Food waste quantification:
- A few key learnings from the UK

Andrew Parry
Special Advisor, Food and Drink; WRAP
Content

- Background
- Some general observations
- Illustrating our approach – and learnings relevant to the FUSIONS Manual
- Overall picture for the UK
- What happens next
UK focus on food waste measurement and prevention for >10 years
Progress ……

**Design**  →  **Production**  →  **Retail**  →  **Consumption**

- 3.6% reduction in waste ‘footprint’ (2012 – 2014)
- 15% reduction in food waste (2007 – 2012)
- 75% increase in food redistributed (2012 – 2014)
- >10% reduction in food waste (2009 – 2014)
Some general observations

- Measuring food waste is incredibly challenging!

- Definitions can be confusing (e.g. total vs edible, food surplus to animal feed)

- Estimates for only a small percentage of food waste can be easily extracted from national statistics (<10%)

- Estimates of food waste in the UK have been published by WRAP, based on a combination of data from its voluntary agreements, bespoke research projects and syntheses / analysis of data from a variety of other sources
Some general observations

- Excluding non-food waste can be difficult (garden waste, packaging, by-products, soil, process water etc.)

- Approach needs to be tailored to the sector and waste stream

- Need to balance robustness and comparability over time, with cost and complexity – and agreeing what the ‘appropriate’ balance is

- In-depth studies for priority sectors every 4-5 years, ‘light-touch’ approach for intervening periods and lower priority sectors
Courtauld 2025 ambition and targets

Our collective ambition is to cut the amount of resource needed to provide our food & drink by one fifth in ten years.

Targets

- 20% reduction in food and drink waste
- 20% reduction in GHG
Need for better estimates at manufacture

- Relatively poor evidence base on food surplus and waste at manufacturing (and retail)
  - Only overall estimates for total food waste, and destinations
- Initiated new research project early 2015

Courtauld 2025: 20% reduction in food & drink waste arising in the UK, covering all of production, manufacture, distribution, retail, hospitality & food service and household sectors. 2015 baseline, initially measured post-farm-gate
Definitions

- Used the food waste definition developed by FUSIONS

![Food and drink material hierarchy diagram]

**Prevention**
- Waste of raw materials, ingredients and product arising is reduced – measured in overall reduction in waste.
- Redistribution to people.
- Sent to animal feed

**Recycling**
- Waste sent to anaerobic digestion; or
- Waste composted

**Recovery**
- Incineration of waste with energy recovery.

**Disposal**
- Waste incinerated without energy recovery.
- Waste sent to landfill.
- Waste ingredient/product going to sewer.
Methodology - manufacture

- No single source of data can provide estimates for food surplus or food waste

- This research synthesised data and insights from:
  - Relevant national statistics
  - Trade association surveys
  - A range of site visits and interviews
  - Confidential company data
  - Related WRAP and other research
  - Company Shop, FareShare and UK Former Foodstuffs Processing Association (UKFFPA)
Synthesis of multiple data sources

Environment Agency Environmental Permitting data

- Analysis of site level data to allocate to a sub-sector
- Extraction of relevant waste stream data

Permitted site data by sub-sector and waste stream

- Use of Interdepartmental Business Register to scale up from permitted sites to all of UK
- Fieldwork insights (factory visits, interviews, data shared)
  - WRAP Resource Maps, Whole Chain Resource Efficiency Projects, other relevant case studies etc.
  - Data from Courtauld reporting
  - Data from redistribution and animal feed organisations
  - Expert judgement

Estimates of waste streams for the UK

- % of each stream which is food waste
- State of the food
- Suitability for prevention etc.

Estimates of food waste and potential for prevention, redistribution and diversion to animal feed

FSA Register of Animal By-Product Approved sites
Headline results

- Food manufacturing and retail in the UK is highly efficient, with <5% surplus and waste.
- Food surplus and waste at retail amounted to 240,000 tonnes, or the equivalent of 0.7% of UK sales.
- In manufacture there were 2.4 million tonnes of food surplus and waste, the equivalent of 4.2% of UK production.

<table>
<thead>
<tr>
<th></th>
<th>Total food waste (t)</th>
<th>Total food surplus (t)</th>
<th>Total food surplus and waste (t)</th>
<th>% surplus and waste of production/sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacture</td>
<td>1,700,000</td>
<td>680,000</td>
<td>2,400,000</td>
<td>4.2%</td>
</tr>
<tr>
<td>Retail</td>
<td>210,000</td>
<td>32,000</td>
<td>240,000</td>
<td>0.7%</td>
</tr>
<tr>
<td>Total</td>
<td>1,900,000</td>
<td>710,000</td>
<td>2,600,000</td>
<td></td>
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</tbody>
</table>
Manufacture material flows (2014/15)

Manufacture and associated logistics

Retail (RDC and stores)

Consumers

By-products / ABPs: 2.8 Mt
Food surplus: 0.7 Mt
Food waste: 1.7 Mt
Manufacture material flows (2014/15)

By-products / ABPs: 2.8 Mt
- Rendering: 635,000t
- Animal feed

Food surplus: 0.7 Mt

Food waste: 1.7 Mt

Retail (RDC and stores)

Consumers
Manufacture and associated logistics

Retail (RDC and stores)

Consumers

By-products / ABPs

- 2.8 Mt
  - 635,000t
    - Rendering
      - Animal feed
    - 2,200,000t
    - 42,000t

Food surplus

- 0.7 Mt
  - 635,000t
    - Rendering

Food waste

- 1.7 Mt
  - 42,000t
    - Redistribution
Manufacture material flows (2014/15)

Manufacture and associated logistics → Retail (RDC and stores) → Consumers

By-products / ABPs
- By-products / ABPs: 2.8 Mt
  - 635,000t
  - 2,200,000t

Food surplus
- Food surplus: 0.7 Mt
  - 635,000t
  - 42,000t

Food waste
- Food waste: 1.7 Mt
  - 130,000t
  - 760,000t

Rendering
- Rendering: Animal feed
  - 635,000t

Redistribution
- Redistribution: 635,000t
  - 42,000t

On-site treatment (e.g. DAF, AD)
- On-site treatment (e.g. DAF, AD): 745,000t

Off-site disposal of product (various states)
- Off-site disposal of product (various states): 760,000t

Direct discharge to sewer
- Direct discharge to sewer: 635,000t
  - 745,000t

Consumers
- Consumers: 2,200,000t
Manufacture – much lower food waste estimate

- Food waste prevented
- Double-counting
- Material associated with food production (e.g. water, soil, bedding)
- Food waste

2011:
- Food waste: 3,900,000
- Material associated with food production: 1,700,000
- Double-counting: 90,000
- Total: 3,900,000

2014:
- Food waste prevented: 200,000
- Total: 1,800,000

First estimate for how much is avoidable/edible

Total food waste – 1.9 Mt

[Includes both avoidable or edible food, and the inedible or unavoidable portion of food, for example skin, peelings, shell etc.]

Of which 56% is:

Edible / avoidable food waste – 1.1 Mt

[Includes only the portion of food wasted that was intended for consumption, with or without further processing, for example ingredients or product lost during changeover/cleaning, QA rejects, damaged final product etc.]
Avoidable (edible) food waste - £1.2 billion

For the first time we have estimates for how much avoidable food and drink waste occurs by manufacturing sub-sector (tonnes of avoidable food waste) (% of the total manufacturing avoidable food waste)

- Dairy products (23%)
- Meat, poultry and fish (18%)
- Ambient products (15%)
- Fresh fruit and vegetable processing (11%)
- Bakery, cake and cereals (10%)
- Alcoholic drinks (7%)
- Pre-prepared meals (7%)
- Confectionery (3%)
- Soft drinks and fruit juices (3%)
- Milling (1%)
- Sugar (<1%)
What does this mean for Courtauld 2025?

- Less food waste than we thought
- Significant potential to do more
- Confirms that it will be challenging
- Gives a clear focus for action

Our collective ambition is to cut the amount of resource needed to provide our food & drink by one fifth in ten years.
450,000t of food and drink waste is practically avoidable in the timeframe of Courtauld 2025

This is possible through a combination of prevention of arisings, increased redistribution and diversion to animal feed.

This represents a 23% reduction in manufacturing and retail food waste (or a 42% reduction in the avoidable food waste).

Manufacturing
- 355,000t
- 155,000 tonnes of food waste prevented from arising
- 70,000 tonnes of additional redistribution
- 130,000 tonnes of additional surplus to animal feed

Retail
- 93,000t
- 30,000 tonnes of food waste prevented from arising
- 50,000 tonnes of additional redistribution
- 13,000 tonnes of additional surplus to animal feed
What does this mean for Courtauld 2025?

- Less food waste than we thought
- Significant potential to do more
- Confirms that it will be challenging
- Gives a clear focus for action
- Provides the basis for on-going measurement

Our collective ambition is to cut the amount of resource needed to provide our food & drink by one fifth in ten years.

Targets:
- 20% reduction in food and drink waste
- 20% reduction in GHG
The amount of food being wasted post-farm gate in the UK is around 10 million tonnes, worth around £17 billion a year.

Commitment to obtain estimate for primary production by 2018.
What happens next?

- New resources to aid action
- Courtauld 2025 Working Groups and projects
- Input to global, EU and UK Government discussions on food measurement and prevention
- Continue to learn!

Significant potential savings for the Morrisons pork supply chain by reducing variability

This case study is based on a whole chain pork project we undertook with Morrisons, Woodheads and farmers Boy. Having identified high variability in both pig weight and back fat levels within these batches, this variability is a cost to the pig farmers (because they receive less payment) and a cost to the processor (because it costs more to cut and trim them). There is a strong commercial case for working more closely with producers to reduce variability.

- There is a high variability in weight and back fat levels within these batches.
- There is an opportunity to benefit from synergies by sharing knowledge on how to improve hygiene and reduce variability.
- There is a strong commercial case for working more closely with producers to reduce variability.

continue to learn!
Thank you

Andrew Parry
Special Advisor, Food and Drink; WRAP