

The food we waste

A study of the amount, types and nature
of the food we throw away in UK households



The food we waste

An unprecedented study has been conducted into how much food is wasted by UK households. The results are staggering.

- In the UK, we throw away around one third of the food we buy.
- Of that most could have been eaten – 61% or 4.1 million tonnes a year was avoidable.
- The most common reason for food being wasted is that it's left unused – 61% of the avoidable food waste or 2.5 million tonnes.
- Of this, 40% – almost one million tonnes – isn't even touched and at least a tenth – 340,000 tonnes – is still in date.
- We also cook and prepare too much, resulting in an additional 1.6 million tonnes of food waste a year.

The nature of avoidable food waste



All this adds up to lots of unnecessary waste – for example every day we throw away:

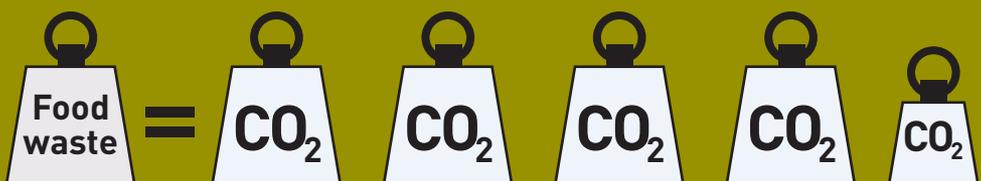
- seven million slices of bread;
- one million slices of ham;
- 4.4 million whole apples;
- 1.3 million yoghurts and yoghurt drinks; and
- 440,000 home-made and ready-made meals.

That means that UK households on average pay for £420 of food every year that could have been eaten but instead is thrown away. Add to this the £1 billion that it costs local authorities to send most of this to landfill and it's clear that a lot of money is being wasted. And with food prices going up this is only set to get worse.

This all leads to a significant environmental impact. Stopping this waste of good food could avoid **18 million tonnes of carbon dioxide (CO₂)** being emitted each year, the equivalent of taking one in five cars off the road.

This report is a summary of this groundbreaking study, which is available online www.wrap.org.uk/thefoodwewaste and on the enclosed CD. It will be of interest to policy-makers and thought leaders, retailers and food manufacturers, local authorities and the waste industry, the media and NGOs, all of whom are in a position to contribute to tackling the challenge of *The food we waste*.

Every tonne of food waste is responsible for 4.5 tonnes of CO₂.



The problem of food waste

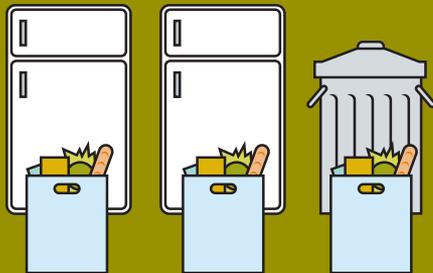
Imagine getting home from the supermarket with three bags of shopping, and immediately putting one of them into the rubbish bin. In essence that's what happens every day in homes up and down the UK.

Between us we throw away around **6.7 million tonnes of food every year** – roughly one third of all the food we buy. And most of that food (61%) could have been eaten if we had planned, stored and managed it better. A further 20% is made up of things like bread crusts that some people choose not to eat. Less than one fifth of our food waste is truly unavoidable.

Part of the problem is that we are only just starting to realise how much we throw away. Each of us throws away roughly our own body weight (70kg) of avoidable food every year. Our study shows that even households that are adamant that they don't waste any food at all are **throwing away nearly 90kg a year** of avoidable food waste. With 25 million UK households throwing away this much – and more – it all starts to add up.

The cost of all this food waste – to the consumer, local authorities and the wider economy – is staggering.

- **The UK pays for, but does not eat, £10 billion of food every year;** that's an average of £420 per household.
- For families with children it's more – an average of £610 a year.
- And it costs another £1 billion for local authorities to collect and send most of it to landfill.



We throw away almost one third of all the food we buy.

In the context of rising food prices, global food shortages and calls for more sustainability of food supply, this should make us all stop, think and decide what we can do about it.

Even worse, not only is food waste a waste of money, but the environment and our climate also suffer as a result. **Food waste sent to landfill generates methane**, a greenhouse gas far more powerful than carbon dioxide, that accelerates the problem of global warming. But that's only a small part of the environmental damage we cause by wasting food. More important are the significant amounts of greenhouse gases emitted by producing, processing and transporting food to us – that's senseless if the food isn't even used.

Taking this into account, the case for action is convincing.

- **Every tonne of food waste we avoid saves about 4.5 tonnes of CO₂ equivalent** greenhouse gases being emitted to the atmosphere.
- If we stopped wasting all the food that could have been eaten, we could prevent the equivalent of at least 18 million tonnes of CO₂ emissions each year – **the equivalent of taking one in five cars off our roads.**
- And we can save money as well as the environment by changing the way we think about food and taking simple steps to stop throwing so much away needlessly.

Addressing the problem of food waste must be a priority.

A typical household with children wastes £610 a year throwing away food that could have been eaten.

What do we throw away?

The types of food that we throw away the most of each year include:

Avoidable food waste	Tonnage ('000s)	Cost (£ million)
Fresh fruit, vegetables and salad	1,405	2,430
Bakery	782	1,430
Home-made and ready-made meals	666	2,170
Meat and fish	279	1,470
Dairy products	187	560

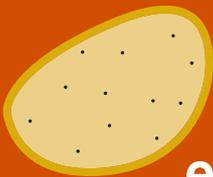
Tables 1 and 2 overleaf list the top 10 avoidable individual food waste items – and how much each costs. Staple items are routinely wasted in staggering quantities.

Every day in the UK, for example, we throw away:

- **7 million slices of bread** (worth £360 million a year);
- **5.1 million whole potatoes** (worth £302 million a year); and
- **4.4 million whole apples** (worth £317 million a year).

Other staple items that don't quite make the top 10 include:

- **660,000 whole eggs** (worth £50 million a year);
- **260,000 unopened packs of cheese** (worth £40 million a year); and
- **1 million slices of ham** (worth £30 million a year).



**5.1 million potatoes wasted
each day cost £300 million
each year.**

This makes up a significant proportion of the food we buy. In the UK, 45% by weight of all purchased salad, 31% of all bakery items and 26% of fruit is thrown away.

Our full study examines the top 100 avoidable food waste items, with further revealing findings.

Whole fruit and vegetables are wasted in large quantities. As well as the potatoes and apples that make the top 10, every day in the UK we throw away:

- **2.8 million tomatoes** (worth £30 million a year);
- **1.6 million bananas** (worth £90 million a year);
- **1.4 million mushrooms** (worth £30 million a year);
- **13.2 million grapes** (worth £40 million a year); and
- **1 million plums** (worth £70 million a year).

Processed and 'convenience' food also gets wasted routinely – every day in the UK we throw away:

- **1.2 million whole sausages** (worth £60 million a year);
- **550,000 rashers of bacon** (worth £50 million a year);
- **330,000 unopened processed meat-based meals** (worth £60 million a year); and
- **330,000 chicken portions** (worth £70 million a year).



**4.4 million apples wasted
each day cost £317 million
each year.**

What do we throw away?

It's not only staple foods that are wasted. Surprisingly we also waste treats and luxury items, for example:

- **82,000 tonnes of cakes and gateaux every day** (worth £20 million a year);
- **300,000 unopened packets of crisps** (worth £20 million a year);
- **700,000 unopened packets of chocolate and sweets** (worth £40 million a year); and
- **2,900 unopened cans or bottles of lager a day** (worth just less than £10 million a year).

And every year, 20,000 tonnes, or £66 million worth, of breakfast cereals are thrown away – a story that will be familiar to families across the country, who rush to get to work or school and leave their breakfast unfinished.

Some of the food we throw away is still in date – at least 340,000 tonnes of it – with long shelf-life products featuring strongly including drinks, condiments, dried foods and confectionery.

The imperative is clear: our food habits, of which this summary is but a snapshot, are costing us and the environment dear.

The energy expended by business and industry to produce, process, transport – often refrigerated – and sell the food we then waste is immense. Coupled with the energy we expend travelling to stores, transporting our purchases back home and then storing and refrigerating them, this is a story of inefficiency and wastefulness of huge proportions.



In the UK, we throw away nearly half the salad we buy.

Table 1: Estimated annual weight of the top 10 items of avoidable food waste

	Food type	Weight in tonnes per annum	% of all avoidable food waste
1	Potatoes	359,000	9.7%
2	Bread slices	328,000	8.8%
3	Apples	190,000	5.1%
4	Meat or fish mixed meals	161,000	4.2%
5	World breads (naan, tortilla)	102,000	2.7%
6	Vegetable mixed meals	96,000	2.6%
7	Pasta mixed meals	87,000	2.3%
8	Bread rolls / baguettes	86,000	2.3%
9	Rice mixed meals	85,000	2.3%
10	Mixed meals	85,000	2.3%

Table 2: Estimated annual cost of the top 10 items of avoidable food waste

	Food type	Cost (£ million) per annum	% of all avoidable food waste
1	Meat or fish mixed meals	£602	5.8%
2	World breads (naan, tortilla)	£389	3.8%
3	Bread slices	£360	3.5%
4	Apples	£317	3.1%
5=	Potatoes	£302	3.0%
5=	Mixed meals	£302	3.0%
7	Vegetable mixed meals	£272	2.7%
8	Rice mixed meals	£247	2.4%
9	Cheese	£246	2.4%
10	Pasta mixed meals	£242	2.1%



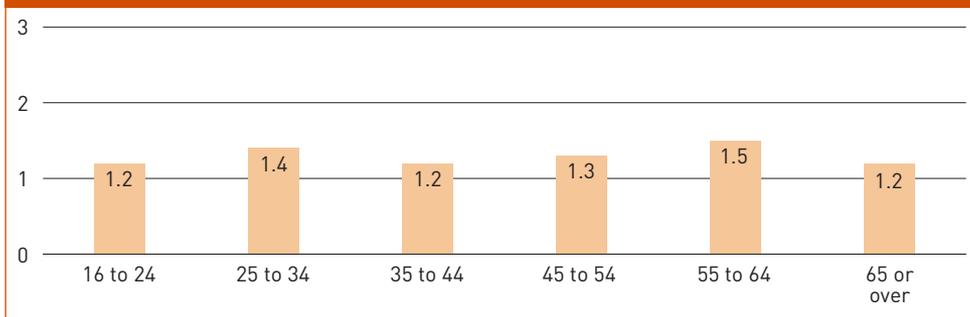
7 million bread slices wasted each day cost £360 million each year.

Who throws it away?

We all do! And, perhaps surprisingly, there appears to be little difference between age groups in the amounts of avoidable food thrown away. Decades of low prices and convenience food may have contributed to a 'throwaway' culture, but a generation that still remembers wartime rationing and food shortages appears to be just as wasteful as younger people, each group throwing away 1.2 kg of avoidable food waste per head per week (see chart 1).

As might be expected, larger households waste more food, but there are economies of scale so households of two people don't waste twice as much as single person households, for example. In fact on a per capita basis it is single person households that waste the most avoidable food (see chart 2).

Chart 1: The mean average avoidable waste per person in households of different age groups (kg per week)



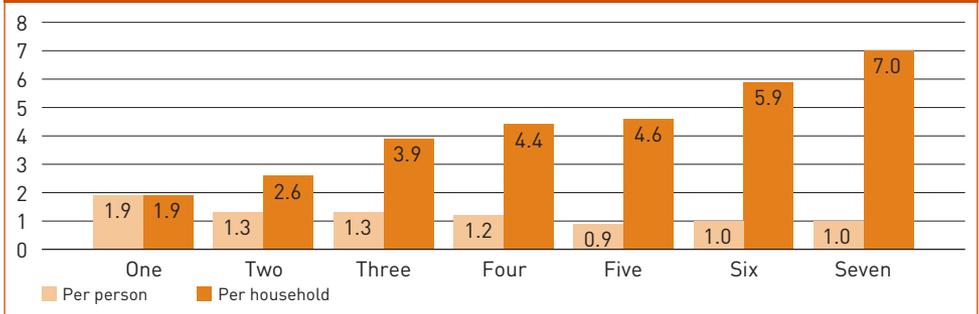
We throw away 700,000 unopened packets of chocolate and sweets every year.

But there is evidence that once we become aware of what we are wasting, most of us are prepared to do something about it.

For example, 69% of the 284 households that kept a week-long diary recording the food they threw away were afterwards committed to doing something about it.¹

And Defra's research on pro-environmental behaviours suggests that, from an environmental point of view, people are both willing and able to reduce food waste.²

Chart 2: The mean average weight of food waste (kg per week) per household and per person, by household size



On average we all waste our body weight in good food every year.

1 WRAP (2008) The Weight and Cost of Food Waste: Kitchen Diary Results

2 Defra (2008) A Framework for Pro-Environmental Behaviours

What is being done?

As our study shows, the problem of food waste in the UK is a serious one. Tackling it will be a major challenge.

WRAP (Waste & Resources Action Programme) is committed to helping deal with this challenge, as well as taking the lead in demonstrating the case for pressing, effective action by building the evidence base.

Reducing the impact of food waste at source must be the biggest priority, as this is where the greatest economic and environmental gains are to be made. WRAP, in collaboration with the Scottish Waste Awareness Group and Waste Awareness Wales, leads a major consumer-focused campaign – Love Food Hate Waste www.lovefoodhatewaste.com (www.wasteawarelovefood.org.uk in Scotland). Love Food Hate Waste provides easy and practical ways to be more efficient with the food we buy, working with partners in retail, local authorities and community groups to deliver the food waste message as well as tips, tools and recipe ideas.

WRAP also works with major retailers and brands, encouraging and supporting their efforts to reduce household food waste. The Courtauld Commitment, brokered by WRAP in 2005, commits the 31 signatories to work towards reducing consumer food waste as well as packaging (www.wrap.org.uk/retail/courtauld_commitment). WRAP also funds applied research to develop new ways of maintaining the freshness of food for longer.

As well as reducing the impact of food waste at source, WRAP works with local authorities and the waste industry to increase resource efficiency through home composting, food waste collections and effective reprocessing of the food collected. For example, WRAP has managed a series of food waste collection trials with a number of local authorities, which are identifying the best ways to collect food

Every year nearly 1 million tonnes of food is thrown away without even being touched.

waste from householders, motivate people to participate and ensure that something useful is done with the collected material.

The results of the collection trials will be published in summer 2008 and, in the meantime, WRAP, in collaboration with the reprocessing industry, continues to invest in new composting and anaerobic digestion facilities, as well as developing standards for the resultant products. This work is designed to create a sustainable resource processing industry capable of ensuring that much less food is disposed of to landfill and is utilised effectively to make compost and generate energy.

What else can be done?

The sheer scale of our wastefulness in the UK demands that more is done:

- 6.7 million tonnes a year of food waste, most of which could have been avoided;
- 18 million tonnes of unnecessary carbon dioxide equivalent emissions a year; and
- £1 billion costs to local authorities for collecting and disposing of the wasted food.

A new focus on reducing food waste, by WRAP, retailers, the food industry and the waste industry, supported by central and local government across the UK, as well as local initiatives such as the WI Food Champions project, is a start.

But what is clear is that a sustained effort will be needed to raise public awareness of the size of the problem, to ensure that we all realise our role in helping to reduce food waste.

It is in nobody's long-term interest for this wasteful situation to continue – and it must not be allowed to. The economic and environmental stakes are too high.

**Simple tips for
reducing food waste
are available online**

**LOVE
FOOD** .com
hate waste

About this report

The study, believed to be the first of its kind anywhere in the world, consisted of a detailed survey of households and a physical analysis of their rubbish. It was designed to not only quantify the amounts and types of food waste being produced but to make links between this and the attitudes displayed by and disposal options available to the household.

A representative sample of 2,715 households in England and Wales was interviewed in July-October 2007, and several weeks later the waste from 2,138 of them was collected and analysed. These households were all within a group of 11 geographically representative local authority areas chosen to reflect a range of collection systems, including food waste collections. Participants were asked about their perceptions on a range of issues concerning household waste, focusing on food.

Households were informed that as part of the research their waste would be collected for analysis, asked for their signed consent, and given the chance to opt out if they chose. Bin analysis was only carried out with those who consented, which was the vast majority. A period of four weeks then elapsed before their waste was collected for analysis to ensure that any temporary behaviour changes as a result of increased awareness of the research had dissipated.

We used industry standard waste analysis techniques to sort and categorise the waste. We then defined the food waste as either:

- **avoidable food waste** – where the food has been thrown away because it is no longer wanted or has been allowed to go past its best. Examples include an apple or half a pack of cheese;
- **possibly avoidable food waste** – where the food waste could possibly have been avoided but incorporates food items that can be eaten but that many choose not to. Examples include bread crusts and potato skins; and
- **unavoidable food waste** – where the food waste results from food preparation and includes foods such as meat bones and hard vegetable or fruit peelings such as melon rind.

After analysis, the waste was disposed of safely on the same day, with the assistance of the local authority or their contractor. Where facilities existed – in just under half the authorities involved – the food waste was sent for composting.

The result of this detailed survey and physical analysis is a comprehensive analysis of how much food we throw away, who is throwing it away, and what it costs society.

The full report

This is a short set of highlights from a comprehensive research study, the full details of which are available on www.wrap.org.uk/thefoodwewaste

For more information on the methodology or the findings of the report, please contact thefoodwewaste@wrap.org.uk

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About WRAP

WRAP helps individuals, businesses and local authorities to reduce waste and recycle more, making better use of resources and helping to tackle climate change.

Established as a not-for-profit company in 2000, WRAP is backed by government funding from England, Scotland, Wales and Northern Ireland.

More information about WRAP's work can be found on www.wrap.org.uk

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