Is packaging really necessary?
In the great majority of cases, packaging is an essential part of what we buy as it protects the goods from the point of production to when they are used in the home. Because of the way householders shop, food and drink packaging can play an important part in extending the period when products are safe to eat and at their best. Striking the balance between all these different functions is challenging and where that appears to have failed householders tend to regard the packaging as excessive. However, the environmental impact of food thrown away from homes in the UK is much greater than that associated with packaging.

The change in the amount of packaging is shown in the table below, the figure for 2010 is 10.8 million tonnes.

According to official statistics:

<table>
<thead>
<tr>
<th></th>
<th>1999</th>
<th>2001</th>
<th>2003</th>
<th>2005</th>
<th>2007</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaging</td>
<td>Thousand tonnes</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>placed on the market</td>
<td>9,200</td>
<td>9,314</td>
<td>10,059</td>
<td>10,280</td>
<td>10,695</td>
<td>10,787</td>
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<tr>
<td>Packaging</td>
<td>Kg per person</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>placed on the market</td>
<td>157</td>
<td>158</td>
<td>169</td>
<td>171</td>
<td>176</td>
<td>175¹</td>
</tr>
</tbody>
</table>

Total waste flow as reported under the product responsibility obligations-packaging waste regulations. This includes primary, secondary and tertiary packaging and business to business packaging http://www.defra.gov.uk/environment/waste/producer/packaging/data.htm

¹This has gone down despite an increase in total packaging because the population is increasing more rapidly than total packaging.

Quick Facts
- There are three forms Primary, Secondary and Tertiary and they each have a specific role in protecting and presenting the goods. Primary packaging is the sales packaging which is most often seen by householders.
- Improving packaging is complex and involves a number of activities; increasing the use of recyclable materials, ensuring that the right amount and type of packaging is used while providing adequate protection for the products.
- There has been a zero growth in grocery packaging despite growth in sales and a reduction in food waste in part as a result of the Courtauld Commitment Phase 1.
What does packaging do?

Packaging performs a wide variety of different functions it protects products, makes them safe to handle, allows important information to be given to householders and carries branding. In the cases of some small, high value items packaging is used to deter theft.

Packaging has a particular role to play in food preservation and the maintenance of hygiene throughout the process of preparation through to consumption. It minimises the contamination of food during handling, storage and transport to the shop and then from shop to home.

It can allow packs to be opened and resealed if all the contents are not needed in one go on a whole range of products from tomato ketchup to cheese. Well designed food packaging can stop moisture loss from items such as root vegetables and cucumbers which helps to keep them fresh for much longer.

Safety

This is essential for products such as bleach, cleaning and garden chemicals. On some foods anti-tamper seals provide clear evidence that the product has not been touched since it was packed in the factory.

Blister packs of batteries, which prevent batteries from touching, ensure that they cannot short-circuit during transport whilst allowing householders to see the batteries, helping purchasers select the right ones for their appliance. Preventing in store theft is an important role that packaging plays for these types of small high value products.

Handling and transport

Some packs are designed to be easy to use, but this does not mean that they are the ideal shape to transport in bulk. Teabags for example are put in light cardboard boxes to protect the contents and to make them easier to transport. There are now alternatives to these boxes, but these may involve materials which are less easy to recycle.
What types of packaging are there?

Packaging comes in three different categories, Primary, Secondary and Tertiary and they each have a specific role in protecting the goods, making them easy to store, handle and display and enabling them to be transported safely in an efficient manner.

Primary packaging

This is the packaging which contains the product and is sometimes called sales packaging. It can be a single layer, such as a glass bottle around wine, or one or more layers where each layer performs a different function, such as the inner plastic liner which keeps breakfast cereals dry and crisp and the cardboard box which stops them being crushed and broken during transport and storage.

Well designed primary packaging protects the product from damage and deterioration, it also provides essential information about the product including storage and storage date information and nutritional values. Primary packaging allows manufacturers and retailers to clearly identify their products through brand marketing.

Sometimes outer layers are used to allow numbers of, often small, individual packaged items to be grouped together for sale as one “pack” which makes it much easier to pick them up and display. Examples of this type of packaging include the shrink wrap around multiple cans of baked beans and the box around processed cheese triangles.

Secondary packaging

Secondary packaging is the term for the packaging used to contain a number of items of the same product during storage and handling. Cardboard cartons are easily the most well known items of secondary packaging but special trays and shrink-wrap plastic are also commonly used.

Secondary packaging is sometimes seen by householders in store where it is used to store and display the products on a shelf. This might be as simple as a cardboard box cut down to allow access to the individual packets or it might be a well-designed tray holding new toothbrushes in their sterile packs.

Most secondary packaging is either recycled directly from the store or sent for re-use if it has been specifically designed for that purpose.

Tertiary packaging

This packaging is used between product manufacturers, warehouses and sometimes the storage facilities at large stores. It consists of pallets, shrink-wrap plastic, large cardboard boxes and re-useable packing materials. It rarely becomes household waste and much of it is already recycled or reused.

The retail chain has a legal obligation to secure the recycling or recovery of currently 48% of the 74% target for packaging placed on the market. This obligation includes primary, secondary and tertiary packaging. Much of this obligation is currently met from secondary and tertiary sources. Proposals to further increase the statutory targets would mean that more packaging would have to be recycled from the household stream in the future.

The Co-op has removed the individual cartons from its tomato puree and uses a cardboard tray to display them onshelf.
What is considered when packaging is optimised?

Optimising packaging is not simply about increasing the use of recyclable materials or decreasing the amount of packaging used. The aim is to ensure resources are used as effectively as possible and to minimise waste – especially biodegradable waste – sent to landfill. That means reducing food, drink, and other product waste by keeping food fresh for longer and reducing the amount of goods spoiled during storage, transport and handling. Improved packaging should also have beneficial effects on the efficiencies of transport as a result of getting more product on to a lorry or by making the overall weight carried lighter which needs less fuel to move it.

The products we buy have also changed and packaging has had to adapt to the new product ranges including items such as ready meals and pre-prepared salads. Furthermore, an increase in the numbers of small and single person households has led to a need for a wider range of smaller pack sizes.

As residents have become more conscious of the origins and integrity of the things they buy, packaging has had to change to increase the labelling, improve traceability and make it clear if a product has been tampered with. More recently householders have wanted to know whether the packaging can be recycled.

What is being done to optimise packaging?

The fact that packaging is necessary does not mean that all packaging is necessarily optimal. In 2005 leading UK retailers and brands signed the Courtauld Commitment under which they agreed to design out packaging waste growth by 2008 and to make absolute reductions in packaging waste by 2010. Two of the three targets set have been achieved; including designing out packaging waste growth. A third target , to reduce the total amount of packaging waste over the same period – has not been achieved.

Many of the changes to packaging e.g. lightweighting, may not have been noticed by householders who respond more to the volume of packaging than its weight, but that does not mean that they are insignificant.

Over the last five years 1.2 million tonnes of food and packaging waste have been prevented through the success of Phase 1. Results announced in September 2010 show that 670,000 tonnes of food waste and 520,000 tonnes of packaging have been avoided across the UK between 2005 and 2009.

In phase 2 new targets were agreed to reduce weight, increase recycling rates and increase the recycled content of all grocery packaging specifically to:

- reduce the carbon impact of this grocery packaging by 10%;
- to reduce UK household food and drink wastes by 4%; and
- to reduce traditional grocery product and packaging waste in the grocery supply chain by 5%. This includes both solid and liquid wastes.

For more information see Courtauld Commitment Information Sheet factsheet or Courtauld Commitment 1 Case Studies

Tesco found that by using double concentrated squash they can reduce the size of their bottles.
Lightweighting

Lightweighting is the term used to describe the changes resulting from using less material in the packaging. Generally lightweighting is in the manufacturers’ interest as it reduces their costs and there are regulations (The Packaging (Essential Requirements) Regulations 2003) which require packaging to be manufactured so that the packaging volume and weight is limited to the minimum adequate amount to maintain the necessary levels of safety, hygiene and acceptability for the packed product and for the householder. This sets a legal test of what is excessive packaging and local trading standards departments are the enforcement authority for these regulations.

Lightweighting is not new and has been part of packaging design good practice for many years. However not all packaging used is as light as it could be, for example, if all bottles for still wine placed on the market in the UK were as light as the "best-in-class" more than 120,000 tonnes of glass would be saved. Similarly over 10,000 tonnes of packaging could be saved if fruit juice cartons all used lightweight packaging and nearly 20,000 tonnes of packaging could be saved on ready meals. Achieving these savings may require considerable capital investment and it will therefore, take time to realise them all. However, lightweighting of glass has already reduced packaging by 133,000 tonnes. It is important to note that packaging is also imported into the UK and some of this will not have been optimised.

Here are some examples of how major manufacturers and retailers have worked with WRAP to redesign their packaging and reduce the amount of material used.

Heinz Easy Open Can-Ends

5 billion cans of food and pet food are sold in the UK every year and over half of these cans are produced in the UK using over 130,000 tonnes of steel. WRAP worked with Heinz and its can-end supplier Impress and steelmaker Corus to reduce the amount of material used in can-ends. By reducing the thickness by 10% it was possible to reduce steel usage for can-ends for Heinz’s products by 1,400 tonnes and save 585 tonnes of carbon emissions each year. They are now the lightest can ends in normal use. A lorry load of filled cans now weighs 83kg less which results in better fuel efficiency.

Grolsch

WRAP worked with Coors Brewers Ltd, owners of the Grolsch brand, as part of WRAP’s Container Lite project to reduce the amount of glass needed for their bottles. Through redesigning the bottle shape slightly, but retaining the shape associated with the brand it was possible to reduce the amount of glass used by 13%. They went further and though a second redesign it was possible to make the bottle a further 15% lighter.

Duchy Originals

Duchy Originals is a leading premium organic food brand now owned by Waitrose. Working with their biscuit manufacturer, Walker’s Shortbread, they were able to make relatively small changes to the biscuit cartons by using a thinner gauge of cartonboard and reducing the size of the flaps at the end of the box which are glued shut. Overall it was possible to make an 11% reduction in weight without affecting the strength of the packet.
Innovation & redesign

Changing the format of packaging can also make significant impact, this is especially important if the packaging is unlikely to be readily recyclable or if it is likely to be contaminated with food.

McCain Foods (GB) Ltd has adopted Integrity Seal for their range of frozen chips and speciality potato products to enable them to reduce their packaging usage and cost.

Integrity Seal™ is an innovative, new sealing technology for flexible packaging that could save food manufacturers thousands of tonnes of film per year, while also providing greater seal integrity.

The narrow seal typically saves 10% in the length of the pack, delivering substantial film savings.

There is the potential to expand the use of this new technology to many other categories including other fresh produce; cereals; crisps, nuts and fruits ’snack packs’; bakery products, including cakes and bread, and confectionery, which could potentially deliver shelf life benefits.

Sainsbury’s have switched some of their own-brand soups from plastic screw-top jars to plastic pouches which reduced the weight of packaging used from 49g per pack to just 15g.

A WRAP project showed that minor changes to the pack dimensions for breakfast cereals for example, as well as the secondary cardboard carton, could generate significant storage and distribution benefits allowing more boxes to be put on a pallet, thereby increasing the number of boxes on a vehicle by between 33% and 43% without changing the quantity or volume of the cereal in each packet.
What Local Authorities can do

You could use this factsheet to help brief members and other council staff on the work that is being done to optimise packaging. If you would like more information on how to communicate these messages to your residents contact us for more information.

For more information contact lgs@wrap.org.uk