

Why nothing on our plates needs to go to waste

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The figures are stark. The UK wastes more than twenty million tonnes of food each year. The environmental costs of our food waste are enormous. It is estimated that 20 per cent of the UK's greenhouse gas emissions are associated with food production, distribution and storage and disposal.

If as a nation we stopped wasting food that could have been eaten, we could prevent millions of tonnes of CO₂ equivalent emissions each year. Even though the majority of these emissions are associated with embedded energy, a significant proportion arises as a result of food waste going to landfill sites where its breakdown produces methane – a greenhouse gas 25 times more potent than carbon dioxide.

Of the food we waste, around 37 per cent is generated by householders, the remaining 63 per cent is generated by food manufacturers, retailers, hotels and restaurants, etc. (WRAP, *The Food We Waste*: 2008).

Preventing food waste is a big priority for the UK – in terms of both the financial and environmental costs associated with waste. High-profile campaigns such as WRAP's 'Love Food Hate Waste' have ensured that householders are increasingly adopting the mantra 'Reduce, Reuse, Recycle' when it comes to food waste and an increasing number of local authorities have started making household food waste collections. Now the focus is quite rightly moving to the commercial sector where two-thirds of food waste is generated.

Food waste is and always will be inevitable – no matter how carefully we prepare food or how delicious the finished dish is. What is not inevitable however is the environmental damage caused by the release of harmful greenhouse gases as waste food decomposes in landfill. According to WRAP, every tonne of food waste prevented has the potential to save 4.5 tonnes of CO₂ equivalent. Recognising this, some parts of Europe – the Republic of Ireland, for example – have introduced legislation to divert all food waste from landfill.

So what are the more environmentally-friendly alternatives to landfill for food waste producers?

Recycling options for food waste

Anaerobic Digestion – anaerobic digestion (AD) involves the breakdown of biodegradable material in the absence of oxygen by micro-

organisms called methanogens. It is already widely used to treat wastewater in the UK and can also be used to treat other organic wastes, including domestic and commercial food waste, manures and biofuel crops. Food waste is mixed with animal manure to form a substrate which is pasteurised and passed into a fermenter. Bacteria break the food waste down and the methane gas produced is converted into electricity for the National Grid. The remaining by-product, a liquid digestate, is an excellent organic fertiliser which is used on the land.

There are two main types of anaerobic digestion called thermophilic and mesophilic – the primary difference between them is the temperature. Thermophilic processes reach temperatures of up to 60°C and mesophilic normally runs at about 35–40°C. AD sites also have to comply with the Animal By Products regulations so a mesophilic site has to have a pasteurisation unit to make sure the end product is safe.

In-Vessel Composting – food waste is composted in metal tanks or concrete bunkers in which airflow and temperature can be controlled. The air circulation is metered via buried tubes that allow fresh air to be injected under pressure. This produces compost which can be used as fertiliser on the land.

Rendering Plants (animal by products) – converts waste animal tissue into more useful materials e.g. purified fats like lard or tallow.

Waste to Energy Plants – the process of creating energy (electricity or heat) from the incineration of food waste.

Composting on Site – suitable, for example, for a restaurant that has its own kitchen garden.

Wormeries or Vermiculture – worms can convert organic kitchen waste into a bio-rich, high quality compost and concentrated liquid feed, taking advantage of their natural ability to digest relatively large quantities of organic waste.

Of these methods, AD has been hailed by Defra as the future of food waste recycling. The process has been around since the 1800s, but there are still far too few plants to cope with potential demand. Just prior to May's General Election the Labour Government published its *Accelerating the Uptake of Anaerobic Digestion in England: an Implementation Plan*.

The implementation plan provides a framework for action by government and stakeholders to facilitate the uptake of anaerobic digestion in England and signals high level commitment to AD. As a waste management and recycling business,

we welcome the fact that investment in the AD sector is beginning to build and the commitment of the new coalition Government to promote low carbon energy production as outlined in its Energy Bill announced in the Queen's Speech on 25 May 2010.

Even despite the current scarcity of facilities, an increasing number of businesses in the UK are pre-segregating their food waste as part of site waste management systems and as a pioneering waste management business we have been quick to recognise demand for commercial food waste collection and now count some of the nation's top restaurants, hotel groups, food manufacturers, supermarket chains, universities and independent schools amongst our customers. This February, Cawleys won the prestigious Association for Organic Recycling (Afor) Award with Waitrose for the retailer that has made the 'best contribution to food waste recycling'.

For the client taking a holistic waste management approach and including food waste in a single overarching waste disposal contract, switching to AD can be made straightforward and cost-effective. By conducting waste audits, waste management companies can ensure waste recycling to AD is:

- Time efficient – recycling food waste takes no more time than throwing it away.
- Easy to adopt and follow – staff are given training to segregate the food waste properly and supplied with clear signage, posters and biodegradable cornstarch bags for food disposal.
- Cost efficient – food is the heaviest element of waste and with landfill tax set to rise every year by £8 per tonne, the more weight diverted from landfill the better for business and the environment. The AD route need not be more expensive if using a holistic view of waste it – by incorporating food waste with other waste collection it can be cost neutral.

Using the AD route not only helps businesses to meet carbon emission targets and contribute to initiatives like 10:10, but also keeps increasingly eco-conscious consumers satisfied that the commercial sector is doing its bit to reduce waste. Ultimately we hope that businesses who send their food waste to AD will be able to claim carbon credits for the energy generated from their waste and the CRC Energy Efficiency Scheme launched on 1 April 2010. This would signal a real commitment to backing AD as the future of food waste.

For more information about Cawleys waste management and recycling please go to: www.cawleys.co.uk