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## Household Food and Drink Waste linked to Food and Drink Purchases

1. Fifteen percent of all the food and drink purchases that could have been eaten were wasted in 2008. Different types of food and drink were wasted at different rates:
  - 15% of food and drink wasted,
  - 17% of food wasted,
  - 32% of bread wasted,
  - 24% of potatoes and vegetables wasted,
  - 7% of soft drinks wasted,
  - 6% of alcoholic drinks wasted.
2. Analysis of the nutritional content of wasted edible food and drink shows that 16% of calories were wasted. Some nutrients were wasted much more, e.g. carbohydrate at 20%, fibre at 23%. Some are wasted far less, e.g. non-milk extrinsic sugars at 9%, which are found in confectionery, soft drinks, fruit juices, biscuits and cakes.
3. In general, higher price items were wasted at a lower rate than lower price items.
4. Single person households wasted 22% of their food and drink purchases, and all other household types wasted 14% of their food and drink purchases.
5. Looking at fruit and vegetables, 24% of edible vegetable purchases and 20% of edible fruit purchases were wasted. This is equivalent of 0.8 of a portion of edible fruit and vegetables wasted per person per day.

These statistics link the WRAP survey of [Household Food and Drink Waste in the UK](#), to Defra's [Family Food Report](#) of household food purchases in 2008. Results from both surveys have already been published separately. Linking the two was done by mapping the food waste findings to food purchase categories. The precision of the estimates is limited by the precision of the two surveys, and the figures quoted are rounded to appropriate significant figures to take this into account.

WRAP estimates that 8.3 million tonnes of food and drink are wasted in the UK; 5.3 million tonnes of this is classed as avoidable waste (Household Food and Drink Waste in the UK, 2009). For this release, an estimate has been made of food and drink purchases that become wasted – 7.6 million tonnes in total, of which 5.1 million tonnes is avoidable. This differs from the WRAP estimate in that:

- An adjustment is made to take account of water absorbed by foods during cooking (e.g. rice and pasta);
- Food that doesn't enter the kitchen but does enter the household waste stream (e.g. windfall apples) is excluded.

# 1. Household Food and Drink Waste by Type of Food and Drink

Chart 1: Percentage of food and drink wasted by type

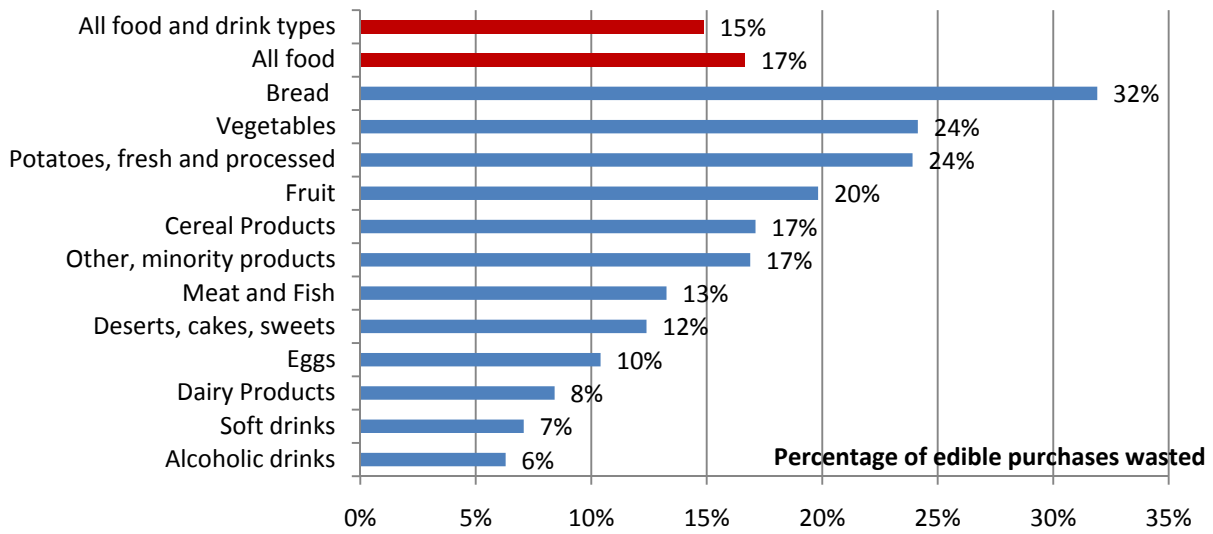


Table 1: Amount and percent of purchases wasted by type

	'000 tonnes avoidable waste (a)	'000 tonnes total waste (b)	'000 tonnes total purchases (c)	% of edible purchases that is wasted <sup>1</sup>	% of total waste
Bread	630	750	2100	32%	10%
Vegetables	730	1240	3500	24%	16%
Potatoes, fresh and processed	400	1010	2300	24%	13%
Fruit	610	1230	3700	20%	16%
Cereal products	390	400	2300	17%	5%
Other, minority products	260	330	1600	17%	4%
Meat and Fish	440	800	3700	13%	11%
Deserts, cakes, sweets	250	250	2000	12%	3%
Eggs	24	78	300	10%	1%
Dairy products	560	560	6600	8%	7%
Soft drinks	440	440	6200	7%	6%
Alcoholic drinks	140	140	2200	6%	2%
Not linked to purchases	200	350	-	-	5%
All food	4300	6700	28100	17%	77%
<b>All food and drink types</b>	<b>5100</b>	<b>7600</b>	<b>36500</b>	<b>15%</b>	<b>100%</b>

Appendix 1 provides a more detailed list of percentage of food and drink types wasted.

Fifteen per cent of food and drink purchases that could have been consumed were wasted by households.

- 32 per cent of bread was wasted
- 24 per cent of potatoes and vegetables were wasted
- 8 per cent of dairy products were wasted

## Important Notes

Tea waste, as reported in “soft drinks”, was estimated from cups of tea wasted down the drain and from unused tea found in the bin.

The weight of edible purchases is calculated by subtracting the weight of unavoidable and partially avoidable waste from total purchases.

<sup>1</sup> Calculated by dividing avoidable waste by total purchases minus the difference between total waste and avoidable waste  $(a/(c-(b-a)))$

## 2. Household Food and Drink Waste by Nutritional Content

Chart 2: Percentage of nutrients wasted

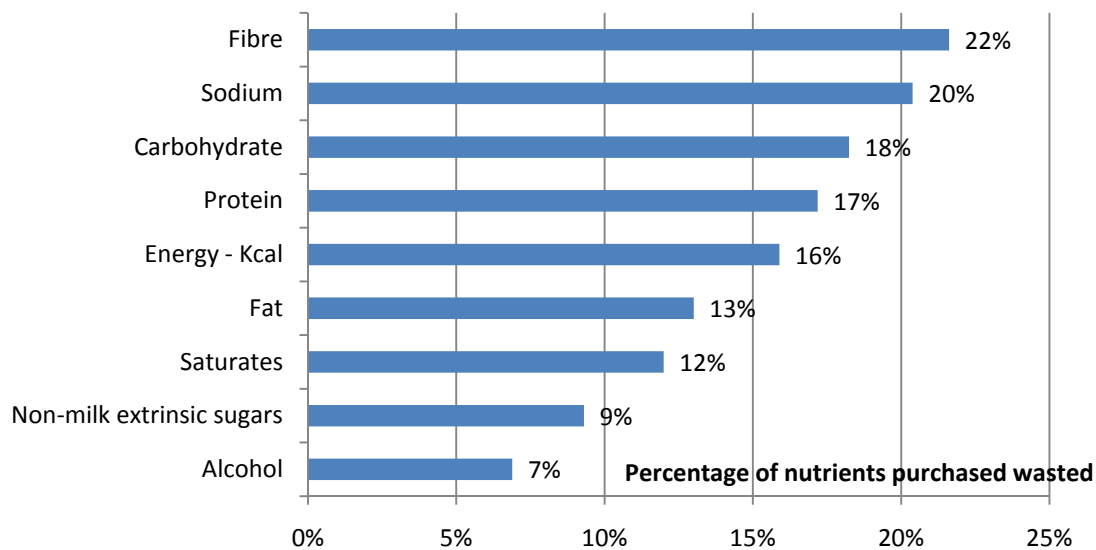


Table 2: Percentage of nutrients wasted

Nutrient	% wasted
Fibre	22%
Sodium	20%
Carbohydrate	18%
Protein	17%
Energy - Kcal	16%
Fat	13%
Saturates	12%
Non-milk extrinsic sugars	9%
Alcohol	7%

Appendix 2 provides an extended list of nutrients wasted.

People waste less alcohol, sugars and fat and more fibre and carbohydrates.

- On average 16% of edible food and drink calories were wasted. This compares to 15% of all edible food and drink purchases by weight wasted.
- Some nutrients are wasted much more, e.g. carbohydrate at 20%, fibre at 23%. Some are wasted far less, e.g. non-milk extrinsic sugars at 9%.
- Alcohol is the least wasted nutrient at 7%.

### Important Notes

Nutritional content of food purchases by type of food come from Family Food 2008 that converts purchases into energy and nutrient intake.

The percentage of nutrition wasted is based on the percentage of edible purchases that is wasted.

### 3. Household Food Waste by Price of Food

To compare the price of purchases to the percentage wasted, the food and drink categories were ranked in descending order of price (most expensive per gram first) and descending order of waste (highest percentage of edible purchases wasted first). A “5” in waste quintile column means the food is in the lowest fifth of food types by percentage wasted, and a “1” means that it is highest fifth of foods wasted.

Table 3a: Most expensive fifth of foods, price and percentage wasted

Food type	Price: pence per gram	% of edible purchases that is wasted	waste quintile
Fish	9.7	10%	5
Bacon and ham	7.5	14%	4
Pizzas, quiches and Quorn	6.7	12%	4
Red meat	6.4	10%	5
Prepared fish	6.4	13%	4
Cheese	6.4	13%	4
Sweet snacks	5.9	4%	5
Poultry	5.8	14%	3
Meat products	5.6	15%	3

Table 3b: Least expensive fifth of foods, price and percentage wasted

Food type	Price: pence per gram	% of edible purchases that is wasted	waste quintile
Pears	1.6	22%	2
White bread	1.5	40%	1
Brown and wholemeal bread	1.5	18%	2
Bananas	1.4	18%	2
Root vegetables	1.3	17%	2
Fresh potatoes	1.1	29%	1
Fruit juices	1.1	14%	3
Milk	0.7	8%	5
Soft drinks	0.5	7%	5

Of the top fifth most expensive food types, 3 are in the bottom fifth for waste (fish, red meat and sweet snacks), and none are in the top two fifths. The highest rate of waste of food in the top fifth by price, are poultry and meat products at 14% and 15% respectively.

Of the lowest price items (the bottom fifth), there is variation in the percentage of food wasted with milk and soft drinks in the lowest fifth for waste and white bread and fresh potatoes in the top fifth for waste.

After drinks are excluded from the analysis there is a correlation between price and amount wasted, with higher price foods being wasted at lower rates.

#### Important Notes

Only those food and drink groups where the reliability of the estimate is within a 30% confidence interval are shown. Coffee is the most expensive group at 13.7 pence per gram on average, but is not included in the tables due to the very wide confidence interval around the estimate. Price is calculated as the average price per unit of food in the category and comes from the Family Food Survey 2008.

## 4. Household Food Waste by Type of Household

Chart 3: Percentage of edible purchases wasted by household type

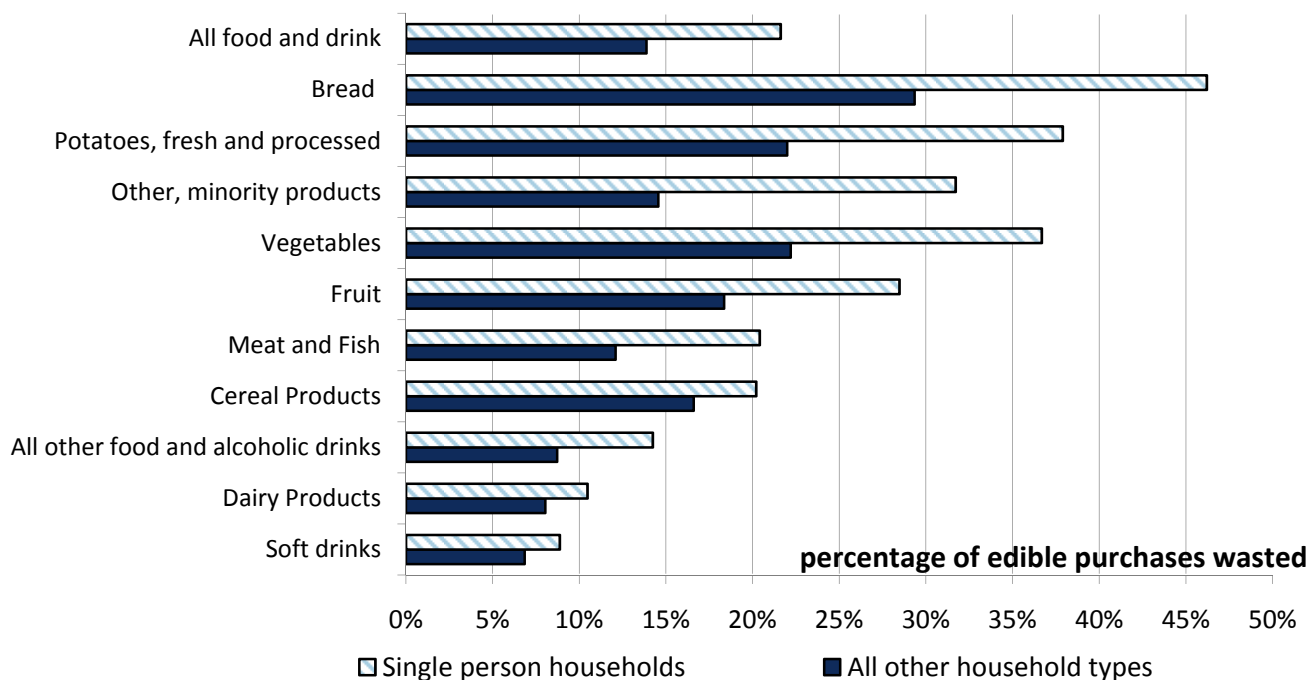


Table 4: percentage of edible purchases wasted by household type

	Bread	Potatoes, fresh and processed	Vegetables	Other, minority products	Fruit	Meat and Fish	Cereal Products	All other food and alcoholic drinks	Dairy Products	Soft drinks	All food and drink
Single person households	46%	38%	37%	32%	28%	20%	20%	14%	10%	9%	<b>22%</b>
All other household types	29%	22%	22%	15%	18%	12%	17%	9%	8%	7%	<b>14%</b>

Twenty two per cent of food and drink purchases that could have been eaten were wasted by single households compared to 14 per cent by all other household types.

- In all food and drink categories single person households waste proportionally more than all other households.
- The widest difference is in the ‘other, minority products’ group where the rate of single of households’ waste (32%) is over twice that of all other households (15%). This food group includes: soup, cooking oils, jams, sugar and sweeteners.
- The cereal products group has the smallest relative difference in the percentage of purchases that are wasted by single households (20%) compared to all other households (17%).

### Important Notes

The categories of eggs, alcoholic drinks and deserts have been reported as combined “all other food and alcoholic drink” category as the confidence in the estimates is not sufficient to report them individually.

Single households are defined as one adult, no children.

## 5. Household Food Waste of 5 A DAY portions

Chart 4: Average number of portions of fruit and vegetables purchased and wasted per person per day

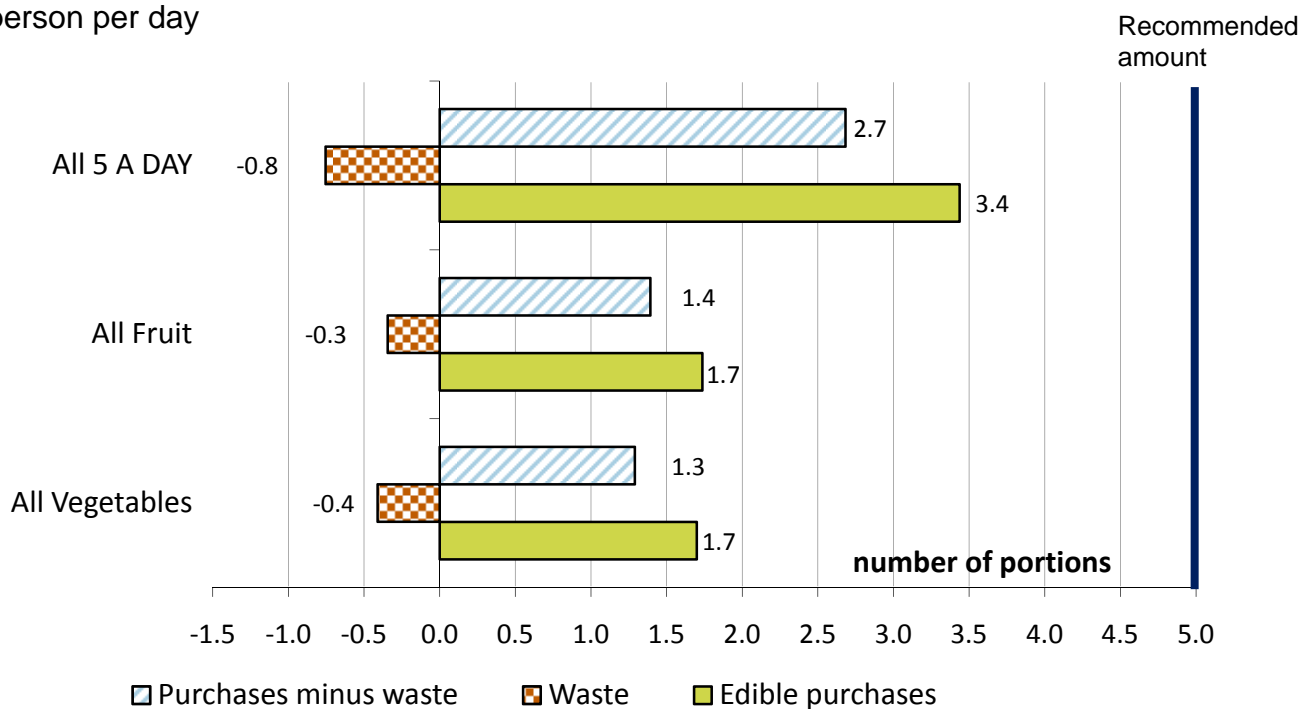


Table 5: Fruit and vegetables wasted

Type	All UK households waste			Portions per person	
	Portions (millions)	Amount ('000 tonnes)	Cost (£m)	purchased per day	wasted per day
Vegetables	9110	730	1540	1.7	0.4
Fruit	7640	610	1190	1.7	0.3
All 5 A DAY	16750	1340	2730	3.4	0.8

Households purchase on average the equivalent of 3.4 edible portions of fruit and vegetables per person per day. Waste of edible fruit and vegetables is equivalent to 0.8 portions per person per day. Therefore the average household is consuming 2.7 portions of fruit of vegetables, 2.3 less than the recommended minimum of 5 a day. See Health Survey for England<sup>2</sup> for official statistics on consumption of 5 a day.

### Important Notes

Figures have been rounded therefore tables entries do not always exactly add up to the total.

Does not include fruit and vegetables that are part of composite meals e.g. apple pie, vegetable curry and rice.

Assumes that all portions including child portions are 80 grams where for younger children the recommended size is smaller than 80 grams ("a handful").

Nuts and peanut butter are excluded.

Portions of edible fruit and vegetables are calculated from the purchased quantities less unavoidable and partially avoidable waste. This differs from the approach in Family Food where an overall wastage of 10% is assumed.

<sup>2</sup> <http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles-related-surveys/health-survey-for-england/health-survey-for-england--2008-trend-tables>

## Further Information

- 1) The analysis in this release is based on previously published reports:  
Household Food and Drink Waste in the UK, WRAP November 2009  
[http://www.wrap.org.uk/retail/case\\_studies\\_research/report\\_household.html](http://www.wrap.org.uk/retail/case_studies_research/report_household.html)  
Down the Drain, WRAP November 2009  
[http://www.wrap.org.uk/retail/case\\_studies\\_research/report\\_down\\_the.html](http://www.wrap.org.uk/retail/case_studies_research/report_down_the.html)  
Family Food 2008, Defra January 2010  
<http://www.defra.gov.uk/evidence/statistics/foodfarm/food/familyfood/index.htm>
- 2) These statistics are Official Statistics which conform as far as possible to the principles of National Statistics as set out in the code of practice.  
<http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html>

## Notes for editors

- 1) Food waste is defined as any food brought into the household that is not consumed by people no matter what the method of disposal. Food waste is split into three sub types, avoidable waste, possibly avoidable waste and unavoidable waste. These are defined as:
  - Avoidable waste – food and drink thrown away that was, at some point prior to disposal, edible (e.g. slice of bread, tomatoes, sausages).
  - Possibly avoidable waste – food and drink that some people eat and others do not (e.g. bread crusts), or that can be eaten when a food is prepared in one way but not in another (e.g. potato skins).
  - Unavoidable waste – waste arising from food or drink preparation that is not, and has not been, edible under normal circumstances (e.g. meat bones, egg shells, pineapple skin).
- 2) Edible purchases are total purchases of food and drink minus possibly avoidable waste and unavoidable waste.
- 3) Data on food waste is coded into 62 categories for this release based on the WRAP categories. Data on household food purchases is coded into 250 categories in the Family Food Report. Each waste category matches one or more of the food purchase categories. The mapping of the two coding frameworks is not exact because it is not possible to allocate composite food waste exactly to food purchase categories. For example, a homemade spaghetti bolognese found in the household waste will be composed of various ingredients purchased separately which are combined according to a recipe.
- 4) Quantity of food waste is not on the same basis as quantity of food purchases because of changes in the cooking and preparation processes. Reasonable adjustments have been made where possible for added water in the preparation of foods such as pasta, rice and porridge, and drinks such as dilutable squashes.
- 5) Tea waste is based on the proportion of cups of tea not drunk as estimated in *Down the Drain*<sup>3</sup> and the unused tea bags found in the municipal waste survey. Used tea bags are not counted in the calculations as waste as they have been consumed and not classed as wasted purchases.
- 6) Fruit and vegetables grown in gardens and allotments are included only if brought into the household for human consumption. Windfall apples and other home grown fruits

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<sup>3</sup> Down the Drain, WRAP November 2009, page 27

and vegetables found in municipal waste in large quantities were excluded from the analysis as they were not classed as fit to eat.

7) In Household Food and Drink Waste in the UK<sup>4</sup>, WRAP use a top down approach to derive food waste, where kerbside bin wastage estimates are scaled up by a factor of 1.2 to be consistent with estimates of food waste at municipal waste disposal sites. The same 1.2 factor is used in this release.

8) Portions of edible fruit and vegetables are calculated from the purchased quantities less unavoidable and partially avoidable waste. This differs from the approach in Family Food where an overall wastage of 10% is assumed. The Health Survey for England contains official statistics on consumption of 5 a day. <http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles-related-surveys/health-survey-for-england/health-survey-for-england--2008-trend-tables>

9) Nutritional content is from the nutrient composition data held by the Food Standards Agency. Nutritional content of household food purchases are published by Defra each year in the Family Food report. The percentage of nutritional content that is wasted is based on the percentage of edible food purchases (all purchases adjusted to remove unavoidable and possibly avoidable) that is wasted avoidably.

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<sup>4</sup> Household Food and Drink Waste in the UK Appendix A, page 76 for details of municipal waste estimates



## Appendix 1 - Percentage of edible purchases wasted

Table 6: Percentage of edible purchases wasted

Food Type	% of edible purchases that is wasted
<b>All vegetables</b>	<b>24%</b>
Salad vegetables	39%
Onions, leeks, mushroom, herbs	15%
Green vegetables	31%
Processed vegetables	18%
Root vegetables	17%
Beans	29%
<b>All fruit</b>	<b>20%</b>
Bananas	18%
Apples	29%
Citrus fruits	22%
Melons, kiwi, exotic fruit	38%
Fruit juice	14%
Stone fruit	26%
Pears	22%
Soft fruit	16%
Grapes	11%
<b>All potatoes</b>	<b>24%</b>
Fresh potatoes	29%
Potato chips	16%
Processed potatoes	11%
<b>All cereal products</b>	<b>17%</b>
Rice, pasta, flour	29%
Breakfast cereals	13%
Cereal snacks and crisps	7%
Pizza, quiche and Quorn	12%
Cereal foods	18%
<b>All breads</b>	<b>32%</b>
White bread	40%
Speciality breads	31%
Brown and wholemeal bread	18%
<b>All dairy</b>	<b>8%</b>
Milk, milk products and substitutes	8%
Yoghurt and Fromage Frais	12%
Cheese	13%
Dairy fats and substitutes	7%
<b>All eggs</b>	<b>10%</b>
<b>All meat and fish</b>	<b>13%</b>
Poultry	14%
Red meat	10%
Meat products	15%
Prepared fish	13%
Bacon and ham	14%
Processed meat	14%
Sausages	14%
Fish	10%

Table 6: Percentage of edible purchases wasted (continued)

Food Type	% of edible purchases that is wasted
<b>All deserts, cakes, sweets</b>	<b>12%</b>
Deserts and cakes	15%
Sweet snacks	4%
<b>All alcoholic drinks</b>	<b>6%</b>
<b>All soft drinks</b>	<b>7%</b>
Soft drinks	7%
Tea (a)	6%
<b>All other, minority products</b>	<b>17%</b>
Sauces and seasoning	29%

(a) Used tea bags are not counted in the calculations as waste as they have been consumed and not classed as wasted purchases.

## Appendix 2 – Percentage of nutrients wasted

Table 7 Percentage of nutrients wasted

Nutrient description	% of nutrients wasted
Energy	16%
Protein	17%
Fat	13%
Fatty acids:	13%
Saturates	12%
Mono-unsaturates	13%
Poly-unsaturates	15%
Cholesterol	13%
Carbohydrate (a)	18%
Total sugars	12%
Non-milk extrinsic sugars	9%
Starch	24%
Fibre (b)	22%
Alcohol	7%
Calcium	16%
Iron	19%
Zinc	17%
Magnesium	18%
Sodium (c)	20%
Potassium	17%
Thiamin	20%
Riboflavin	13%
Niacin Equivalent	17%
Vitamin B6	17%
Vitamin B12	11%
Folate	19%
Vitamin C	18%
Vitamin A:	18%
Retinol	12%
β-Carotene	20%
Retinol equivalent	15%
Vitamin D	14%
Vitamin E	15%

(a) Available carbohydrate, calculated as monosaccharide.

(b) As non-starch polysaccharides as determined by the Englyst method.

(c) Excludes sodium from table salt.