: Whilst investigating conditions in the Malaysian waste industry, Unearthed finds packaging of familiar UK brands across vast piles of rubbish.

© Greenpeace



PART 2: THE CHALLENGE



Coot on a nest with plastic,
River Lea, London.

© Jack Perks / Greenpeace

To tackle the plastic problem, companies and governments must commit to bolder, more systemic action

It is clear that a 'business as usual' scenario based on recycling, which has been the focus of most corporate commitments to date, simply cannot provide the core solution.

Its vulnerability to oil price changes, lack of investment in infrastructure and the ever-increasing complexity of the types of single-use plastics companies have been putting onto shelves are some of the factors that sit behind one shocking fact: that **only 9% of all of the plastic ever produced globally has actually been recycled**. The rest has been burned or ended up in landfill or the oceans.

We need a bolder approach from companies: one that focuses squarely on reduction and reuse and enables recycling systems to focus on tackling what is left over. That's why Greenpeace is calling on companies to set targets to **reduce overall single-use plastic packaging by at least 50%, and for 25% of this target to be met by reusable packaging systems**.

Industry is already acknowledging that we need a radical shift to reuse

Amongst progressive businesses, governments and NGOs, there is a growing consensus about the need to move our economy from the current linear "take, make, dispose" model to a circular one that decouples economic activity from the consumption of finite resources, designs waste out of the system and regenerates natural systems.

Through the Ellen MacArthur Foundation's (EMF) New Plastics Economy Global Commitment¹⁰, more than 350 organisations have already signed up to building a circular economy for plastics. They explicitly acknowledge that we cannot simply recycle our way out of this issue, and that changing how products are packaged is a crucial part of the solution. The Global Commitment has also seen over 100 businesses sign up to take action to move from single-use to reusable packaging by 2025.

Reuse targets are needed to drive UK action

A poll conducted by Populus revealed that **over 90% of UK consumers support the idea of having products free of plastic packaging**¹¹. Yet, despite strong public support and plenty of successful high profile reuse trials, the UK retail sector is lagging behind. While Sainsbury's and Aldi have announced plans to halve their single-use plastic packaging footprint and Iceland has pledged to eliminate plastic from its own brand ranges, only one UK supermarket (Morrisons) has so far set a specific target for reusable packaging.

Governments are starting to legislate

Meanwhile, national and regional governments are starting to legislate to drive adoption of reuse. For example, in Romania businesses must reach a minimum 25% in their reusable packaging across all formats by 2025. France is aiming for 10% of packaging to be reusable by 2027, while Germany set an ambitious target for 80% of beverage packaging to be reusable. In addition, the European Commission has committed to reviewing their Packaging Directive to reinforce mandatory requirements, including driving design for reuse and potential restrictions on some packaging where there are no reusable alternatives.



Even if all current major industry and government commitments are met, the world would see a reduction in annual rates of plastic pollution flowing into the ocean of only 7%.



The PEW Charitable Trusts & SystemIQ

The benefits are astounding

While there are challenges to a systemic shift that treats packaging as an asset rather than as a disposable item, there are also some real benefits for both industry and the general public:

- EMF estimates that globally replacing as little as 20% of single-use packaging with reusable alternatives **offers a business opportunity worth at least \$10 billion**¹².
- Moving from single-use to reuse not only helps eliminate plastic waste and pollution but can also offer **significant reductions in greenhouse gas emissions**¹³.
- A large scale shift away from single-use and towards reuse and packaging-free options would drastically cut the costs of waste disposal, which under tighter producer responsibility legislation are set to be borne by producers.
- From a business perspective, reuse can also increase brand loyalty and customer retention through deposit and reward schemes for reusable packaging.
- By treating packaging as an asset to be reused rather than as a disposable item, innovation can be unlocked in terms of packaging design and functionality.
- Beyond cost savings, reusable (B2C) primary packaging allows consumers to get more from fewer resources, which **could halve material use and waste**¹⁴. Reusable (B2B) transit packaging has additional supply chain benefits such as reduced touch points, product damage and waste disposal for retailers.
- **A circular economy could create over half a million jobs in the UK**, particularly in the North East and West Midlands where unemployment is highest. Reuse and repair activities already support nearly four times more jobs than waste management¹⁵.

PART 3: THE DATA

THE METHOD

We used a year's worth of data from a leading UK retailer

In order to assess how reuse models could work at scale in the UK, we commissioned sustainability advisors 3Keel to run a series of workshops with UK supermarkets and fast-moving consumer goods companies during 2019.

This led to Greenpeace and 3Keel being offered access to one year of sales data by a leading UK retailer. This confidential information was scaled up by 3Keel to construct an indicative baseline for the UK as a whole. The figures were then 'triangulated' with separate, third party sources (from trade associations, for example) to create a dataset that is broadly representative of the sector as a whole. Although the data set was not granular down to individual products, it provides a unique supermarket-wide view, demonstrating the "hotspot" categories of single-use plastics being placed on the market.

This report presents the first UK-wide view of volumes of single-use plastic packaging placed on the market

We analysed 54 different retail product categories for amounts of single-use plastic packaging used through the three most relevant lenses: weight, sales units and number of plastic components. We then cross referenced each product category against a list of proven reuse-based systems and packaging reduction techniques, to assess how much single-use plastic packaging could be cut from each category.

The resulting data provides supermarkets with priorities to focus on in order to reduce single-use plastic packaging of their grocery products by at least 50%.

How did we settle on these three lenses?

Working out how to measure the negative impact of plastic was always going to be difficult. If you measure only by weight, then the results can hide the huge impact of items like lightweight plastic sachets, which are one of the biggest plastic polluters in parts of Asia. Conversely, if you

measure only by sales units, you can miss counting the fact that a single plastic bottle has several components, usually a lid or wrap, which can be ingested by sealife, such as birds and turtles.

It is only by looking at the whole picture that you can both understand the full impact of single-use plastics on the environment and identify which areas to prioritise tackling.

The three lenses used for measuring the impact of single-use plastic used in supermarket packaging:

1. Sales units

Number of sales units that contain plastic. For example, this might be a two pint bottle of milk.



2. Components

Number of plastic components. For the milk example, this would be four components comprising the bottle, seal, screw cap and plastic label.



3. Weight

This is the weight of the plastic bottle including the components.



THE RESULTS

We calculated that in UK supermarkets in 2019:

The number of individual sales units comprised of single-use plastics was:

56.5 billion

= nearly 9 times the number of people alive today

The number of plastic packaging components was:

114 billion components

= 18 times the number of people alive today

The total weight of these single-use plastics was:

653,000 tonnes

= nearly 3,000 747 jumbo jets

It's important to note that in 2018 and 2019, EIA and Greenpeace UK undertook the first ever comprehensive survey to gain a better understanding of how UK supermarkets are planning to address the plastic pollution crisis.

This survey found that the total amount of plastic packaging placed on the market had risen from 880,000 tonnes in 2017 to 903,000 tonnes in 2018. This also included straws, stirrers, bags for life and plastic bag sales, which aren't included here. These calculations map plastic packaging in terms of sales units, number of components and weight in order to identify which product categories use the most plastic packaging. Since they don't count bags sales, straws and stirrers, the actual plastic footprint of UK supermarkets will be much higher.

Our calculations show that supermarkets can cut their plastic in half by making reductions between 10–90% across 54 product categories. The table on page 23 shows all 54 products, the proposed reduction percentage and the remaining plastic after these cuts have been made.

We recommend that supermarkets prioritise the big volume items, which generally score highly across the three different metrics of sales units, components and weight, and have a high potential for reduction. Also, that retailers meet their commitments to urgently eliminate non recyclable plastics like films and laminates.

We define a "high potential for reduction" as those categories where there are proven, existing methods already available to reduce plastic, through a mixture of elimination of plastic and a shift to reusable packaging systems.

The biggest reductions can happen in 13 product categories where there is potential to reduce plastic by 70–90%.

We have pulled out the 13 categories that generally score highly across the metrics, with a high potential for plastic reductions between 70–90%. The table below shows each of the categories, the target percentage for reduction and the amount remaining across each of the three metrics.

Taking a closer look at these 13 categories

The data shows that vegetables and salads result in the most use of individual pieces of plastic packaging (components) by sales units, but milk, bottled water and carbonates (fizzy drinks) produce the most single-use plastic by weight.

Bottled water has a reduction percentage of 90%. We believe this reduction would be made through a mixture of elimination of plastic (stopping the sale of water altogether) and a shift to a refill model, where customers refill their own bottles/containers. We look at bottled water and its solutions in depth on page 15.

Carbonates, milk, still and juice drinks, household cleaning, detergents and softeners, sports and energy drinks, and rice all have a reduction potential of 80%. Reduction of

plastic across these categories would be a result of a shift to reuse-based systems. We look at the existing solutions and innovations for milk and household cleaning in depth on pages 16 and 17.

We believe fruit juice, dilutables (squashes) and bath and shower products have a reduction potential of 70%. This would also be met by a shift to reuse-based systems. The innovations in reusable systems within the bath and shower products category are explored in depth on page 18.

Vegetables, salads and fruit have a reduction potential of 70%. We believe that this reduction would be a result of the elimination of plastic, with these products being sold loose (unpacked). We look at these two categories in depth on page 13 and the solutions for selling loose produce.

If the proposed reductions are made across the 13 categories, then supermarkets will have reduced their plastic output by approximately 35%. This would save over 300,000 tonnes of plastic. That's the equivalent of 8,000 fully-loaded supermarket delivery lorries.

Categories not mentioned above, with a reduction potential between 10-60%, would be largely met through a switch to reusable systems of packaging, with some elimination of packaging and a shift to naked products where possible. Some of these categories would pose challenges and more research, and collaboration needs to be done to work out the best methods and solutions.



A reduction of plastic production – through elimination, the expansion of consumer reuse options, or new delivery models – is the most attractive solution from environmental, economic, and social perspectives. It offers the biggest reduction in plastic pollution, often represents a net savings, and provides the highest mitigation opportunity in GHG emissions.



The PEW Charitable Trusts & SystemIQ

TRANSIT PACKAGING

This report is consumer packaging focused, but there are proven, scaled and cost-effective solutions to support high ambition for reusable packaging that is used in transit, such as pallets and wraps (also referred to as secondary and tertiary packaging).

The 13 categories with greatest potential for significant plastic reduction

These bottles show the 13 product categories with greatest potential for plastic reduction, sorted by sales units, components and weight.



EVERYDAY REFILLS

PART 4: SOLUTIONS - HOW TO REDUCE



ELIMINATE

FRUIT AND VEGETABLES

Some retailers are already taking steps to reduce “pointless packaging” on their products. Moves such as removing wrapping from multi-packs and instead offering a discount on the equivalent number of single packs sold, scrapping plastic wrappers and hangers from clothing, and getting rid of plastic from greeting cards and wrapping paper all play their part in addressing the plastic problem.

But the major area where supermarkets can eliminate pointless plastics is on fresh fruit and vegetables

A fifth of all plastic in supermarkets (by sales units) is packaging for vegetables, salads and fruit. This amounts to 38,000 tonnes across the two categories. And worse, many of these prepared products are sold with two or three separate plastic components. **A 70% reduction would save over 30,000 tonnes.**

Of course, traditional greengrocers have historically managed without plastic packaging on their potatoes – and the public remembers. Following strong calls from customers and the media for loose fruit and vegetables to be offered at the same price as pre-packaged ones, 2019 saw many retailers trialling sales of loose fruit and vegetables, and offering reusable produce bags.

At the end of 2019, Morrisons rolled out plastic-free fruit and vegetables in 60 stores as part of an ongoing refurbishment programme nationwide¹⁶. This decision was made after a successful 10-month trial in three Morrisons stores where all loose items were stocked side by side, leading to a 40% increase in loose purchases. These

changes meant Morrisons’ customers could choose from up to 127 varieties of loose fruit and vegetables.

From a retailer’s point of view, shifting over to loose fruit and vegetables requires good management and knowledgeable staff members. Customers, on the other hand, will need to show a willingness to select loose items for bagging personally. Neither of these are insurmountable, but they do indicate the need for behavioural changes.

Results of the Waitrose Unpacked trials found an initial increase in food waste from fresh produce. But once partners and customers got used to the new system, and volumes could be forecast more accurately, waste dropped off quickly. One category that was particularly affected was soft fruits, where more customers switched to Unpacked than originally envisaged, leaving a surplus of pre-packed options.

Keep cool and mist

In New Zealand, retailer Foodstuffs has taken a different approach with a project called “food in the nude”. Working closely with suppliers to stop using plastic wrapping for most fruit and vegetables, the supermarkets installed a refrigeration system that uses “misting” to keep produce fresh, ensuring that the shelf life of products is maintained without single-use packaging.

Since implementing the system, **sales of some vegetables have soared by up to 300%**¹⁷. Misting is already a popular alternative to single-use plastics around the world and can be implemented at every stage of the supply chain, including post-harvest, to extend the storage time of produce. Crucially, refrigeration systems need to be energy efficient.

Waitrose Unpacked trial, Oxford. Refill zones have dispensers for customers to refill their own containers.
© Isabelle Rose Povey / Greenpeace

CASE STUDY: Apeel and It's Fresh

Apeel was founded in 2012 with a grant from the Bill and Melinda Gates Foundation¹⁸. Apeel forms a thin 'peel' of edible plant material on the surface of fruit and vegetables that slows down water loss and oxidation – the two main factors that cause spoilage. Apeel is now working with retailers across the USA, and at the end of 2019 announced a partnership with supplier Houweling's Group to

replace the single-use plastic wraps on cucumbers.

Other companies are exploring similar technologies. UK-based **It's Fresh**, for example, makes ethylene filters that aim to prolong shelf life by slowing down food's response to ethylene, a chemical that fruit and vegetables emit as they age that causes a breakdown in colour and texture¹⁹.



Apeel adds a layer of plant-derived protection to the surface of fresh produce.

© Apeel

REUSE

While a systemic shift may seem daunting, there are huge economic and environmental benefits. **Converting just 20% of plastic packaging into reuse models is a business opportunity worth 10 billion US dollars**²⁰. Therefore, higher ambition could unlock even higher revenues for businesses. It benefits retailers, customers and is a major step in the quest to eliminate plastic pollution.

But what do we mean by reuse? Reusable packaging is designed to accomplish a minimum number of trips, or rotations, in a system for reuse. A reuse system is defined as established arrangements (organisational, technical or financial), which ensure the possibility of reuse in a closed-loop, open-loop or in a hybrid system²¹. The following four sub-categories are a useful starting point²²:

- Refill at home: users refill their reusable container at home (e.g. refills delivered via a subscription service)
- Return from home: packaging is picked up from home by a pick-up service (e.g. a courier company)
- Refill on the go: users refill their reusable container away from home (e.g. an in-store dispensing system); the reusable container can be owned by the consumer or rented from the company.
- Return on the go: users return the packaging at a store or drop-off point (e.g. in a deposit return machine or postbox)



If the bottle is reused 20 times it means 95% less packaging waste.



Ellen MacArthur Foundation

The Covid-19 pandemic, during which this report was compiled, has shifted the way we shop for our food, and with it opened up more possibilities to package goods sustainably. This is primarily driven by the shift to online shopping and the huge potential to employ reuse systems for doorstep delivery and pick-up, in other words, a refill-at-home and return-at-home reusable system.

The public are also increasingly supportive of reuse. A 2020 YouGov poll found that around 60% of people surveyed said they'd be willing to buy dry goods using a reuse scheme²³. Over half said they'd be happy to try reuse for household cleaning products and two thirds would prefer it if online shopping platforms made it easier to request less packaging.

Its increasing popularity is also evidenced by the number of Zero Waste and refill shops popping up on high streets over the last couple of years. For example, Hisbe in Brighton and As Nature Intended (now owned by Planet Organic), which has seven shops in London, all offer customers refill options.

In the following section we look more closely at the high volume items, and how reuse can play a major part in reducing packaging for them.

BOTTLED WATER

No one in the UK needs to drink bottled water. Our tap water is some of the cleanest in the world. And yet, the bottled water category is ranked fifth highest by sales units, with an estimate of nearly three billion units, producing over 35,000 tonnes of plastic waste annually. That's a lot of plastic that just doesn't need to be there.

A reduction of 90% would save over 31,000 tonnes of plastic.

The simplest option to reduce plastic pollution from water bottles is for supermarkets to **just stop selling them**. This sounds unrealistic, but Ocado did just this in April 2020²⁴, freeing up space in delivery vans for essential goods during the Covid-19 lockdown. Supermarkets can also move to refill options, by introducing in-store schemes where customers return water bottles for refilling. These can even be incentivized, as in Germany²⁵.

To deal with "on the go" needs for water, supermarkets could join coffee chains, restaurants, airports and independent shops in offering free water refill stations in-store, where customers can top up their reusable water bottles. These could form part of the existing nationwide network of refill stations that enable people to top up water safely and easily wherever they are. A great example is Refill, which uses an app to locate over 20,000 Refill Stations across the UK. People bring their own bottles and fill these with water for free²⁶.

FIZZY DRINKS

Fizzy drinks bottles accounted for over 90,000 tonnes of single-use plastic in 2019. Our analysis proposes this could be **slashed by nearly 80%, saving nearly 72,000 tonnes**, by using two methods: a refill system and a return scheme.

Refill in-store

There's a new generation of dispensing fountains that have been developed to provide filtered water, sparkling water and everything from a standard cola to a customised flavoured fizzy drink²⁷. Pilots of these systems have been successful and are being expanded to university campuses, schools, hospitals and work locations in the US and UK. There is an opportunity for retailers to provide these machines in-store with refillable bottles, particularly aimed at "on-the-go" purchases.

Refill at home

And, of course, there's opportunities to be had before people even leave their home. Carbonation systems like SodaStream and Drinkmate allow people to make sparkling water and flavoured fizzy drinks at home in

reusable bottles. This involves a one-off purchase of the machine and reusable bottles, and then recurring purchase of flavourings and refillable, compressed CO² cylinders.

It's estimated that one SodaStream bottle can help the average family **reduce more than 3,700 bottles and cans**²⁸. PepsiCo's recent investment in SodaStream signals the market potential of eliminating single-use drinks packaging in the home.

CASE STUDY: Coca-Cola Brazil

Globally, Coca-Cola have been under fire for their failure to tackle plastic pollution and their shift away from using reusable bottles. However, their Latin America bottlers have been bucking the trend and actually increased reusable packaging (both glass and PET) to become 27% of their sales.

Contributing to this was Coca-Cola's decision to implement a system in Brazil that used an ordinary refillable PET plastic bottle across their drinks ranges. They offered people a discount on their next purchase when they returned their empty bottles. Retailers then stored the empties and gave them back to the company on delivery of a new order. Next, Coca-Cola brought the multi-branded mix of bottles back to a bottling facility, where the paper labels were washed off, the bottles were cleaned, refilled, and re-branded with a fresh label, and then redistributed.

Bottle return rates were reported to be **above 90% and bottles lasted up to 25 cycles before being recycled**. As well as replacing **200 million single-use bottles per year**, it was reported that the creation of a universal bottle design across all brands also significantly reduced carbon emissions, as well as washing and filling costs.

Return on-the-go schemes

Bottle return schemes exist in various forms, in various countries, including mainland Europe, Asia and Africa. Mostly these closed-loop systems are for glass bottles, but some PET-based (plastics made from Polyethylene Terephthalate) schemes also exist in South America.

In the UK, company-backed deposit return schemes for reusable bottles used to be commonplace and successful, so there is huge potential for them to make a comeback in parallel to a recycling-based national deposit return scheme.

In Germany, reusable glass bottles account for 25% of the bottled water market, which grew by 10% between 2017 and 2018²⁹.

Over in the US, at the Oregon Beverage Recycling Cooperative, one of the largest glass bottle manufacturers in the world, they have also noted the GHG emissions benefits of going reusable. Each bottle can be reused 25 times, which its creators report would lead to a 92% savings in carbon footprint versus recycling aluminum or glass. It takes a lot less energy to wash out a bottle than to melt and mould a new one³⁰.

Similarly, Carlsberg have created a new glass bottle coating for their reusable bottles, to reduce scuffs and scratches and keep them in circulation for longer. This is available in Malaysia now and they are looking to release these globally³¹.

MILK

Supermarkets sell a lot of milk – about 84,000 tonnes of plastic in 2019 – sold almost exclusively in single-use plastic bottles. **According to our data, a switch to reuse could save nearly 67,000 tonnes a year.** We believe the most effective ways are to offer doorstep deliveries to homes and offer vending machines in-store and in private and public spaces.

Doorstep Deliveries

Reusable milk bottles aren't so difficult to envisage. Back in 1975, 94% of UK milk was delivered in reusable glass bottles to people's doorsteps. But since then demand has collapsed and they currently make up less than 3% of liquid milk sales in the UK, according to Dairy UK³².

However, dairies are now seeing an increasing demand for reusable bottle doorstep deliveries. In 2018, the online food and drink delivery company Milk & More found that **90% of its new customers requested reusable glass bottles**³³. And Graham's Dairy, Scotland's biggest independent milk producer, has recently started offering glass milk bottle deliveries.

There's clearly potential for supermarkets to also deliver milk to homes in reusable bottles, much like the milkman does. The US-conceived Loop system delivers products, from toothpaste to ice cream, to people's homes in reusable packs. It has recently launched in the UK in partnership with Tesco, which could signal a huge change in the way we receive goods, not just milk (see case study on page 20).

Milk Machines

Milk vending machines are another option. The glass bottles are generally bought outright by the customer who can fill up directly, then wash at home. 80 milk stations have been rolled out across the UK by The Milk Station Company³⁴, each one linked to local dairies. Councils and businesses are also installing free machines to help eliminate single-use plastic from the workplace.

A key factor when switching to reusable bottles for milk is that all retailers need to use a standard design to make the system as efficient as possible. This isn't a new idea; retailers and suppliers have already agreed to use one type of standardised plastic (High-Density Polyethylene, or HDPE) in their milk bottles. This cooperative approach should now be extended to reusable bottles.



New glass milk bottles for delivery
© Graham's Dairy



Milk vending machines
© The Milk Station Company

HOUSEHOLD CLEANING AND DETERGENTS & SOFTENERS

Outside of food and beverage items, the household cleaning and detergents & softeners categories score high in our data: over 50,000 tonnes of plastic in 2019. **A reduction of 80% across these categories would save over 40,000 tonnes of plastic.** We recommend two options here: switching to concentrate and refill models for both at-home and in-store.

Remove the water

Many cleaning items on supermarkets shelves are largely made up of water. Eliminating this, by switching to concentrates, can substantially reduce packaging along with transportation costs. Shoppers are already familiar with concentrated liquids that come in smaller bottles, but the latest innovations are concentrates in the form of tablets, pouches and swatches.

Splosh is a company that offers products for washing machines, dishwashers and personal use³⁵. The products are first delivered in reusable bottles. Subsequent orders then come in pouches filled with concentrated liquids. These can be poured into bottles and diluted with tap water. **Using concentrates in pouches reduces plastic waste by around 90%**, but the pouches can be returned to Splosh for reprocessing into other products, thus completely eliminating plastic waste.

Multinational consumer goods corporation Procter & Gamble has created a line of plastic- and water-free products called “DS3 Clean” swatches³⁶. The swatches are the size of a tea bag and foam up when mixed with water, making them much lighter and easier to transport than traditional products.

Procter & Gamble claims this innovation removes **80% of the weight, 70% of the space, and 75% of the emissions** compared with traditional products. The product line includes laundry detergent, surface and toilet cleaner, as well as personal care products.

Refill what you've got

Another option is developing refill systems and encouraging customers to reuse containers for products, meaning they only buy the container once.

Cleaning products company Ecover encourages their customers to prioritise reuse by offering home-refill products in a bag-in-box format, and setting up refill stations across the UK. **Ecover's plastic bottles can be used more than 50 times**³⁷, allowing customers to refill and reduce plastic consumption. This goes to show there is clear potential for brands and retailers to partner in providing hi-tech, in-store dispensing machines.



Splosh refills come in pouches that can be diluted with tap water.
© Splosh

Buy by the gram

Meanwhile in Chile, refill business Algramo sells food and cleaning products “by the gram” (hence the name). Their vision is to erase the “poverty tax” that many poor families pay for small packages because they aren’t always able to buy products in bulk for less³⁸. Working in partnership with Unilever and Nestlé, they have in-store dispensing units that are completely touch free – useful to consider in the time of Covid-19.

They also have an “intelligent dispensing system on wheels”, which is essentially a series of electric tricycles to take products to the streets and even doorsteps. Customers can arrange a visit from the tricycle via the app.

There’s evidently appetite for innovation around refill systems, as well as clear potential to scale them up. Algramo’s forward-thinking model also takes into account how retailers need to be thinking of the future of grocery sales in times when customers might not be able to get to their stores in person and as online shopping continues to soar.

BATH AND SHOWER PRODUCTS

A smaller category, but one with huge potential to reduce packaging, are toiletries: items such as soaps, shampoo and conditioner. Bath and shower products alone account for 10,000 tonnes of plastic waste. **A cut of 70% would lead to savings of 7,000 tonnes.**

One approach that could be offered at scale by retailers is the idea of “naked” or packaging-free products. This is an idea that has been popularised in the UK by cosmetics firm Lush. Building on the concept of the soap bar, companies like Lush and others have developed solid shampoo and conditioner bars, solid shower gels, massage bars, and even solid henna hair dyes. An added bonus alongside waste reduction is cost reduction. According to Lush, **around 40–50% of the cost of a product usually goes on its packaging.**

Another obvious approach is in-store refill. In the past, this was offered by brands such as Neal's Yard and The Body Shop, where sales assistants physically refilled customers' returned bottles from bulk-size packs. Now, in France, cosmetic company CoZie (Cosmétique Objectif Zéro Impact Environnemental) have developed a more sophisticated approach³⁹. It involves a bulk dispensing machine for products such as moisturisers and face creams, which allows users to stock up to the nearest millilitre.

The special design of the system stocks the cosmetic products in airless bags to maintain each product's shelf life, and prevents contact between the formulas and the machine. Plus, it is designed to meet the strict hygiene and traceability standards for cosmetic products. Customers pay €1.5 per container for their first purchase, which is then deducted from their next purchase, building brand loyalty. This approach clearly has potential to be scaled up and used for multiple brands in a supermarket setting.



Lush's solid shampoos in a re-usable tin
© Lush



"La Dozeuse" – the world's first re-fill machine for cosmetics
© Cozie

HOME DELIVERY - THE HUGE OPPORTUNITY

Building from the health crisis

One impact of the Covid-19 pandemic has been a significant shift to people having food home-delivered. This opens up huge potential for reusable packaging, as reuse is based on delivery from warehouses rather than stores. Plus, the home delivery model allows both drop-off of food and pick-up of used packs, saving people the additional job of transporting containers to and from their homes.

Experts suggest that home delivery can radically improve take-up of concentrates. Products, such as the concentrated washing liquid and cleaners supplied by start-up Splosh, allows bottles to be reused time and again. As with any online marketplace, a tiny concentrate would appear as a similar size to other standard size bottles, giving it the same physical presence online compared to in-store.

CASE STUDY: Abel & Cole

Here in the UK, organic food delivery company Abel & Cole recently introduced refillable containers as an option for their customers. This new "Club Zero" scheme is their answer to zero waste shops. Using three different-sized refillable containers for 15 different products so far (such as pasta, nuts, lentils, quinoa, chocolate buttons), customers can decant into their own jars at home, and leave the containers with their box for collection the following week. Back at the depot, they're put through a commercial dishwasher and refilled.

It has been a huge, company-wide shift, involving the setting up of a cleaning and refilling warehouse, which shows how much investment and planning are needed to implement a reuse system. But Abel & Cole report their customers are hungry for it. Their business has increased substantially since Covid-19, as customers went online. They see that the new normal – the appetite for online shopping – is here to stay.



Abel & Cole's Club Zero containers
© Abel & Cole



It's about inventing the future of how we want to consume and really view it as a step forward where we can upgrade sustainability, quality of features and bring new, more convenient ways to shop.



Tom Szaky, Loop

CASE STUDY: Tesco in partnership with Loop

Loop is a project pioneered by US company TerraCycle to get rid of single-use plastic packaging on everyday products, from groceries to shampoo. They have already partnered with some of the biggest brands and retailers across America and in France with Carrefour. This year they've teamed up with Tesco to bring reusable packaging directly to UK homes, initially selling online, then through Tesco's UK stores.

What is remarkable about Loop is that it offers well-known branded

products alongside unbranded, white label products, both in reusable packaging, for which customers pay a returnable deposit. Purchased items are sent in vans to customers' homes in the Loop tote bag: a robust, insulated Teflon bag, similar to an Uber Eats bag. Empties go back into the tote, which gets picked up when the next food delivery arrives. They are then washed, dried, refilled and sold again. It is convenient for both customer and retailer; all either has to do is empty and refill reusable containers.

The trial will develop as Tesco and Loop learn what the British consumer wants from the system, which products are most popular, which elements work, and what needs to be tweaked. Both Tesco and Loop agree that a closed-loop reuse system, which minimises the amount of resources used, is unequivocally better for the environment than single-use. If you can get the scale right, it can have real economic benefits too. Tesco view scalability as key and are excited that Loop, if it is embraced by customers, can clearly operate at a large scale.



Tesco's partnership with Loop
© Loop / Tesco

Q&A with Tom Szaky of Loop

TerraCycle CEO Tom Szaky explains how Loop's reuse model makes business sense as well as being an environmental necessity.

Greenpeace: There are concerns that Covid-19 could undermine the war on plastic. Do you think the increase in home delivery that has occurred as a result could actually fast track a switch from single-use plastic to reusable packaging?

Szaky: Reuse has a really big opportunity to win out of Covid-19. What we need to focus on is what consumers want: cheap, convenient and full of features and benefits. If you can get to the same price with scale, which I believe you can, then we need to focus on matching or beating the convenience of disposability. This is especially true of the online shopping experience.

Online ordering can offer interesting approaches to convenience, like auto-ordering staples (where your empties trigger a reorder), so the consumer doesn't have to worry about buying anything.

The way to convert the masses is not about thinking of reuse as a step back to the way our grandparents lived, where we mended our clothes, cobbled our shoes and had the milkman deliver our milk. It's about learning from those messages, but then inventing the future of how we want to consume. It needs to be a step forward, where we upgrade sustainability, quality of features and even bring new, more convenient ways to shop that are facilitated by reuse.

Greenpeace: You work with a lot of big corporations. Can you explain to us how you convey the business case for reuse to them?

Szaky: One obvious plus is that it moves the packaging from being a cost to an asset. By making it an asset, you can design with the idea that the packaging has to be taken back. In a single-use model, they design with the idea that another stakeholder has to deal with it once it's no longer useful.

Designing with an asset in mind means that from a sustainability point of view you ask yourself, "How does this come back and go around?" You can invest a lot more in the packaging. Instead of the entire price of the packaging going into the price of the product, the depreciation of the packaging goes into the price of the product, and that depreciation is securitised by the deposit, which means that if the consumer keeps it, it's a profit centre to the brand. So this allows you to invest more in your packaging design, offering brands a new way to seek competitive advantage and customer loyalty. Can you imagine what you could do with a lot more budget? Just sheer innovation. That's the huge unlocking principle that has captured Loop.

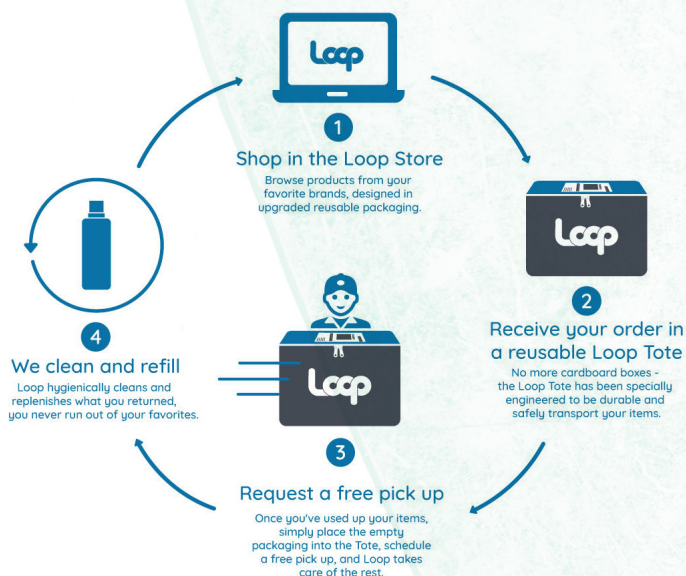
It's also about innovation both in business model and physicality. We've seen so much momentum because we're fierce on convenience. The norm for convenience is to throw something out, don't wash it, don't sort it, don't clean it, don't do anything other than create a disposable experience. Whereas we're really focused on giving that ease to the consumer while acting reusable behind the scenes.

Greenpeace: Could you unpick a little bit more about how home delivery makes reusing packaging more feasible?

Szaky: What we've done THROUGH reuse reduces waste management, hauling requirements and leverages the vehicle that was going over on the next delivery. This is an example of how home delivery, though it may seem like two transportation steps, is actually removing one.

If you have disposable products in your life, a garbage truck is still going to come to your door, but if you really move to a lifestyle that is entirely reusable, you can eliminate the idea of a garbage truck altogether. For home delivery of reusables, why can't the outbound serve as the inbound? They're already at your home, why can't they pick up your empties when they leave?

How does it work?





PART 5: RECOMMENDATIONS IN FULL

In order to turn back the tide on plastic pollution, concerted action is required by both retailers and government. In order to encourage this, we have set out a comprehensive set of ambitious, but achievable, recommendations.

RETAILERS AND BRANDS SHOULD:

COMMIT TO TACKLE THE ISSUE

- Set ambitious targets to at least halve single-use plastic by 2025.
- Set targets to ensure at least 25% of this is met by systems of reusable packaging.

HALT DAMAGING PACK FORMATS

- Urgently eliminate all non-recyclable packaging, including laminates and films.
- End UK sales of single-use water bottles.

ACTIVELY PROMOTE AVAILABLE SOLUTIONS

- Promote sales of concentrates and naked products.
- Sell and promote at-home water carbonating devices and support the national water refills network by offering free refills in-store for customers.
- Develop in-store and home delivery reuse options for the major categories identified in this report.

WORK TOGETHER

- Collaborate to standardise reusable packaging.
- Collaborate on supply chain projects. For many UK product categories there are only four or five branded and own-brand manufacturers. These manufacturers and retailers should cooperate on reuse pilot projects and rapidly scale successful ones.
- Share learnings on reuse. Some supermarkets, including Waitrose and Morrisons, have already conducted successful single-use plastic reduction schemes and shared the results with other retailers in the sector. This sort of co-operation should continue.
- Work together to resolve any legal and infrastructure challenges around switching to reuse, such as current controls on carrying used packaging in supermarket delivery vans.
- Agree to report detailed yearly data on single-use

plastic and reusable packaging to a shared industry-wide independent reporting body, who will publish topline results to ensure transparency.

- Address the drivers of single-use packaging. Promote shorter supply chains and seasonal produce; ban excessive packaging used for marketing objectives; challenge the “convenience” culture underpinning the wasteful on-the-go market.
- Recognise the need to re-calibrate standard Life Cycle Assessments (LCAs) when assessing reuse systems. During initial stages of deployment, you often see a dip in eco-efficiencies, but over time they invariably perform better than single-use equivalents.

GOVERNMENT SHOULD:

- Use the Environment Bill to set legally binding targets to reduce single-use plastics by 50% by 2025 and to introduce mandatory corporate reporting on plastic reduction, in order to create a level playing field for all sections of the grocery industry.
- Incentivise and support standardisation of reusable packaging, including providing funding support for trials of new systems/reuse innovation.
- Provide financial incentives to help the sector shift over to reuse. For instance, use Enhanced Capital Allowance (ECA) schemes to assist companies with investments in plant and machinery for reuse applications.
- Ensure that reform of Extended Producer Responsibility (EPR) legislation incentivises reuse and reduction, and internalises environmental impacts and costs, including upstream impacts, such as pollution from pellets used in producing plastics. The most commonly identified challenge of moving from single-use to reuse is making the internal business case. Reforming EPR to make manufacturers financially responsible for the full environmental impact of the plastic they produce would make retailers and producers more likely to invest in reuse solutions.

APPENDIX

This table shows all of the 54 products ranked by their reduction potential (from 90% down to 10%). Please note figures have been rounded.

| | TOTAL | 56.5 billion | 114 billion | 653,000 | 50.7% | 53.6% | 59.6% |
|------------------------------|---------------------|-------------------------|------------------------------|-----------------|---|--|---------------------------------|
| Categories | Reduction potential | Sales units (thousands) | Total components (thousands) | Weight (tonnes) | Sales units after reduction (thousands) | Total components after reduction (thousands) | Weight after reduction (tonnes) |
| Bottled Water | 90% | 2,920,000 | 8,760,000 | 35,000 | 290,000 | 880,000 | 3,500 |
| Carbonates | 80% | 3,610,000 | 10,830,000 | 90,300 | 720,000 | 2,170,000 | 18,100 |
| Milk | 80% | 2,230,000 | 8,910,000 | 84,000 | 450,000 | 1,780,000 | 16,800 |
| Still & Juice Drinks | 80% | 1,080,000 | 3,250,000 | 27,100 | 220,000 | 650,000 | 5,400 |
| Household Cleaning | 80% | 580,000 | 1,150,000 | 30,000 | 120,000 | 230,000 | 6,000 |
| Detergents & Softeners | 80% | 470,000 | 940,000 | 21,000 | 90,000 | 190,000 | 4,200 |
| Sports & Energy Drinks | 80% | 470,000 | 1,410,000 | 11,800 | 90,000 | 280,000 | 2,400 |
| Rice | 80% | 270,000 | 270,000 | 3,000 | 50,000 | 50,000 | 600 |
| Vegetables & Salads | 70% | 7,640,000 | 11,460,000 | 24,700 | 2,290,000 | 3,440,000 | 7,400 |
| Fruit | 70% | 4,120,000 | 6,180,000 | 13,300 | 1,240,000 | 1,850,000 | 4,000 |
| Fruit Juice | 70% | 1,080,000 | 3,250,000 | 27,100 | 320,000 | 970,000 | 8,100 |
| Dilutables | 70% | 510,000 | 1,540,000 | 12,800 | 150,000 | 460,000 | 3,900 |
| Bath & Shower Products | 70% | 290,000 | 590,000 | 10,000 | 90,000 | 180,000 | 3,000 |
| Morning Goods | 60% | 670,000 | 670,000 | 2,100 | 270,000 | 270,000 | 900 |
| Cereals & Breakfast Foods | 60% | 610,000 | 610,000 | 5,000 | 240,000 | 240,000 | 2,000 |
| Nuts & Dried Fruit | 60% | 410,000 | 410,000 | 2,000 | 160,000 | 160,000 | 800 |
| Coffee | 60% | 370,000 | 1,490,000 | 1,700 | 150,000 | 600,000 | 700 |
| Dishwashing | 60% | 150,000 | 310,000 | 8,100 | 60,000 | 120,000 | 3,200 |
| Delicatessen | 50% | 700,000 | 1,050,000 | 9,000 | 350,000 | 520,000 | 4,500 |
| Pasta & Pasta Sauce | 50% | 430,000 | 430,000 | 3,000 | 220,000 | 220,000 | 1,500 |
| Herbs & Spices | 40% | 470,000 | 710,000 | 3,000 | 280,000 | 430,000 | 1,800 |
| Toiletries | 40% | 470,000 | 930,000 | 15,900 | 280,000 | 560,000 | 9,500 |
| Sausages | 40% | 280,000 | 280,000 | 1,000 | 170,000 | 170,000 | 600 |
| Soup | 40% | 270,000 | 530,000 | 3,300 | 160,000 | 320,000 | 2,000 |
| Tea | 40% | 260,000 | 260,000 | 500 | 160,000 | 160,000 | 300 |
| Confectionery | 30% | 2,580,000 | 5,170,000 | 8,000 | 1,810,000 | 3,620,000 | 5,600 |
| Bread | 30% | 2,490,000 | 2,490,000 | 13,700 | 1,740,000 | 1,740,000 | 9,600 |
| Cheese | 30% | 2,110,000 | 2,110,000 | 10,500 | 1,470,000 | 1,470,000 | 7,400 |
| Meats & Poultry | 30% | 1,630,000 | 3,260,000 | 18,000 | 1,140,000 | 2,280,000 | 12,600 |
| Biscuits & Snacks | 30% | 1,430,000 | 2,860,000 | 4,000 | 1,000,000 | 2,010,000 | 2,800 |
| Yogurts | 30% | 1,270,000 | 3,800,000 | 17,000 | 890,000 | 2,660,000 | 11,900 |
| Cooked Meats & Poultry | 30% | 1,250,000 | 2,490,000 | 23,100 | 870,000 | 1,750,000 | 16,100 |
| Desserts | 30% | 830,000 | 2,500,000 | 5,000 | 580,000 | 1,750,000 | 3,500 |
| Pet Food | 30% | 600,000 | 1,210,000 | 11,000 | 420,000 | 850,000 | 7,700 |
| Butter & Fats | 30% | 490,000 | 730,000 | 6,000 | 340,000 | 510,000 | 4,200 |
| Ready Meals | 30% | 470,000 | 940,000 | 8,000 | 330,000 | 660,000 | 5,600 |
| Ready To Cook | 30% | 420,000 | 850,000 | 4,700 | 300,000 | 590,000 | 3,300 |
| Home Baking | 30% | 420,000 | 420,000 | 1,900 | 290,000 | 290,000 | 1,300 |
| Cakes | 30% | 340,000 | 510,000 | 1,700 | 240,000 | 360,000 | 1,200 |
| Ice Cream | 30% | 330,000 | 670,000 | 3,000 | 230,000 | 470,000 | 2,100 |
| Pies | 30% | 320,000 | 480,000 | 2,100 | 220,000 | 340,000 | 1,500 |
| Toothpaste & Dental Products | 30% | 270,000 | 540,000 | 7,000 | 190,000 | 380,000 | 4,900 |
| Pizza | 30% | 270,000 | 270,000 | 1,700 | 190,000 | 190,000 | 1,200 |
| Crisps | 20% | 4,660,000 | 9,330,000 | 16,300 | 3,730,000 | 7,460,000 | 13,100 |
| Fish | 20% | 1,170,000 | 2,340,000 | 13,000 | 940,000 | 1,880,000 | 10,400 |
| Sandwiches & Foods To Go | 20% | 1,020,000 | 2,040,000 | 3,000 | 820,000 | 1,630,000 | 2,400 |
| Sauces | 20% | 530,000 | 1,060,000 | 15,000 | 420,000 | 850,000 | 12,000 |
| Vitamins & Supplements | 20% | 280,000 | 550,000 | 2,000 | 220,000 | 440,000 | 1,600 |
| Babycare | 20% | 250,000 | 250,000 | 4,000 | 200,000 | 200,000 | 3,200 |
| Cream | 20% | 250,000 | 500,000 | 3,000 | 200,000 | 400,000 | 2,400 |
| Stock & Gravy | 10% | 190,000 | 190,000 | 2,300 | 170,000 | 170,000 | 2,100 |
| Baby Food | 10% | 180,000 | 350,000 | 3,000 | 160,000 | 320,000 | 2,700 |
| Tobacco | 10% | 123,000 | 123,000 | 250 | 111,000 | 111,000 | 220 |
| Shoecare | 10% | 6,200 | 12,400 | 210 | 5,600 | 11,200 | 190 |

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All examples provided in this report are for the purpose of illustrating the type of changes needed in retail, food service, and consumer goods worldwide. Greenpeace UK does not endorse any of the specific products, brands or companies named in this report.



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