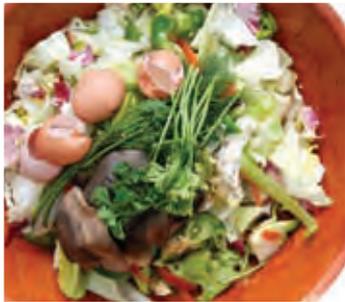


# Less Food Waste More Profit



## A Guide to Minimising Food Waste in the Catering Sector



# Foreword



The EPA welcomes the publication of this guidance document on food waste in the commercial/catering sector. This is particularly important as Ireland faces challenges in preventing/diverting biodegradable/food waste from landfill. The commercial/catering sector has an important contribution to make to this national endeavour, while availing of opportunities to reduce costs by preventing this wastage. I would like to congratulate everyone involved in the development of this guidance document, and encourage all operators to apply the common sense ideas provided within it to their activities.

Dr. Gerry Byrne, EPA and Chair of the National Waste Prevention Committee

## **EPA National Waste Prevention Programme**

This document has been developed in conjunction with the Green Hospitality Award, which is funded by the Environmental Protection Agency's National Waste Prevention Programme (NWPP).

The aim of NWPP is to deliver substantive results on waste prevention and minimisation, and integrate a range of initiatives addressing awareness raising, technical and financial assistance, training and incentive mechanisms. The NWPP also currently funds and builds upon the following initiatives:

- Local Authority Prevention Demonstration Programme (LAPD) and Local Authority Prevention Demonstration Network (LAPN)
- Green Business Initiative
- Green Home Programme
- Packaging Waste Prevention Programme



Food waste is one of the biggest problems in the Western world. In Ireland, we throw out almost 1 million tonnes of organic waste each year. Through better management in purchasing, storage, cooking and serving a lot of this waste could be avoided.

Not only is food waste bad for the environment, it is also a waste of money. There are so many things we can do, from a food production point of view, to utilise all the food we purchase, and indeed cook, each week. This booklet presents a guide for the prevention and reduction of food waste from catering facilities through better food management.

It illustrates what regulations apply, and importantly, gives tips on the prevention of food waste in areas such as menu planning food storage, cooking and serving.

As a chef, I know how important it is to use food effectively. Both in Dunbrody House and at home I have a great belief in using all of the products we buy. Often in the restaurant we would serve a very popular dish "Chicken Three Ways", which includes the pan-fried breast, confit of chicken leg and perhaps a deep fried chicken wing so as to show the full use of the bird.

I am very happy to be associated with this EPA booklet and to promote the wonderful array of food we have in this country and to show how to utilise it so as to achieve its full potential.

This booklet will, I believe, be not only a very useful tool for catering managers, chefs, and all in the catering industry, but can also form an important part of the curriculum in hospitality and catering training facilities.

Happy Cooking,

Kevin Dundon  
Proprietor  
Dunbrody Country House  
[www.kevindundon.com](http://www.kevindundon.com)



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# Introduction



## Introduction



### Why a Food Waste Prevention Booklet?

Food waste is a big problem in all industrialised countries – including Ireland. This booklet demonstrates ways of reducing food waste arising from the catering sector. There are two main reasons why food waste prevention should be a priority. These are outlined below.

### Cost Savings

Considerable savings can be made from reducing catering food waste in a catering facility. It is estimated that every tonne of food waste produced costs a business €2,000.

### Legislation

Preventing food waste will also make it easier to comply with environmental legislation.

### Who is the booklet aimed at?

This booklet is written for all those involved in commercial catering.

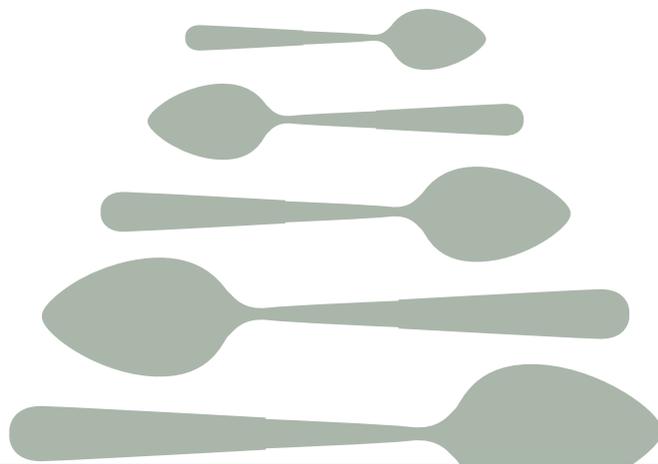
The catering sector contains a large range of businesses including:

- hotels
- restaurants
- public houses serving food
- fast food/takeaways
- cafés

Additionally large scale food preparation takes place in a number of establishments such as:

- schools, colleges and universities
- hospitals
- canteens and other in-house catering services
- prisons

Although these facilities differ in terms of kitchen size and the number of food covers, etc., good practice in terms of dealing with catering food waste can be applied across all these businesses.





## What are the principal sources of catering food waste?

Catering food waste comes from a number of sources, and is produced for a number of reasons:

- food preparation residues e.g. vegetable peelings, meat trimmings
- over-preparation of items in the kitchen e.g. prepared food portions that cannot be reused or frozen
- over-sizing of food portions which generate uneaten food scraps
- forgotten and spoiled, out of date food – as a result of over-ordering and mismanagement of stock, mishandling and packaging failure
- used cooking oils

## How much food waste do we create?

Catering food waste (a component of Biodegradable Municipal Waste [BMW], along with paper, textiles and cardboard) is defined as all waste food including used cooking oil originating in restaurants, catering facilities and kitchens, including central kitchens and household kitchens. It is estimated that the catering sector in Ireland produces over 100,000 tonnes of organic catering food waste annually.

## Did you know that (prior to new Regulations/landfill restriction):

Commercial facilities landfill over 433,600 tonnes\* of organic waste each year. The catering sector (hotels, restaurants, hospitals, canteens) produce over 100,000 tonnes of organic food waste. That's enough to cover 12 Croke Park pitches, 1 metre high with rubbish or to fill 470 standard swimming pools.

That's more than **€200 million** wasted per annum

## What about Fats, Oils and Grease?

The use and disposal of fats, oils and grease is a significant issue for catering facilities. A special section of this booklet addresses this issue.





# The Food Waste Regulations

## The Food Waste Regulations – what do they mean for your business

In order to implement the EU landfill Directive, Irish Regulations 1 are in place to assist the diversion of commercially generated food waste from landfill.

On a phased basis, specified premises will not be allowed to dispose of food waste to landfill. Instead:

- All food waste arising on the premises will need to be segregated and kept separate from other waste and contaminants.
- Such segregated food waste will have to be treated in an authorised treatment process either:
  - on-site or
  - collected by an authorised collector or
  - brought by the producer to an authorised facility

Where a local authority has already implemented separate food waste collection there is no change; for all other areas, the requirements are being implemented on a phased basis:

- For specified premises from 1 July 2010, except,
- For specified premises where food waste produced is less than 50 kg per week, from 1 July 2011 but only if a written declaration to this effect is sent to the local authority before 1 July 2010.

Where a separate food waste collection service is available to producers of food waste, and without prejudice to the conditions of a discharge licence or a waste collection permit, such producers must:

- (a) not put food waste in the residual waste collection
- (b) not use macerators to send food waste to sewer

Specified premises include (See the Regulations for exact wording):

- Premises that supply hot food for eating on or off the premises, including where this is just a subsidiary activity.
- Pubs where food is supplied.
- Premises where food is supplied to employees.
- Hotels, guest houses, and hostels with > 4 guest bedrooms.
- Shops or supermarkets selling food, including sandwiches or hot food, including where this is just a subsidiary activity.
- Restaurants, cafés, bistros, wine bars, etc. where food is prepared on the premises.
- Hospitals, nursing homes, etc., where food is prepared on the premises.
- Schools, colleges, higher level institutions, training centres, etc., where food is prepared on the premises.
- State buildings where food is prepared on the premises, including prisons, barracks, government departments, local authorities, etc.
- Stations, airports, ports, harbours and marinas where food waste is unloaded.

In addition, organisers of trade shows, exhibitions and events where food is supplied must prepare plans before and reports after the event, on the provisions made to meet these Regulations.

<sup>1</sup> Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009).



# Waste Management



## Waste Management

### What makes up food waste costs?

The food we throw away is a waste of valuable resources, as it is expensive to buy and dispose of. Food has a high carbon footprint in that energy is used to grow the food, harvest, transport, process, package, retail and prepare it. When disposing of food waste everyone generally only thinks of the disposal cost.

There are a number of other costs that you must include when estimating the cost of disposing of food waste:

- The initial purchase cost of raw ingredients
- The cost of transporting food
- The cost of storing the food
- The cost of preparing and cooking the food (staff costs, energy costs)
- The cost of disposing food waste

Waste management costs have increased substantially in recent years  
1996: €20 – €25 per tonne.  
2009: €110 - €185 per tonne.

Calculate the total cost of your food waste with the food waste calculator at the end of this section.



### How much does FOOD WASTE cost me and the country?

It is a conservative estimate that each kg of food waste costs €2. So if you dispose of one tonne of food waste a year it could be costing €2,000.

FOR THE WHOLE COUNTRY THE VALUE COULD BE AS HIGH AS €1 BILLION!

FOR THE CATERING INDUSTRY IT COULD BE €200 MILLION!

*The EU Landfill Directive (1999/31/EC) outlines measures to prevent or reduce the negative effects of landfills on the environment. The main aspect of the Directive which will have a significant effect on the management of catering food waste is the mandatory, staged reduction in the amount of biodegradable waste that is allowed to be landfilled.*

*By 16 July 2010 only 75% of the total quantity (by weight) of biodegradable waste, which was generated in 1995, can be landfilled. This is further reduced to 50% by 2013, and 35% by 2016.*

*In 2007 90% of all biodegradable waste was landfilled*

The EU Landfill Directive requires Ireland to reduce the quantity of biodegradable municipal waste disposed in landfills. As a result of the Landfill Directive and the Food Waste Regulations, landfill levies are guaranteed to increase substantially in the future.

### IN OTHER WORDS... CATERING FACILITIES WILL NO LONGER BE ABLE TO PUT FOOD WASTE IN THEIR GENERAL WASTE BIN !

Ireland is open to prosecution and significant fines by the EU where the the landfill targets are not achieved.



Over the years the management of catering food waste has changed. Up until early 2001 most facilities separated their waste and recycled it by sending it to the local swill man for feed for farmed animals e.g. pigs. However as a result of the foot & mouth crisis this practice has been banned and strict laws now govern the disposal of meat and food waste (see below).

As a result many facilities began to throw the waste into the general waste stream (bin), which goes to landfill. When food waste is discarded in landfills it causes a number of problems. As it decomposes it generates landfill gases, including methane. Methane is a greenhouse gas which has a very high global warming effect. It also produces landfill leachate which can pollute rivers and springs. Sending food waste to landfill is no longer an option.



All food waste should be separated from the general waste and stored in dedicated containers. This separation prevents other waste streams being contaminated, making it easier to recycle all streams (cardboard, plastics, food waste, etc.)

## Swill Order & Animal By-Products Regulation

The Swill Order\* bans the feeding of swill to farmed animals (cattle, sheep, pigs, goats, deer, poultry or other biungulates). Swill includes **any broken or waste foodstuff (including table, catering or kitchen refuse, scraps or waste).**

The 2002 EU Animal By-Products Regulations sets out how different categories of animal by-products (ABP) can be disposed. Under the ABP Regulation the majority of catering waste (including cooked food, egg shells, processed foods, etc.) is a lower risk material, classed as Category 3, and can be disposed of in biogas or composting plants.

The 2009 amending Swill Order allows the processing of swill at approved composting and biogas plants as allowed for under the 2002 EU Regulation.

The 2002 ABP Regulation will be superseded from 4th March 2011 by a new 2009 Regulation. In terms of catering waste, the provisions generally stay the same, but also allow processing by pressure sterilisation or similar techniques in addition to biogas or composting.



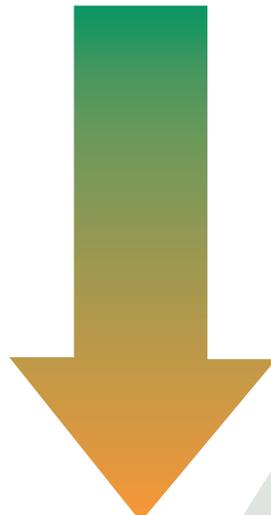
\* Diseases Of Animals Act 1966 (Prohibition on the use of Swill) Order (S.I. 597/2001), as amended by the Diseases Of Animals Act 1966 (Prohibition On The Use Of Swill) (Amendment) Order 2009 (S.I. 12/2009); The Animal By-Products Regulation (EC 1774/2002).



# Waste Management Hierarchy



BEST ENVIRONMENTAL OPTION



WORST ENVIRONMENTAL OPTION

## Eliminate

The simplest way to reduce the cost of food waste is to not produce it in the first place. This follows the key principles of waste management.

## Reduce

Or prevent food waste caused by over-preparation, over-trimming etc.

## Reuse

Feed people - reuse unused food in meals, donate unused food/meals to local charities or homeless hostels.  
Separately collect appropriate food for feed to animals.

## Recycle

Compost, either onsite or offsite.  
Convert to fuel by anaerobic digestion or other process.  
Separately collect remaining food waste for rendering or conversion to animal feed.

## Treatment Or Landfill Disposal

New Regulations will ban the landfilling of commercial food waste.





## What is Prevention?

Waste prevention incorporates the first three terms of the waste management hierarchy, i.e. eliminate, reduce and reuse

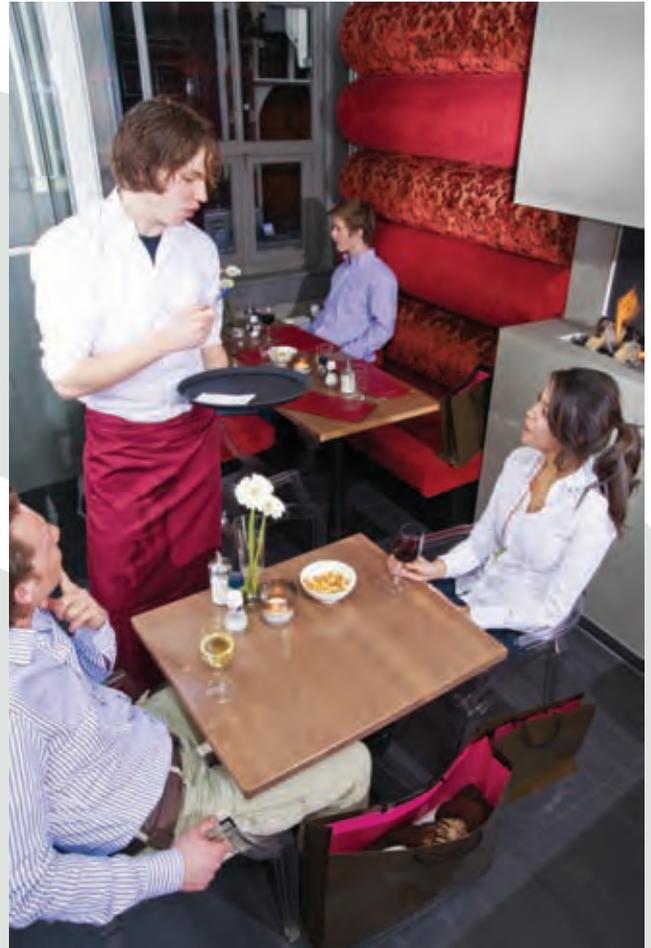
## Elimination\Reduction

**Elimination\reduction is the best option for minimising waste. It is simple, if you do not produce the waste you will not have to dispose of it!**

Proper food stock management (ordering minimum stock, rotating stock), menu planning and portion control are the most important areas for minimising catering food waste.

One of the most important issues in waste prevention is the training and motivation of staff. All staff must be made aware of the procedures and steps that should be taken:

- Top management must be committed to making resources (staff hours, equipment, advertising etc.) available. Chefs must be responsible for the implementation and management of any improvement options in the kitchen and associated areas.
- Where possible a green team of staff members from all sections of the company (chefs, prep staff, purchasing, waste management, etc) should be set up.
- Staff should be encouraged to provide suggestions on possible improvement options.
- Staff should be made aware of improvements and savings made. By seeing the actual improvements made staff are motivated and encouraged to make further savings



## Reuse

Where excess edible food is produced it should be reused wherever possible. Reuse food that is close to its expiry date first. Other food items including cooked food not served and prepared uncooked food may also be suitable for re-use in other meals e.g. butter in sauces, vegetables in soup.

Additionally food may be donated to local charities

The next section provides some suggestions and recommendations on how to prevent and reduce food waste.

All these suggestions may not be applicable to your size of business and location. When applying any suggestions and recommendations all operations should be undertaken within the requirements of the food hygiene standards. (I.S.340)





## Waste Management Hierarchy

### WHAT IS THE NEXT STEP IN MANAGING MY FOOD WASTE? HOW DO I GET STARTED?

The first step is to quantify exactly how much food waste you are producing for the year, by following the steps below:

1. For a week, separate the organic waste from the general waste and place in a separate bin. Make sure you use a week that is representative of the level of business during the rest of the year (don't choose a week where there are a higher number of functions or a special occasion e.g. Valentines day).
2. Weigh the bin and subtract the weight of the bin to estimate the quantity of catering food waste produced.
3. Multiply your weekly value by 52 to calculate the weight of food waste produced per year.



Ensure that you include the quantity of out-of-date waste food that you dispose of each year (you might only clear your out-of-date waste food on a monthly or bi-annual basis).

Is this value larger than you expected? – catering food waste is often ignored when it comes to other more obvious wastes e.g. plastic containers, tin cans, cardboard.

### CALCULATING THE COST OF DISPOSING THIS WASTE IS THE BEST MEANS OF SPURRING YOU INTO ACTION. THERE ARE A NUMBER OF COSTS ASSOCIATED WITH CATERING WASTE:

1. Disposal Cost: Multiply the cost of collection per kg by the actual weight calculated. This gives you the total waste disposal charge for the year.
2. Fresh Food Cost: Assess the average cost of new food ingredients from a sample of invoices.
3. Staff Cost: Though a little more difficult to calculate, you should include an estimate of the cost for staff preparing and dealing with food that is thrown out.  
One way to do this is to estimate what proportion of the total food that is bought is thrown out. Then estimate the number of hours that staff spend preparing food and the associated cost. Then multiply this value by the proportion calculated above.





# Prevention



### Do Not Over-Order Food

Check your actual usage of ingredients against number of orders. Establish an accurate stock inventory and ordering system to avoid over-ordering and spoilage of food. Only order the minimum amount required for a period.

### Buying In Bulk

Buying in bulk can be more economical but only if you will use all of the product (otherwise it becomes waste and when you include the waste cost the bulk product may be more expensive).

### Check Deliveries

Carefully check all food deliveries and ensure that:

- food is free from contamination
- packaging is not damaged and cans are not leaking or rusty
- perishable food is within its "best before" or "use by" date
- temperature check particular foods e.g. fish, to ensure it is fresh and has been stored and transported at the right temperature (food should either be hot or cold, but not warm)

Return any product that does not meet your standards to your supplier and let them know if you are unhappy with the quality of product you are receiving.

### Single Primary Purchaser

All ordering of stock should be through a single primary purchaser. This purchaser can prevent over-ordering of a product by different employees. They can also look at trends in stock and food covers to highlight wastage.

### Keep It Local

Where possible try to source your produce from local producers. Buying locally produced ingredients ensures customers have the freshest available produce. The risk of spoilage is also reduced. Other benefits include reduced air miles and packaging as local producers are more likely to use re-usable packaging. Buying and promoting the use of locally produced ingredients can also enhance the reputation of your establishment.

### Grow Your Own

Consider growing your own herbs and picking when needed.

### Accurate Ordering

Consider setting up a "stock and order" form in your food storage areas. This form highlights what is in stock and what should be ordered. As an ingredient is used the member of staff reduces the number in stock and adds to the quantity to be ordered. This allows staff to know at a glance what is being used for accurate ordering.

An example of a "stock and order" form is included below:

Food Type	Stock (s)	Order (0)
Carrots (litres)	5 4	<del>10</del> 11
Pasta (litres)	2	1
Cream (litres)	<del>3</del> 2	<del>4</del> 5

### Ordering

Try to order food as close to the time of use as possible. Many food distributors are able to deliver in a short period of time.

### Look In Your Bin

Look at your bin to try and give you a hint as to why food is becoming waste:

- is there packaging from newer stock in the bins - make sure you use older stock first!
- if fresh produce e.g. broccoli is being thrown out, are there still deliveries of broccoli being received - you may be over-ordering produce!

Segregating your food waste will help you in this process





### Label Upon Delivery

Label and date all product upon delivery. Labels should indicate the contents and the product's expiration date. Other necessary information, such as handling and storage instructions, may also be included.

Operate a back-to-front (also called a first-in first-out) policy. Place the new product at the back or bottom of the shelf. The older product will be then used first.

### Storage Temperature

Microbial growth generally occurs at temperatures between 5 and 63° C (danger zone). To prevent spoilage store perishable fresh food at temperatures below 5° C (refrigerator, chill room or freezer) and hot food above 63° C.

### Storing Fruit & Vegetables

Vegetables, particularly leafy vegetables should be stored as far as possible from cooler condenser units to prevent freezing. Store all soft fruit (except bananas) and salad items in the refrigerator. Store all other fruit and vegetables in wire baskets. This allows air to circulate around the food, reducing microbial growth.

### Storing Oils and Grease

To avoid picking up a strong flavour all oils and grease should be stored away from strong smelling foods.

### Storage Areas

Ensure all storage areas are dry and clean. Clean your coolers and freezers (reach-in and walk-in) regularly to ensure that food has not fallen behind the shelving and spoiled. Arrange your storage areas to allow easy access to product. Place all dry goods off the ground on pallets or shelving. These steps will help to minimise waste due to spills, breakages and spoilage.

### Storing Lettuce

Never store tomatoes and lettuce in the same container or close to each other, as tomatoes emit a gas that will turn lettuce brown. Never cut lettuce with a metal knife as it encourages browning of the leaves.

### Storing Herbs

Certain vegetables and herbs e.g. parsley can wilt when stored. Freshen these vegetables by trimming off the bottom section and storing in warm water.

### Vacuum pack

Vacuum packing upon delivery will extend the life of food. Vacuum packed food should be clearly labelled and dated.

Consider vacuum packing expensive food such as meat and fish upon delivery. Where possible ask your supplier to pre-vacuum pack your meat and fish products. You may want to add this as a requirement in your purchasing specification to suppliers.



### Prepared Food & Perishables

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.



## Preparation

### Avoid Over-Trimming

Over-trimming typically occurs in the preparation of bulk meats and whole vegetables. To see how much over-trimming occurs place a waste container or caddy (clear if possible) near the preparation area (2 caddies where both meat and vegetables are prepared).

Check the contents of the caddy on a regular basis prior to emptying into the main bin. Bearing in mind the quantity of food that has been prepared - is there too large a quantity of peels or trimmings in the bin? If so, retrain your prep staff or change the product's size or specification.

Alternatively buy the product pre-prepared and portioned.\*

### Food to Order

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

### Pre-portioned Meat

Purchasing pre-portioned and cut meat can reduce the quantity of meat trimmings to be disposed of. Waste meat trimmings are difficult to handle and its methods of disposal are limited.



\* Please be aware this transfers the food waste problem to the production facility



## Cooking

### Recipes

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

### Pre-Prepared Food

Cook smaller quantities of pre-prepared staple food (pasta, potatoes and vegetables), in smaller batches as required. This reduces the likelihood of excess food being unnecessarily prepared and thrown away.

### Equipment

Keep oven equipment calibrated to avoid over-baked products, which need to be thrown out.

### Portions Size

Look at the size of your meal portions. Is food (waste scraps) regularly returned on plates to the kitchen? Your portions may be too big!

It is common to over-serve on portions of chips, salads and vegetables. Customers prefer quality over quantity.

Encourage your serving staff to inform customers if they would like more food to "Just Ask".

### Adjust Portion Sizes

The following steps can help decide which meal portions should be adjusted:

- obtain feedback from service staff, who see on a daily basis which meals have the largest quantity of leftovers
- undertake a leftover waste survey: for a week instruct staff to record the quantity of the meal that is left uneaten.

(A weighing scales and datasheet should be provided near the waste disposal area)

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## Menus

### Menu Planning

Plan menus so that fresh and perishable ingredients can be used in a variety of different meals.

### Consider the Season

Consider how people's food and beverage choices change due to the weather and change your plans accordingly (e.g. prepare less soup on hotter days, less salads in Winter)

### Portion Size

Offer guests, especially older people, the option of ordering half-portions or smaller portions and price these items accordingly. Ensure you have a children's menu for younger diners.



### Order Taking

Train staff to provide a clear description, when asked, of meals, e.g size, ingredients, cooking methods. This ensures the meal meets customer preferences and prevents food being sent back or left on the plate.

Ensure that service staff are properly trained in taking orders and in communicating with kitchen staff. This reduces food waste from incorrect food ordering.

### Starters & Bread

Where possible minimise the quantity of bread provided prior to the meal, as this fills up customers and reduces the quantity of the main meal they eat. Consider reducing the size of starters, as large portions often fill up customers reducing the quantity of the main meal they eat.

### Serving Options

When serving vegetables to parties and functions, provide vegetables in the centre of the table as opposed to individual portions. This allows customers to decide the portion size they require.

Train your serving staff to provide the minimum portion and ask customers later if they want more. This can provide a positive customer experience.

Consider the size of serving spoons, ladles, etc in carvery meals.

Using smaller plates encourages smaller portions.

### Buffet & Salad Bar

If you operate a buffet / salad bar consider setting up salad bar offerings in smaller containers and replenishing them more often. This reduces the quantity of food to be later discarded.

Also consider providing smaller plates and allowing the customers to head back for refills. Often customers will fill up their plate because they can, only eating a portion of the food.

### Condiments

Wherever possible use refillable bottles or dishes instead of individually wrapped single-use packages for condiments (ketchup, sugar, salt, etc.). These dishes are refilled from bulk containers. This step reduces both food and packaging waste.

Where you need to use single-use condiment packages avoid putting these items in one central location. This is usually the case in takeaways and restaurants. Customers will often take more than they actually need, with the unopened packages being thrown out with any leftovers and napkins. Try instead to place the condiments on each table, or train staff to ask customers how many they actually need.

### Coffee Filters

Use reusable coffee filters to replace paper filters, which are thrown out with the coffee grinds. Examples include quality cotton, nylon, silk or metal filters .

### Customer Feedback

Obtain feedback from guests on their preferences for portion size and meal types.





### Hot Food Cooling

Where refrigerating hot foods for later reuse ensure that the food is cooled in a cold room, or preferably in a blast chiller where available. Food should not be cooled at room temperature.

Place hot liquids in shallow pans in ice baths to cool. Stir the liquid frequently to ensure even cooling. Pre-cool bain-marie hot foods (in an ice bath) before placing them into the refrigerator.

Placing hot food directly into the main refrigerator can cause the refrigerator's temperature to rise above the required level, overworking your refrigerator.

**Ensure that all hot food is chilled and placed in the refrigerator within 90 minutes of cooling commencing to prevent microbial growth.**

### Cooked Food Storage

Cooked foods should be covered and placed on the top shelves of the refrigerator. It is not good practice to store food on the floor of the refrigerator.

Store leftover hot foods from different stations in separate containers, rather than mixing them in one container. This minimizes the chance of contamination and spoilage.

### Cooked Meats

When chilling meat joints for later reuse, slice the meat joint into suitable sized slices and place in a covered tray.

It is not recommended to reheat meat joints as the centre of the meat may not reach the required temperature (70° C). Alternatively use a meat thermometer to ensure the centre of the meat has reached the required temperature before serving.

Cooked meat should ideally be reused within 24 hours and at a maximum within 3 days.

### Refrigerator & Freezing Equipment

Ensure refrigerator and freezers are operating at the required temperature. Chilled store or refrigerator: -1° C to 5° C  
Freezers: -18° C. Monitor the temperature twice a day.

Implement a regular cleaning and maintenance programme for all your equipment. Regular maintenance of your refrigerators and freezers extends the life of the compressors, reduces energy costs and avoids food spoilage caused by breakdowns.

### Freeze for later

- Freeze or vacuum pack any extra food that cannot be used as soon as possible and within the required time.
- All products to be frozen should be packaged tightly in containers or plastic to avoid freezer burn. Label all food with a description of the product and the date it was frozen.
- Stock rotate frozen products and make sure they are used in a timely fashion, to minimise waste and ensure quality.
- Make sure that the food is frozen in portion sizes that are appropriate for later use.

**Do not allow your freezer to become a dumping ground for food - if something is to be frozen ensure it can be reused at a later stage.**

**Ensure all frozen food is defrosted within the refrigerator.**



### Remember Food Safety Regulations!

**Ensure that all reuse of product is within food safety regulations. All food which is chilled for later reuse should be chilled to 5°C within 90 minutes of cooking. The food should be reused within 3 days of cooking.**

Do not reheat food more than once.

Food should be reheated to a temperature of 70°C or higher and kept at a temperature of at least 63°C.

If food is reheated and not kept at a temperature of at least 63°C it should be served within 30 minutes of reheating.

### Turn Leftovers into Turnover

Plan menus that use leftover food or food that is approaching its use-by-date. Consider promotional offers to encourage customers to buy this dish. Examples include:

- vegetable and meat offcuts for soup stock, garnishes and pates
- excess bread and toast for breadcrumbs and croutons
- main course meats in salads

### Donate

Donate food that will not be used before its use-by-date to local charities. Ensure that all food to be donated is carefully managed in line with HACCP and Food Hygiene Regulations.

### Can you bottle it?

Turn any excess quantity of over-ordered produce, or home-grown produce into alternative longer-life products (e.g. chutneys, pickles, jams and dry flavourings).



One kitchen creates flavoured powders for later use by drying out fruit, vegetables and herbs in a low heat oven and liquidizing in a food processor.



# **Recycling & Treatment**



## Recycling - Onsite Composting



Composting is an important method for managing waste organic material. Composting reduces the quantity of organic waste and produces a useful final product that can be used in gardening and growing of subsequent crops. Composting may be undertaken on-site where suitable space is available or using an external composting facility if your business is located in a residential or urban area.

Meat or animal waste, oils or grease and fatty foods should not be composted. , in the traditional backyard composter. They can be composted in more sophisticated in-vessel composters (see opposite page)

The following list of materials can be composted, once they are adequately separated from meats or animal by-products:

- spoiled fruits and vegetables
- stale bakery items e.g. bread and cakes
- kitchen preparation trimmings and waste e.g. vegetable and fruit scraps, coffee grounds and tea bags, egg shells
- paper towels and serviettes
- suitable leftover plate scrapings – all non compostable materials should be removed
- landscape and garden waste e.g. grass clippings, leaves etc.

Composting is the breakdown of organic material under aerobic conditions (ie in the presence of oxygen from the air) to produce a safe, stabilised, humus-like compost. The changes are caused by a wide range of micro-organisms (e.g. bacteria and fungi) present naturally in the organic material.

The temperatures achieved during composting from the considerable amounts of heat generated within the mass are sufficient to destroy any human, animal or plant pathogens present.

### On-site Composting Best Practice:

- Ensure that the composter is enclosed and vermin proof
- Turn the compost material frequently with a garden fork, to allow aeration of the material
- Blend the food waste with paper and landscaping waste to get the best blend of compost and to reduce the risk of smell
- Place a small amount of cardboard or newspaper inside the composter (especially if the compost is wet) - it generates air pockets to aid breakdown of the material, reduces odour and discourages fruit flies





Before you start an onsite composting programme there are a number of questions which you should ask, including:

Do you have sufficient and suitable space?

Do you have enough staff resources?

Have you outlined your plans with your neighbours?

Do you have a use for the final product?

If you are one of the specified premises under the food waste Regulations and you carry out composting on-site, have you obtained a Certificate of Registration from your local authority for your on-site composting operation?



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. They can also accept cooked food, including meat and fish, which cannot be treated in traditional compost units. The food waste is placed in the composter with an additive e.g. wood pellets, to ensure optimal microbial performance. The waste is mechanically moved and maintained at a constant temperature which speeds up the compost process and kills any harmful micro-organisms present.

After answering the above questions it may be more economical to use a waste contractor that collects food waste and recycles in an external composting facility. Your waste contractor may offer this service and provide you with a discounted rate - shop around for the best value.





## Treatment / Disposal

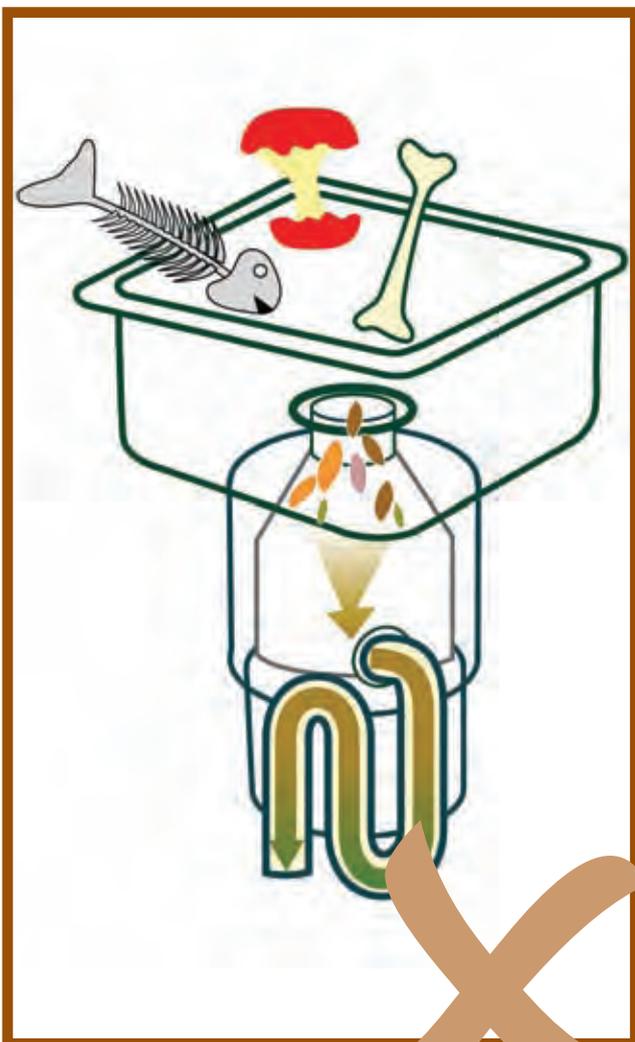
When you have reduced the quantity of catering food waste as much as possible (through prevention), there are a number of methods for dealing with your remaining catering food waste.

### Use a waste disposal company

Once separated from other waste streams a waste disposal company will collect catering food waste, and treat it in an appropriate manner e.g. compost or anaerobic digestion treatment. Charges are based on a combination of pick up & disposal or treatment charges.



Only licensed waste management companies should be used by your business. Your waste management company should provide you with a copy of their licence. Alternatively you can check that the waste company is licenced with your Local Authority or the EPA



The use of macerators and dehydrators is not encouraged due to the effect they have on the waste water treatment system, as outlined below.

Macerators break up and liquidise food, which is then disposed of in the wastewater system. Macerators significantly increase the quantity of organic material or biological loading (food and fats, oils and grease) in wastewater.

It is estimated in Ireland, that up to 36 tonnes of catering food waste is added directly to the drainage system every day, due to the use of macerators.

This organic material causes blockages in pipes, which can cause flooding and puts increased pressure on wastewater treatment plants (WWTP). This can cause WWTPs to operate inefficiently resulting in possible pollution. Macerators also reduce the effectiveness of grease traps.

Catering facilities, due to the high content of fat and grease in their effluent, are required by Local Authorities to obtain a Trade Effluent Licence. These licences put a limit on the quantity of organic material that is allowed in wastewater. Where these limits are exceeded the catering facility can be subject to fines and prosecutions by the Local Authority.

**You are much more likely to exceed your licence limit by using macerators.**

The use of macerators is restricted by a number of Local Authorities and their use is restricted on a national level by the new Food Waste Regulations (see page 6).



# Fats Oils & Grease

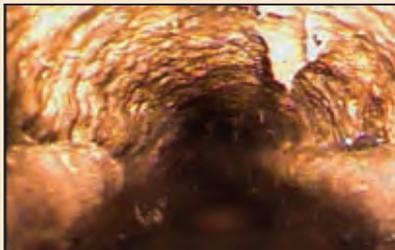


## Fats, Oils & Grease



Large quantities of cooking fats, oils and grease (also referred to as FOG), are used for a number of processes in the catering business including:

- Deep frying
- Shallow frying;
- Stir-frying
- Griddle cooking
- Roasting
- In dressings and sauces.



**FOG coating municipal sewer pipe**

The disposal of food waste and oil down drains either in solid form (from washing) or from the use of macerators, should be avoided, as this only transfers the waste from landfill to the local wastewater treatment plant. Waste food, particularly FOG can cause significant blockages as they coat, congeal and accumulate on pipes.

These blockages can be in the pipes in your premises and later downstream in the main sewer pipes. The costs to clean these pipes can be quite expensive with one local authority spending roughly €40,000 per annum to clean the sewer network at only one pumping station.

For these reasons food waste and FOG should be prevented from entering into the sewer. A number of steps can be taken to minimise the quantity of FOG entering sewers, including the installation of "Grease Traps".

### How can I reduce the quantity of fat, oil and grease I use in my kitchen?

Changes to menus and cooking techniques can help to reduce the quantities of oils and fats used. Some examples are:

- review your menus to see if you can reduce the number of fried items on your menu.
- can the food be cooked by a different method e.g. grilling, baking, poaching or steaming? Not only does this reduce the quantity of oil but provides a healthier product.
- can the food be pan fried instead of deep fried? Pan frying uses significantly less fat or oil.
- monitor the use of cooking oil and train staff in best practice. Instruct staff to be conservative about their use of fats, oils and grease in food preparation and serving.

Even with small changes to menus and cooking methods, a number of catering outlets in the UK have reduced their oil use by 40 - 50%.

### What are the hidden costs with using fats, oils and grease in my kitchen?

There are a number of costs associated with using fats, oils and grease in your catering facility including:

- new oil purchasing cost
- catering facility cleaning cost
- fats, oils and grease disposal cost
- pipe blockages clearing cost (resulting from a build-up of FOGs)
- costs for the cleaning and maintenance of grease traps



## How do I minimise the quantity of food and oil that enters the sewer system in my facility?

### Never put oil or food directly down the drain.

Collect and scrape all fats, oils and grease (FOG) from ware, cooking equipment and storage containers (e.g. tuna oil). This FOG should be put into a suitable container for recycling. This is essential when washing cooking equipment as UK studies have shown that in fast food restaurants 93% of the oil and grease discharged to the wastewater treatment plant is generated from ware washing. For full service restaurants 75% of the oil and grease discharged to the wastewater treatment plant is generated from the pot sink.

### Make sure all kitchen staff are trained how to use and dispose of fats, oils and grease correctly:

Train staff to put food in waste food containers located near sinks. Explain to staff how failure to do so can block drains and grease traps leading to expensive cleaning costs. Place laminated reminder sheets near relevant bins and sinks and on staff noticeboards.

### A dry cleanup system:

This should be used for the first clean of an area and prior to washing of equipment. Dry cleaning methods not only reduce the quantity of food waste entering the drain but also reduce the quantity of costly cleaning materials and water. Dry clean-up methods include:

- scrape as much of the leftovers on the dish into a food waste container for recovery or disposal
- use rubber scrapers and squeegees and paper towels to remove fats, oils and grease from cookware, utensils, oven dishes, and serving ware
- use food grade paper to soak up oil and grease under fryer baskets
- use brooms or vacuum to sweep up spills of dry ingredients
- use paper towels to wipe down work areas and clean up spills. Cloth towels will accumulate grease that will eventually end up in your drains from towel washing/rinsing\*

### Make sure all sinks have a strainer in the plug hole.

This prevents solids going straight down the drain.

### Never hose materials down the drain when cleaning large areas.

When cleaning floor areas don't hose food and dirt into the drain, even if cleaned out afterwards.

Always use a dry clean system first.



\* However the use of paper towels will increase the quantity of waste in your general bin



### How can I extend the life of the fat, oil and grease I use in my kitchen?

Fats, oils and grease deteriorate as they absorb oxygen from the air and come into contact with water from the food. However there are a number of steps that can be taken to extend the life of your oil. These are:

- Buy quality oil not just the cheapest – get your supplier/potential suppliers to give you an analysis of the oil and then compare on cost.
- Use the minimum amount of oils or fats and keep the oil level low to minimise the quantity of oil used. Use a test kit (rather than eyeballing it) to determine when to change your fryer oil.
- Top up the oil each day to replace the oil used each day.
- Filter or sieve the oil to remove sediment; particles of burnt food can build up either within the oil or on the bottom of the pan. This build up acts as an insulator and creates hot spots which causes the oil to break down faster and burn.

How often you need to sieve the oil will depend on the type of food you fry and the quantity you cook. It is recommended to sieve your oil on a daily basis. Machines are available for filtering large volumes of cooking oils or you can use old fashioned sieves and filter paper for smaller volumes.

- Monitor the temperature of the fryers; extreme temperatures can damage the oil. During quiet periods reduce the temperature of the oil to 100°C or turn off the fryer.
- Heat the oil slowly to the required temperature, over at least a 15 minute period. This prevents burning at the bottom of the fryer.
- Keep food as dry as possible
- Have separate fryers for chips and breaded foods so to minimise the frequency of filtering. Where multiple pans are used for frying similar foods, e.g. chips, a rotation system should be put in place.
- Empty and clean the frying pans regularly

It has been found that by following the above steps the frequency of oil change is reduced and as a result large savings can be made on disposal costs.





## Best Practice For The Operation Of Grease Traps

### Make sure the trap is sized correctly:

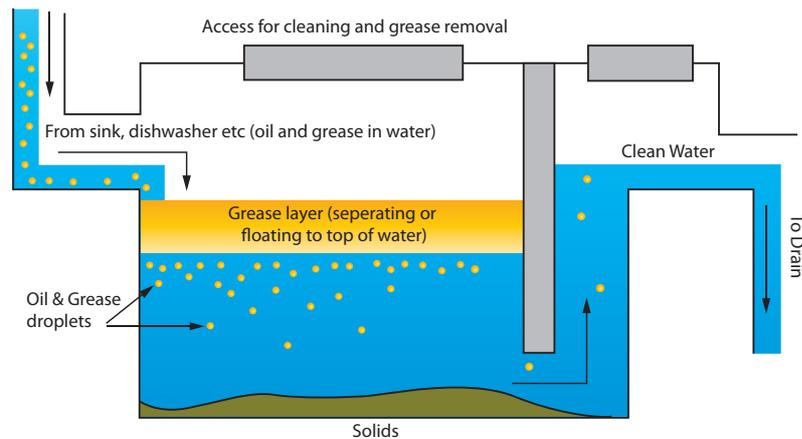
If the unit is too small to handle the volume of effluent, the water will not stay in the trap long enough (retention time), and the collected FOG will be flushed to the drain.

### Ensure all relevant drains are connected to the grease trap:

Drains which should be directed to the grease trap include: wash sinks, dishwashers, prep sinks, utility sinks, pulpers, can washers and floor drains.

### Place the grease trap in the right location:

Water from dishwashers and sink outlets is generally released at a temperature of 40-80°C and needs sufficient time in the pipes to cool to allow the FOG to separate from the water. If the trap is located too close to the sink the FOG will be flushed through the trap and will separate further down the drain. Make sure the grease trap is also easily accessible for cleaning and maintenance.



### Never hot flush grease traps:

Never try to dislodge materials by running hot water down a drain. This flushes the FOG through the grease trap.

### Clean and maintain the grease traps on a regular basis:

As this is a dirty job it can be neglected by staff. It may be more convenient to pay a contract cleaning service to undertake the cleaning. Ensure that any FOG that is collected during cleaning is disposed of correctly.

### How do I responsibly store and dispose of waste fat, grease and oils?

Remember it is essential to keep your waste fat, grease and oils separate from your catering and kitchen waste streams. Store the waste FOGs in a suitable location away from drains.

- Buy oil in bulk and use the containers for waste FOG. Buying in bulk reduces the packaging waste, but also reduces the number of containers filled with oil in your facility. Too many containers can be a safety hazard.
- Have your waste oil collected by a licensed and reputable recycling company. Remember your supplier may take back your oil for free. Phone around to get the best deal including free containers and free pickup.

- Make sure that you have a contained and leak proof storage area for the storage of new and used oil. This is called a bund. The bund will contain any oils that leak from the container. The bund should be able to contain 110% of the contents of the containers. Bunding prevents the damage associated with spilt oil, including loss to drain, lost product and possible injury due to slippage. Make sure you have a spill control kit to allow for swift cleanup if spills occur.
- Have the used oil storage area and containers cleaned regularly – include this in your cleaning schedule.
- Do not take used cooking oil to household civic amenity sites for disposal in engine oil banks. These sites are not for commercial waste and placing cooking oil in an oil bank will render the entire contents unsuitable for recycling.



Bunded oil container

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