



**LESS  
FOOD  
WASTE  
MORE  
PROFIT**

**FOOD WASTE REDUCTION IN THE  
FOOD SERVICE INDUSTRY**

# About this guide

This guide aims to inform people within the food service industry of the significant issue of food waste and the potential solutions. Originally published in 2010, it has been updated based on the work of the 2018 EPA research project 'Reducing Commercial Food Waste in Ireland'\*.

It compiles the results of over 50 detailed food waste studies in businesses across Ireland. Each study lasted one day and every scrap of food waste, from every plate and pan, was measured and recorded!

This work was carried out to get a better idea of the sources and types of food that are wasted in Irish food businesses, and how it can be reduced.

In each business, we spoke to staff about the actions they take to reduce food waste. Their advice is included in this guide. Without their valuable input (and the patience of all the kitchen porters), this guide would not have been possible.

\*Funded through the Environmental Protection Agency Research Programme 2014-2020



These photos were all taken throughout the course of the research project.



# WE ESTIMATE THAT THE IRISH FOOD SERVICE SECTOR WASTES 150,000 TONNES OF FOOD PER YEAR

## Why food waste is bad for business

**In a rapidly changing sector where the customer experience is priority, food waste can often be ignored. As a food business, any improvements that can be made to this waste has a positive impact on your bottom line.**

Globally, it's estimated that one third of all food produced for human consumption is wasted. This waste has negative impacts on society and contributes to climate change. Wasting food means wasting all of the energy and resources that went into producing it.

Food waste is a complicated problem. It occurs at every stage in the supply chain, including food service. There's no one-step fix but there are plenty of actions that you can carry out to help solve the problem and save money.

Nobody likes to see food going to waste and people all over the world are coming together to create solutions to this problem. With more and more meals being eaten outside of the home, food service has an important part to play in this effort.

We estimate that the Irish food service sector wastes 150,000 tonnes of food per year. This is split between hotels, restaurants, and canteens. While this is a problem, it can also be seen as an opportunity to improve.

# Where should we start?

## 1. Measuring and weighing food

Tracking food waste is the important first step to understanding what is being wasted and from where. Food is wasted in different amounts and for different reasons depending on the business. Although this guide gives plenty of actions to reduce food waste, the situation is different in every business so the best way to start is to pay attention to your own waste.



to a relevant measure of business activity. We recommend using number of covers but other measures of activity such as gross income can also be used. **Comparing food waste against the number of covers creates a benchmark of food waste per cover.**

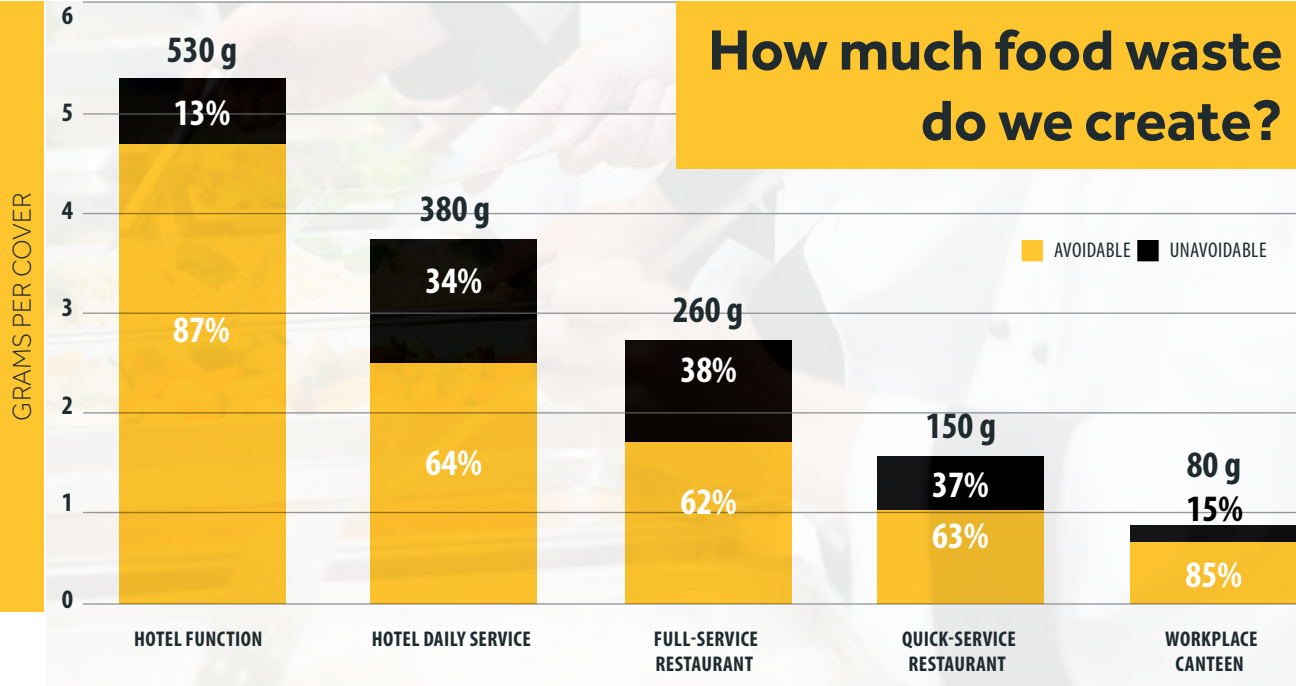
### Weighing Your Food Waste

If you don't already have information on the weights of food waste bins, weigh the bag(s) of food waste leaving the kitchen at the end of each day for at least a week. Compare this to the number of covers (or other measure of activity). This will give you a good estimate.

**Waste Bills**  
Take a look at your waste bills and see how you are charged. If you are not getting information on the weights of your bins, speak to your waste contractor and request that information. Compare the weights of food bins from your bills

**Calculate your food waste benchmark**

$$\frac{\text{Total food waste}}{\text{Number of covers}} = \text{Food Waste Per Cover Benchmark}$$



The level of food waste varies by sector, as can be seen from the benchmarks shown above.

Not all of this food waste is avoidable. A proportion of this waste comes from peelings and off-cuts from food preparation. This 'unavoidable' food waste varies depending on the business type but on average, this waste accounts for just 25% of food waste thrown away.

**This means that three quarters of all food waste is food that was meant to be eaten.**

## 2. Find the main sources of food waste in your business

Weighing total food waste is a great way to get an idea of the situation. However, to get a better understanding of the reasons behind this waste, more detail is needed. Consider recording food waste from different areas of the kitchen or from the following categories:

- **Unserviced food waste:** Food that was intended to be eaten but for some reason was not. This is a key area to consider for cost savings. Unserviced food can include out of date stock although it may be useful to look at this separately. Bulk cooking, customer variability and poor stock control affect this waste.



- **Plate waste:** Uneaten food left on plates gives an indication of potential portion size or recipe problems.

- **Preparation waste:** Primarily made up of unavoidable trimmings and peelings but often has room for improvement.

Often these three types of food waste occur in different areas of the kitchen so can be easily kept separate.

### CASE STUDY

#### Don't Tell the Bride!

A busy wedding hotel was serving large dishes of vegetables and potatoes to each table and also prepared several extra trays to offer seconds. When they measured their food waste from a 120-person wedding, they found that over 25 kg of vegetables and potatoes were wasted. That's 210 g per cover – almost a full serving! Looking a little closer, they realised that 17 kg of this was unserved food waste (i.e. it had never reached a plate), while 9 kg was leftovers from plates. With this information, the chef could start reducing the amount of food prepared per person, knowing it would not impact customer experience.

## The main sources of food waste in the Irish food service sector:



### 3. What does food waste cost you?

Food waste costs much more than the price you pay for brown bins. Based on indicative purchasing costs and the types and quantities of food that are typically wasted in food service, a baseline cost of a kilogram of food waste has been calculated as:

**€2.73 - €3.50 per kg\***

\*This is based on purchasing cost alone. It gives a zero value to the unavoidable fraction of food waste. It does not include staff time to manage, prepare and serve food, or the overheads to store, cook, and dispose of it.



The cost of food waste for each sector was as follows:



Quick-Service Restaurants  
**€2.73 per kg**



Full-Service Restaurants  
**€2.90 per kg**



Hotels  
**€3.38 per kg**



Workplace Canteens  
**€3.50 per kg**

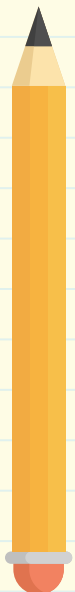
### What's food waste costing your business?

Example: Quick-Service Restaurants

$$\frac{6000 \text{ kg}}{\text{kg food waste per year (from step one)}} \times \frac{€2.73}{€ \text{ per kg for sector}} = \frac{€6,000}{\text{Cost per year}}$$

See how much food waste is costing you:

$$\frac{\text{kg food waste per year}}{\text{kg food waste per year}} \times \frac{€ \text{ per kg for sector}}{€ \text{ per kg for sector}} = \frac{\text{Cost per year}}{\text{Cost per year}}$$



## 4. Get staff on board

Engaging staff on the issue of food waste is critical to making any lasting improvements. It's important that both front- and back-of-house staff work together to achieve results that benefit the whole business.

While chefs have novel ways to use up food, waiting staff interact most with customers. Kitchen porters see exactly what comes back on plates, but it's administrative staff who deal with the ordering, bills and waste companies. Food waste is an issue that's not up to one person to solve. All members of the team are likely to see opportunities for food waste reduction. Talk to the team!



### CASE STUDY

#### Hold the 'Slaw

In a town-centre hotel with a busy lunch trade, a side of coleslaw was served with all sandwiches. In this business, serving staff clear plates behind the bar.

The chefs, busy in the kitchen, never realised that lots of this coleslaw was ending up in the bin. We measured their waste and found almost 4 kg of coleslaw wasted in one day! This prompted the chefs to change the coleslaw recipe. Once altered, customers responded and serving staff communicated the reduction in waste to the chefs.



## 5. Start small

When you have identified the main sources of food waste in your business, consider potential actions and choose one thing to focus on. Starting with one action and building from there is a great way to encourage lasting change. The next three pages provide some of our favourite potential actions, gathered from our work with chefs across Ireland.



### CASE STUDY

#### Small steps towards a big goal

After measuring the food waste in a large workplace canteen, the sources of waste were identified. Although plate waste was the leading source, staff decided to tackle unserved food waste first.

They made lots of small changes in the kitchen, including reducing the amount of porridge and soup prepared. Over a few weeks they reduced food waste by 30 g per cover. Not bad for a canteen serving around 600 people a day!

This level of waste reduction amounts to an estimated saving of €12,000 a year.



# Actions to prevent food waste

## PURCHASING:

**Purchasing is the first place where food waste can be avoided. If it's not bought, it can't be wasted. Keeping accurate records of existing stock and a well-managed purchasing system are key ways to prevent unnecessary food from getting into the kitchen.**



### Designate a purchaser

If possible, all stock should be ordered by one person to avoid mistakes and over-ordering. The person responsible for ordering should communicate regularly with other staff about excess or shortages of stock.



### Grow your own

Growing your own herbs means you can pick what you need, when it's needed, avoiding expensive and highly-perishable packaged herbs. Hardy, easy to grow herbs like rosemary, thyme and mint are good ones to consider. Similarly, salad greens are easy to grow but expensive to buy.



### Buying in bulk

Buying larger quantities of ingredients can be more economical, but only if all is used. Beware of the potential for false economy when bulk buying, especially foods with short to medium shelf-lives.



### Money for jam

Keep a good conversation going with your suppliers. There may be an opportunity to buy surplus produce at a discounted rate and add seasonal specials with good margins. Perfect for preserves.



### Keep it local

Buying local ingredients ensures customers have the freshest available produce, reducing the risk of spoilage. Local sourcing can also make it easier to negotiate deliveries that suit you. It has other environmental benefits including reduced food miles and greater potential to use reusable packaging loops such as crates.



### Cash in

Use the data analytics on the till to inform stock control and forecasting.

## STORAGE

**In busy kitchens it's all too easy for storage spaces to become disorganised and for food to end up forgotten about. Maintaining an organised storage system is vital for preventing unnecessary waste in the kitchen.**



### First-in-first-out

When storing new deliveries, always place the new items to the back and bring existing items forward. This ensures older items are used first. Once washed and prepared, store raw vegetables and other perishables in reusable airtight containers to prevent unnecessary dehydration and spoilage. Store these containers in the refrigerator at or below 5 °C where applicable.



### Label

Have a clear labelling system in place to mark all foods when tubbing and storing. Make sure you 'stick' to it!



### Maintain cold storage

Make sure fridges, cold rooms and freezers are well sealed and calibrated as required to make sure correct temperatures are maintained.



### Vacuum pack

Vacuum packing expensive foods like meat, fish and sauces maintains freshness and extends shelf-life. It's a useful way of keeping ingredients that are bought in bulk (e.g. nuts) or occasionally used (e.g. sun-dried tomatoes). Vacuum packing can also save time in the kitchen because batches can be prepared less frequently when they can be kept for longer.



### Light it up

Ensure that food storage areas are well lit so that everything in stock is easily visible.



## PREPARATION & COOKING

The kitchen is where there is the most control over food, yet in many businesses it is a large contributor to overall food waste. Maintaining good practice in the kitchen can make a big difference, without having any effect on customer interactions.

### Check your trimmings



Over-trimming typically occurs in the preparation of bulk meats and whole vegetables. To see how much trimming occurs place a tub or caddy near the meat preparation area. Check the contents of the tub regularly before emptying into the main bin.

Consider weighing the offcuts and calculating the price of this waste. Although more expensive per unit, it may be more economical to buy pre-portioned meat.

### Food to order



Whenever possible, prepare foods to order to avoid waste generation from over-preparation.

### Batch size



Keep batches of pre-prepared staple food such as pasta, potatoes and vegetables as small as feasible. Although cooking an extra batch now and then takes staff time, frequently throwing leftovers away is a costly habit.

### Standardise recipes



In large kitchens, recipes should be standardised for all staff. This reduces the risk of error and maintains standard procedures which are easier to follow. Customers will know they can enjoy the same delicious food every time.

### Maintain equipment



Keep ovens and cooking equipment calibrated to avoid discards due to over-cooking. Good practice such as keeping knives sharp can also reduce unnecessary waste.



### Make stock

Consider getting some use out of vegetable and meat offcuts by using them to make stock.

### Avoid inedible garnishes



Avoid inedible or rarely eaten garnishes that end up as waste. Using decorative plates and clever plating reduces the need for these garnishes while maintaining an attractive appearance.

### Sous vide



Sous vide is a cooking technique where ingredients are vacuum sealed in a bag and cooked at relatively low temperatures in a water bath. This process can extend the shelf life of food and prevent waste.

### Turn leftovers into turnover



Common examples of this include bread into breadcrumb and vegetables into soup. Get creative with this. Specials are the perfect opportunity to repurpose food. Reward staff in the kitchen who come up with popular specials and reward front-of-house staff who sell those specials to clientele.

### Food safety



Good food safety practices will reduce cross-contamination and reduce the incidence of disposing of food that has become contaminated.

### Anticipate demand and track trends



Each day, keep a board for staff with a note of bookings, forecasted weather and special events. Keep a folder with records of covers and other information for notable dates such as graduations, communions etc. Refer to these records the following year to inform food ordering and preparation. Although most people in food business do this instinctively, having a written record can really help refine this.

## SERVING

No matter how well your kitchen operates, the customer always has the potential to create food waste. Although this may seem inevitable, clear communication through the menu and by serving staff can make a big difference. Communication is key.

### Bread



If you serve bread before a meal, ask customers whether or not they would like it first. If possible, minimise the quantity of bread provided prior to the meal. Filling up on bread can lead to food waste from the main meal and can reduce the likelihood of customers opting for dessert.

### Offer leftover boxes



Offering leftover boxes or doggy bags reduces plate waste and has been shown to increase customer satisfaction. When customers know this is an option, it can improve sales as they know they can enjoy any leftovers later.



### Offer more later

Many businesses pride themselves in their large portions, but piling on the food is not the only way to appear generous. Where the serving situation allows, offer second helpings rather than initial large portions. Customers will still be impressed by your generosity and it will save you in the long run.

### Go trayless



Several studies into food waste in the canteen sector have found that removing trays can reduce plate waste by up to 30%.

## MENUS

The menu is an excellent tool to reduce food waste and increase sales. It is one of the most important ways to communicate with customers. These days, with most businesses providing a menu online, it may be the only communication you have with potential customers.



### Just desserts

Choose to prepare and serve some desserts that keep for several days rather than mainly creamy desserts with shorter shelf-life.



### Be clear

The menu should be very clear on what is included in a meal. Always include the sides and any sizeable garnishes in the description.



### Include flexibility

The specials menu is an excellent way to use up surplus ingredients while adding variety to the everyday offerings.



### Surprise menu

Similar to an early bird, a surprise menu can be offered at a discounted rate. In this case, customers do not choose what dishes they want. This provides a great opportunity to use up food that may not be selling that day, while giving your customer great value and a chance to try something new.



### Menu planning

Design the menu so that fresh and perishable ingredients can be used in a variety of different meals. This reduces the range of ingredients needed and the risk of ingredients going unused.

## PORTIONS

Portions are so tricky to get right. They're a constant balancing act between food waste and happy customers. Like value, very often portion size can be a matter of perception.



### Sauce

Believe it or not, sauce is a major contributor to plate waste across many food businesses. Ramekins are very often oversized and lead to large amounts of uneaten sauce. As one of the more expensive items put on a table, sauce is one to watch out for.



### Communicate

Chef-customer interfaces such as carvery counters offer a valuable opportunity for customers to "hold the sauce". Keep lines of communication open and find out exactly what customers want



### Half portions

Offer half portions or starter portions on suitable dishes and be clear that you offer this. Half-portions improve customer experience, can have better margins than full portions and leave more room for dessert.



### Standardise portions

Ensure uniform portions of each item are standardised across the kitchen team. Facilitate this amongst staff with adequate scoops, measuring cups, ladles, scales, etc.



### Milk Jugs

Leftover milk in jugs is a type of waste that really adds up. Having a self-service station will minimize it. Otherwise, keep jugs as small as possible.



### Side portions

Serving side portions of vegetables to large tables or functions mean that customers can take as much or as little as they want. However, very often these portions are too big or too numerous. Pay attention to how much veg is typically coming back from side dishes. Perhaps serve less at the beginning and offer more?

### Donation

If food waste cannot be prevented, donating or distributing to people is the next best option. Donated food must be fully labelled, including allergens, and handled in compliance with food safety practice. Contact the Food Safety Authority of Ireland for more details.





# Food waste and the law

There are several legal requirements for managing food waste in a food business:

## Correct Segregation<sup>1</sup>:

All food waste arising on the premises must be segregated and kept separate from non-biodegradable materials, other waste and contaminants.

## Ban on Macerators<sup>2</sup>:

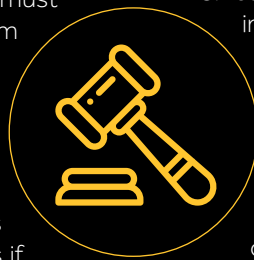
The use of macerators or similar units to dispose of food waste to sewer is prohibited. There is an exception to this if a premises has its own wastewater treatment plant and licence to discharge to water/drain.

## Authorised Disposal<sup>1,2</sup>:

Segregated food waste has to be treated in an authorised treatment process, either on-site, or collected by an authorised collector and brought to an authorised facility. It is illegal to supply food waste to anyone other than a contractor authorised for disposal of food waste.

## Feeding to Animals<sup>3</sup>:

Since the outbreak of foot and mouth disease in 2001, it has been illegal to feed catering waste (swill\*) to farmed animals (cattle, sheep, pigs, goats, deer, poultry or other biungulates) even if the animals are kept as pets. It's potentially legal to feed this waste to animals farmed for fur or to dogs. In order for this to be legal, the body collecting the food waste must be licensed to do so (see Authorised Disposal).



\*Swill includes any broken or waste foodstuff (including table, catering or kitchen refuse, scraps or waste).

1. The Food Waste Regulations (S.I. 508 of 2009)

2. Animal By-Products (ABP) Regulation (S.I. 187 of 2014)

3. Foot & Mouth Disease (Prohibition on the Use of Swill) (S.I. 104 of 2001 & S.I. 227 of 2001)

# Where does food waste go?

Food waste from the food service industry should be segregated for anaerobic digestion or composting. It should not go into the general waste stream.

**Anaerobic digestion** uses bacteria in a large tank to break down food waste. This process happens without any air (anaerobic). It normally takes a few weeks and produces a fuel called biogas (or bio-methane) and a material called digestate. Biogas is a renewable energy source and digestate can be added to soil like compost.



**Composting** involves mixing the food waste with woody materials and air and letting it break down. After a few weeks and a pasteurising process, the waste has turned into compost.

Food waste that ends up in the general waste bin may get processed out into a low-quality organic material used to cover landfills. If not, it ends up in the landfill itself where it breaks down forming methane and other harmful gases, or it is incinerated and turned into CO<sub>2</sub> and water.

Despite the legal requirement for segregation (see p11), food waste still makes up 25-30% of the general waste from food service. This needs to change.

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## Dealing with food waste on-site

**While most food businesses find brown bins the best solution to food waste management, there are some options for dealing with food waste on-site.**

However, careful consideration should be taken before investing in a composting system. All of these systems are based on biological processes and so need plenty of space and significant maintenance and attention. A problematic or badly-managed composting system is not what any food business wants.

Consider if your business has a real and long-term use for the resulting compost or digestate before investing in an on-site system.

### Composting

Simple composting is suitable for vegetative (plant-based) food waste like peelings, spoiled fruit and veg, compostable napkins and small amounts of breads, etc. Meat or animal waste, oils or grease and fatty foods should not be composted in a traditional composter.

### In-vessel systems

For larger institutions an enclosed system may be more suitable. These include in-vessel composters, thermal treatment systems and biochemical (enzyme) based systems.

These systems have been found to provide cleaner day-to-day operation and are easier to use. Unlike simple composting, they can accept cooked food, including meat and fish.

To carry out composting on site, you need to obtain a Certificate of Registration (<50 tonnes of biowaste per annum) or a waste permit from your local authority<sup>4</sup>.

4. Waste Management (Facility Permit and Registration) (Amendment) Regulations 2008 (S.I. No. 86 of 2008)





## **THE BEST WAY TO DEAL WITH FOOD WASTE IS TO PREVENT IT IN THE FIRST PLACE**

Dealing with food that is close to its end date is difficult, especially with the high standards needed in the food industry.

Food waste prevention starts when food is being purchased and needs to be considered at every stage of production and service.

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### **Disclaimer**

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