

Reducing food waste IN RESTAURANTS



To the reader

Everyone can agree on the importance of reducing food waste. Throwing food away is a waste of both money and natural resources. Finland is committed to the UN Sustainable Development Goals, one of which is to halve food waste by 2030.

Food is also an interesting area because it is one of the main factors contributing to each consumer's carbon footprint. Food waste in restaurants is a question of value-added foodstuffs for which substantial climate impacts accumulate throughout the supply chain, beginning from primary production. When food goes to waste, there is no upside to these impacts.

The Finnish Hospitality Association MaRa has taken part in projects run by the Natural Resources Institute Finland (Luke) known as the Food Waste Monitoring and Road Map project and the Food and Waste Monitoring project. These projects aimed to improve the monitoring of food waste and edible food waste and study ways of reducing these forms of waste in the food supply chain. MaRa is a member of Hotrec, the European hospitality and tourism association, which has highlighted the work done to combat food waste. These are among the factors providing MaRa with the impetus to help its members to reduce waste in tangible ways.

This guide takes a practical approach. However, it is not just a list of tips or advice; the guide seeks to offer the tools for analysing this issue and integrating it into the activities of a restaurant. Every company and establishment is different, so the methods for reducing waste must be planned for each location individually.

The guide is intended for the people in charge of a restaurant's operations and food production: owners, restaurant managers or head chefs. Reducing food waste is a joint effort, so it is a good idea to go through most of these things with every member of staff.

The guide comes with "room decorations", which can be printed and used as posters or signs on surfaces such as kitchen walls to remind the staff of the actions they should take.

Some of the matters covered in this guide are intentionally repeated in different sections. Reducing waste is the sum of many parts, covering the entire food production process in the restaurant. Every factor influences the overall outcome, so many things are difficult to categorise under a single heading. Moreover, we wanted to create a convenient reference guide so the reader can easily pick out the most interesting and relevant points for their own work.

For the sake of simplicity, the guide commonly refers to "restaurants" to mean service locations of all types – cafés, catering companies and other companies producing food – and, hopefully, the guide can be applied to the needs of such establishments.

The guide was prepared by a working group with representatives of the following member companies: *Sanna Pekkinen*, Compass Group FS Finland; *Miia Kinnunen*, Food & Events / Restel; *Vesa Viitanen*, Hesburger / Burger-In Oy; *Pasi Tuomiranta*, ISS Palvelut Oy; *Marja-Leena Holopainen*, Sodexo; *Tuomo Keskinen*, SOK MaRa chain management; *Sari Siukonen*, Unica ravintolat. In addition, Kespro's *Mia Haavisto* assisted the group as an expert representative. Luke, Motiva and the Finnish Food Authority have commented on the guide. *Jonathan Rhodes* has translated the text from Finnish. MaRa would like to thank everyone involved in preparing this guide.

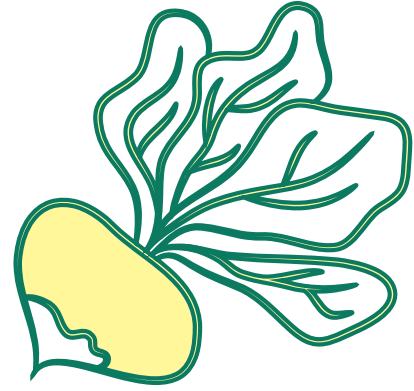
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Contents

To the reader	2
What is food waste?.....	4
How much waste does a restaurant generate?	6
Measuring and monitoring waste.....	7
Monitoring the value of waste	11
How to uncover the root causes of waste	12
Estimating the food used	14
Estimate of food used.....	14
Menu.....	15
Recipes and production process	16
Purchases	17
Storage	18
Production	20
Service	22
Customer expectations and influencing choices	24
Communication and visibility.....	26
Staff	27
Making use of leftover food	28
Appendices	
“Room decorations” for staff information.....	31
Label templates for storage.....	41

What is food waste?



► The word “waste” is used as a synonym for “food waste” in this guide.
In this guide, “food waste” refers to food that was intended for human consumption and was originally edible but is not ultimately consumed by humans.
The word “waste” is used as a synonym for “food waste” in this guide.

In this context, “waste” does not include the factors that were not originally edible, such as vegetable peels and coffee grounds. The difference is not set in stone: many raw materials can be used to different extents.

In business terms, waste may also encompass all food that is purchased and prepared for sale to customers but is not sold. However, unsold edible food may be donated to food aid organisations, for example. In this case, it is not considered food waste as defined above.

The terms “unidentified waste” and “inventory discrepancy” are also related to waste. Both terms refer to a situation in which raw materials are used in greater quantities than the recipes indicate, leading to a mismatch in the inventory and necessitating additional purchases of raw materials. In line with the definition above, this only becomes food waste once a customer leaves surplus food on their plate or the food is otherwise thrown away. This is important from an economic point of view because even small differences can lead to large losses if they are allowed to compound.

The key is to ensure that everybody within the same company has a clear understanding of what is meant by “food waste”.

[See the notes from the Natural Resources Institute Finland \(Luke\) on the definition of waste.](#)

Definitions of terms related to food waste:

- **Edible food waste** = originally edible food which is not utilised for human consumption, feed or other value components (Finnish national definition).
- **Organic kitchen waste** = parts of food that were originally inedible or factors generated during food preparation, such as used coffee grounds, bones and vegetable peel
- **Food waste** = edible food waste + organic kitchen waste
- **Organic waste** = food waste + garden waste
- **Biodegradable waste** = organic waste + other biodegradable waste, such as paper and packaging

This guide uses the colloquial term **biowaste** to refer to the contents of an organic waste bin. In practice, this refers to all types of biodegradable waste.

The types of food waste

The types of food waste from a restaurant are often categorised as follows:



Kitchen waste: food that is directly thrown away from the inventory (for example, food of defective quality and expired food) and food that becomes waste during kitchen preparation



Service waste: food that is placed on service or prepared for service to a customer but is not ultimately consumed



Plate waste: leftovers on customer plates

Waste is often expressed as a **waste percentage**. This figure indicates how much of the prepared or purchased food is wasted. In order to calculate the waste percentage, the weight of the food prepared within a certain period is recorded, and the food thrown away during the same period is weighed. The ratio of waste to prepared food gives the waste percentage.

Techniques for monitoring food waste are discussed in more depth on pages 7–10.

How much waste does a restaurant generate?

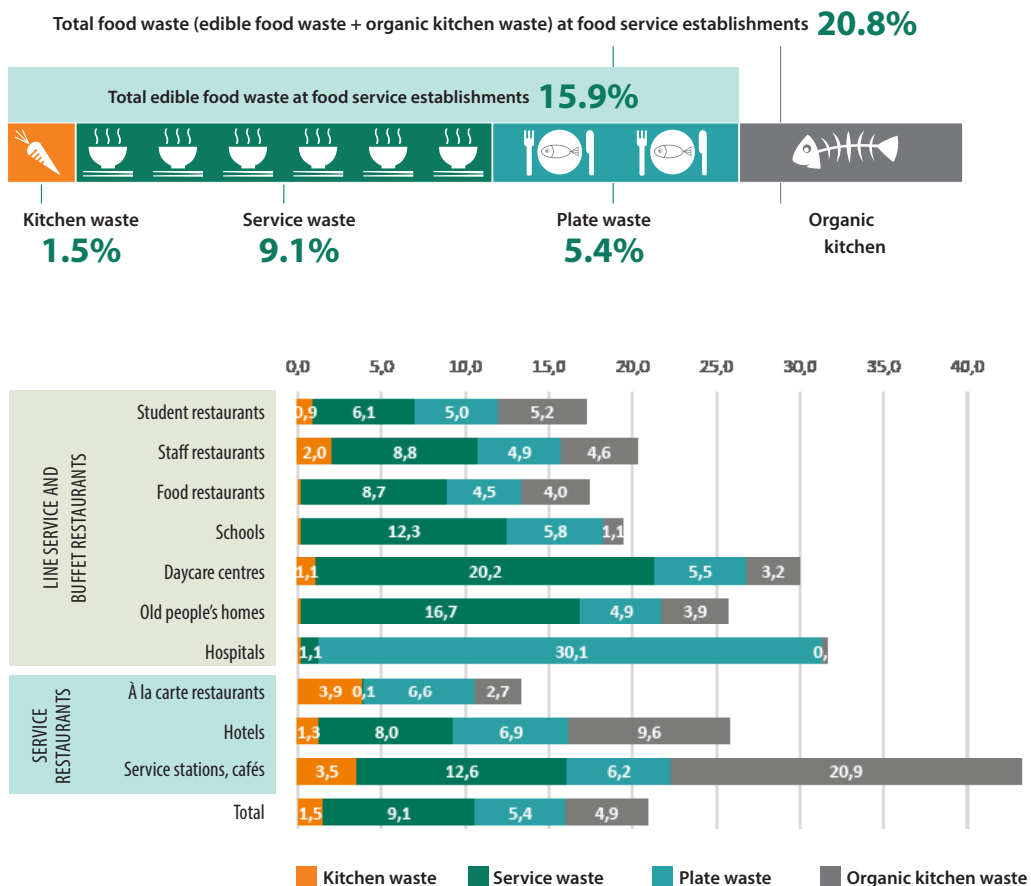
Every restaurant is different, so the volumes of waste generated by different restaurants cannot be directly compared. If raw materials are purchased as ready-made components or in a highly processed form, restaurants have little or no kitchen waste. In this case, however, the waste moves to the preceding link in the food supply chain, which is the preparation kitchen or the food industry.

If a restaurant prepares food from the base ingredients from scratch, some waste will inevitably arise. In the case of takeaway sales, customers' leftovers are beyond the scope of the restaurant's food waste; they become domestic waste.

According to a study by the Natural Resources Institute Finland (Luke), the average waste percentage at food service establishments (including schools and other institutional kitchens) is 15.9% of all prepared food. Most of this percentage (9.1%) is due to service waste.

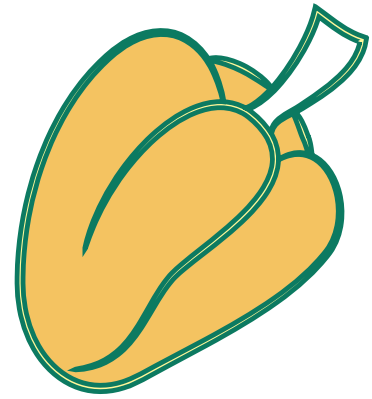
The sectors with the highest waste percentages are daycare centres and hospitals. Service stations and cafés generate a lot of organic kitchen waste that is not originally edible food and is not, therefore, counted as food waste.

[The Luke study report presents the average quantities of waste in food services](#)



Source: Luke 2020

Measuring and monitoring waste



Before waste can be reduced, it must first be identified. Accurate information can only be obtained by measuring waste. Measurement helps employees to gain a proper understanding of waste. Other benefits include the ability to monitor how changes in the menu affect the amount of waste.

Waste percentage =
weight of waste / weight of
prepared food

Other indicators:

waste / portion (grams)

waste / customer (grams)

What is monitored?

The measured result is often expressed as a waste percentage. The waste percentage is calculated as the ratio of the weight of wasted food in a given period, such as one day or one month, to the weight of all the food prepared in the same period.

In addition to the weight, it is also possible to monitor units wasted. This can be useful for monitoring inventory losses by counting the number of packages of raw materials that are wasted in relation to the total number purchased.

When restaurants take action to reduce waste, it is important to set a target for the reduction. The target may be expressed in the form of a change in the waste percentage: for example, our food waste will decrease from 18 per cent to 16 per cent over one year. The target may also be tied to the company's turnover. This is covered in the following chapter.

The target should be presented to the staff, and they should be encouraged to start by making small changes. The first target may be to measure waste in order to obtain a baseline figure.

How to get started

- Set a target for reducing waste.
- Start by taking small steps.
- Present the target to the staff.
- Monitor waste regularly.

Waste can be monitored in categories. For example:

- According to **where the waste is generated**
 - Kitchen waste (kitchen, storeroom)
 - Service waste (food served on a line or in a buffet)
 - Plate waste
- According to the company's **departments** or **functions** (e.g., buffet, à la carte and display cabinets)
- According to the **type of food** or components of dishes (e.g., main courses containing meat, vegetarian main courses, energy supplements, salad)

▶ **The key is to monitor waste regularly.** This ensures that monitoring becomes part of the staff's routine and is integrated into their everyday work.

Accuracy of measurements

Measurement becomes more complex when more accurate results are required. That is why it is important to identify **a suitable level of accuracy for your business**. A suitable level is one that provides a good sense of the waste generated by the establishment and can be measured regularly. It is possible to measure most forms of waste with reasonable effort. Facilitate the adoption of measurement routines by using tools that suit your business.

The benefit of **continuous measurement** is that it becomes possible to track the functionality of the monitoring itself. If the amounts of waste are unusually low and there is no obvious explanation for it, there may be cause to suspect deficiencies in the monitoring or recording of waste.

In order to correctly identify the baseline amount, it is generally recommended to measure waste accurately for a period of time. In such cases, it is possible to measure and record how much of the overall food waste/biowaste was originally edible food waste. From then on, it is often possible to measure only the total amount of biowaste and use this to estimate the amount of food waste.

One alternative may be to have a one-week measurement period twice a year when the business takes precise measurements of all the food wasted. After that, it will be possible to gain an understanding of the trend by comparing the results with previous measurements. However, getting started always requires a certain amount of effort, so there is a risk of missing some measurement periods. It is often easier to take simpler measurements or estimates of waste on a continuous basis.

A separate measurement period could be used when the business takes action to reduce waste, for example. Measurements could be taken before and after the change to gauge how effective it was. In such cases, the business may choose to measure the specific area affected by the change.

If the business usually monitors only the total weight of biowaste and estimates the amount of food waste, it may choose to use occasional measurement periods to check whether the estimate is correct.

Consider the following

- What type of measurement will paint an adequate picture of your establishment's activities?
- Which indicators will you monitor constantly?
- When and under what circumstances should you take more accurate measurements?
- Who will take the measurements? How will you train the staff so that everyone understands and commits to the matter?
- What is a sensible amount to invest in measuring waste? How much working time should be allocated to it? How much will it cost to purchase waste apps, scales and other necessary items?
- How can measurements be integrated into business routines?
- Have the measurements revealed any clear areas where waste must be reduced?
- How will you monitor trends? Over which periods will you compare the results?

Measuring tools

Measurements can be taken using, for example, a waste app on a tablet. These are generally considered easy to use, and they provide graphical visualisations of the results. The features included in enterprise resource planning software or point-of-sale/inventory management systems may also be used as a measurement aid. Smaller-scale businesses may also record their measurements using forms and spreadsheets, or even on paper.

In the future, smart scales will probably facilitate measurement and recording and reduce the amount of working time consumed by such activities. Smart scales – some of which are connected to a self-monitoring system – are now available from various manufacturers and are used by companies. Smart scales may be a good investment for businesses operating with large volumes of food.

How to measure

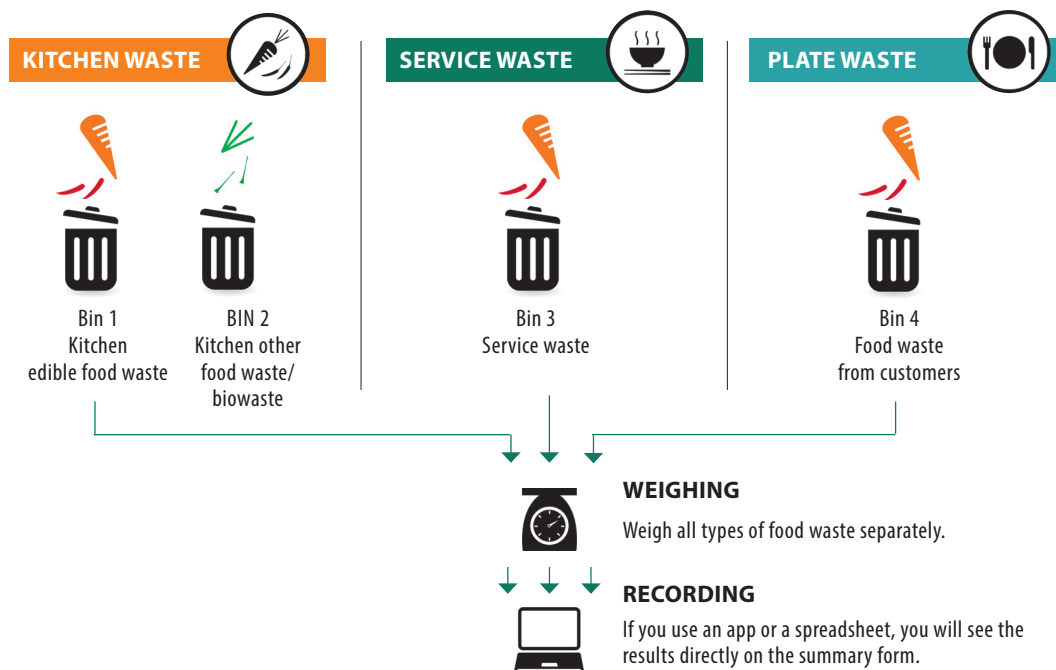


- 1 Record** the amount of food prepared during the measurement period (e.g., one day) or extract the data from systems according to the recipes.
- Record the quantities in kilograms, portions or units (e.g., products in display cases).
 - If necessary, measure the weight of an individual portion or unit in order to calculate the total quantity.

- 2 Weigh** the food that is wasted.

Alternative A: weigh food in bins

- Use separate waste bins for edible food waste and other food waste/biowaste.
- Use separate waste bins for each type of waste and label the bins clearly. E.g., kitchen waste, service waste and plate waste, if you are monitoring all three. Weigh the bins and tare the scales.
- Weigh the contents of each waste bin before emptying it.
- Record the amount of waste.



Alternative B: weigh the preparation containers

This is suitable for small kitchens that cannot purchase scales for weighing waste bins.

- Weigh the GN containers or other preparation and service containers in regular use.
- Tare the scales.
- Weigh the wasted food in the container.
- Record the waste before emptying the container into the organic waste bin.

- 3 Calculate** the results.

- Compare the amount of wasted food with the amount of prepared food.

Waste percentage = weight of waste / weight of prepared food



- 4 Remember** the following:

- Prepare clear instructions.
- Train the staff involved and delegate responsibility.



Monitoring the value of waste



The number of kilograms alone does not say much about the significance of waste to the company's finances. In order to discover the true impact, the business needs to know which products and raw materials are being wasted. The company can identify the most harmful type of waste by calculating the value of the wasted food as a proportion of turnover, and it can then focus on reducing this specific type of waste.

The company may also set itself a target for the **waste percentage in proportion**

to turnover or waste thresholds that must not be crossed. If a threshold is surpassed, the company needs to take action. It is important to note that **lower limits should also be set**. If the lower limit is regularly crossed without a clear reason, it may indicate problems with the monitoring and recording of waste.

The company may monitor the values of raw material waste and product waste (finished products) as a proportion of turnover and specify permitted ranges for these types of waste.

When calculating the value of waste, the company must also decide how accurate the numbers need to be. If necessary, the company could decide to monitor the value of waste within certain product groups. For example, in order to calculate the precise value of waste from a salad buffet, it would be necessary to record each portion of salad taken to a table and the amount of each portion wasted before comparing the prices of the two. This would provide accurate information, but the procedure would be

too cumbersome and laborious to implement over the long term. Alternatively, the company could calculate the average price of a salad and estimate the value of the waste accordingly. Information with this level of accuracy can be useful, especially when the products, such as different types of salad, have similar prices.

Example:

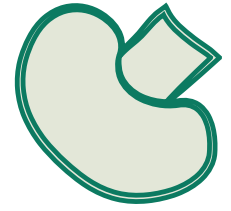
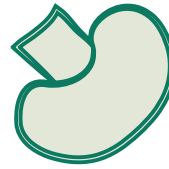
Waste as a proportion of turnover:

The following shows the target ranges for waste in different types of operations in a chain company. The figures are expressed as proportions of turnover. The amount of waste is different in every company and varies according to the company's activities.

À la carte	1–2%
Buffet	2–3%
Café/display cases	1.5–2.5%
Drinking establishments	0.5–1%
Breakfast	1.5–3%

Consider the following

- Which indicators of the price or value of waste will be monitored at your establishment?
- How accurate will the monitoring be?
- Where do the most expensive types of waste arise? What can be done to reduce this waste?
- What will be the costs of reducing waste? For example, purchasing equipment or using working hours.
- How can the financial impact of waste be illustrated in order to motivate the staff to reduce waste?



How to uncover the root causes of waste

Food waste in restaurants usually consists of small streams of waste, so businesses need to take note of many things in order to reduce waste. Moreover, the means of reducing waste must be tailored for every restaurant.

However, most companies have a few things in common:

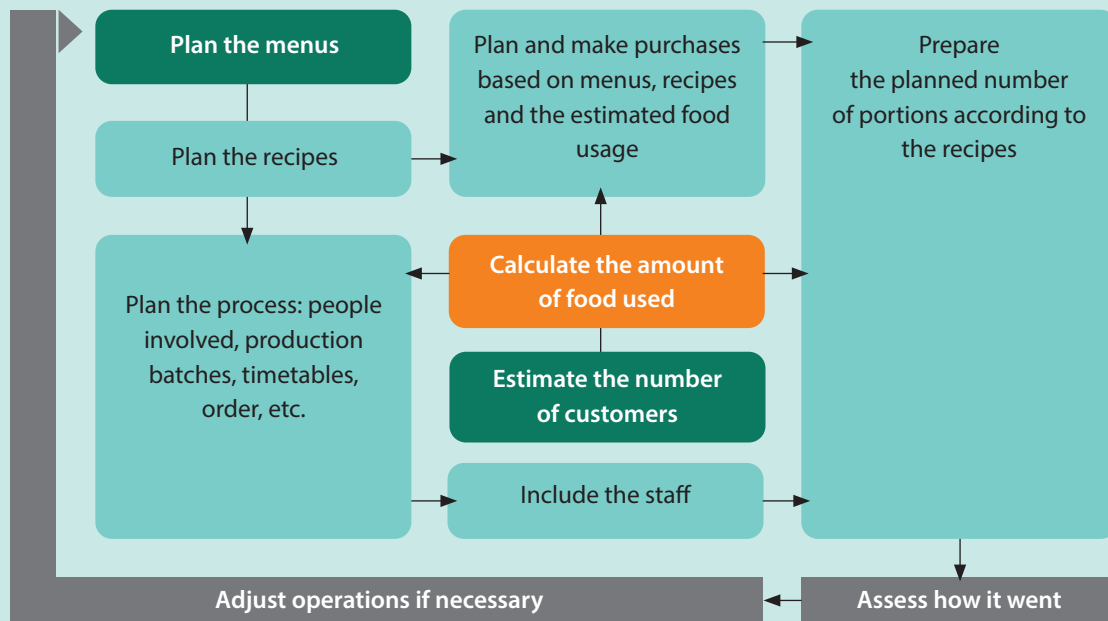
- 1. Before waste can be reduced, it must first be identified.** It is important to determine the baseline amount of waste in the business at the outset and to compare future results with this figure.
- 2. Waste reduction is all about planning.** In many restaurants of different types, waste reduction can be outlined according to the same steps:
 - Estimate the number of customers and calculate the amount of food used
 - Plan the menus
 - Plan the recipes and the overall production process
 - Plan purchases based on the above
 - Include the staff and delegate responsibility
- 3.** An excellent way of reducing waste is to provide good food that the restaurant's customers enjoy.

The diagram on the next page shows the planning of operations from the perspective of reducing waste. The starting points are to estimate the number of customers and plan the menu. Activities are monitored and adjusted if necessary based on the actual amount of waste.

Consider the following

- Can plans be made for the unexpected?
- How can plans be changed quickly if there is a risk of food being wasted due to, for example, broken equipment?

Planning operations from the perspective of reducing waste



Estimating the food used

In order to purchase and prepare the correct amount of food, it is necessary to **estimate the number of customers and the amount of food required per customer as accurately as possible**. This is not easy because the amount of food used varies from one day to the next, and many factors may influence customer behaviour. However, a reasoned estimate is better than pure guesswork. By monitoring the estimates of the amount of food used, it is possible to analyse the reasons for deviations and, therefore, to improve future estimates.

Historical data from the point-of-sale system could be used as a basis for estimating food usage. In addition, it is worth considering any other factors that could affect sales.

► For example:

- Known customer bookings: what types of groups are coming? How do they compare with an “average customer”?
- The restaurant’s actions: marketing, sales campaigns, special offers, new products, etc.



- Sales in the preceding year: how much was sold in the same period last year?
- Sales per weekday: how much was sold on the same day of the previous week(s)? How do the weekdays differ from each other?
- Annual periods that recur at slightly different times: public holidays, school holidays, etc.
- Individual events: public events, festivals, tournaments, conferences, etc.
- Competitors’ actions, other changes in the operating environment
- Weather forecasts
- Trends, fashions, fads, influences: is something undergoing a systematic change? Which innovations might arrive from around the world?
- Unforeseen events, such as the coronavirus epidemic. Can unforeseen events provide any lessons for the future?

Tools already exist for estimating food usage via machine learning to collect data over a longer period with the aim of producing better estimates.

- ## ► It is important to identify customer flows:
- for example, at lunch, the peak times usually occur around the start of the service period. The number of customers will inevitably fluctuate, so it is worth thinking about the means of responding to fluctuations in advance. For example, if one product sells out, how can you quickly replenish it, and which product could replace it?

Menu



Listening to customers and knowing your customer base are essential factors in planning a menu. Every restaurant is different, and it is important to offer food that your customers like.

It is a good idea to have a sufficiently limited menu in order to minimise waste. However, the menu should be extensive enough to ensure good sales. One way of offering more variety is to offer foods that include the same raw materials and prefabricated products at a suitable rhythm and to favour ingredients that are suitable for a wide range of foods.

Using seasonal ingredients in addition to standard products can provide the menu with variety. It is also environmentally friendly and reduces costs by avoiding expensive products imported from far away.

It is generally a good idea to maintain balance in the offering – the selection of products on sale at any one time – by offering products that customers consider to be equally good. For example, if you serve two main courses in a buffet, they should be as attractive as each other. This makes it easier to anticipate and estimate food usage. Marketing and communication can also have a positive influence on customers' choices in terms of reducing waste.

Before planning the menu, it is a good idea to consider whether any leftover food could be used later on – for example, as an ingredient in another dish. If permitted by the business concept and operating methods, the menu may be adjusted

so that the extra raw materials are used up. One way of achieving this is to use a rolling menu. Even classic dishes could be modified by changing the accompaniments. It may be possible to include a separate “food waste dish” on the menu in some restaurants.

In staff restaurants, it is a good idea to negotiate the scope of the menu with the customer company. Reducing food waste has been an important topic of societal debate in recent times, and it may rise in importance in the future, at least in public-sector contracts.

Keep the following in mind when planning the menu:

- A suitably diverse, suitably limited menu
- Equally good alternatives on offer
- Consider how leftover food could be used later on

Consider the following

- How could you alter your menu to reduce food waste? (For example, replace one type of food with another.) At what stage should this take place? What could trigger such a change? What will be changed in such cases?
- How will the actual amount of waste be taken into consideration in the future when the menu is altered?
- What will you do if you sell out of one of the dishes on your menu? What will customers think of your approach? Can you influence customers' opinions in such a case?

Recipes and production process



It is important to operate according to a plan in order to minimise waste. **Plans are based on recipes.** Recipes may include:

- Information about the products prepared at every restaurant
- Ingredients of products and precise quantities
- Equipment used to make the food, cooking times, device programs
- Order of work, description of procedures and other operating instructions

Clear operating instructions prevent errors, thereby reducing kitchen waste. It is also important from a financial perspective to keep to the quantities stated in recipes.

By following standardised recipes

- the right amount of food will be prepared
- the portion size will be correct
- there will be fewer preparation errors
- the inventory balance will be correct, and ordering will be easier
- forecasting will be easier

Using too much of the raw materials will give rise to an **inventory discrepancy**: the stock of certain products will be lower than it should be. Leftover food that customers are unable to finish will become plate waste, causing unnecessary costs. On the other hand, customers may be dissatisfied if the portion sizes are too small. This is why it is important to monitor compliance with recipes and instruct the staff as necessary.

It is a good idea to plan recipes to allow for preparation in batches so that batches of different sizes can be prepared with ease if necessary.

When preparing recipes, it is a good idea to consider which ingredients can be used in different products. Rare ingredients that are only suitable for

a single product should be avoided, especially if they are only available in large batches.

It is also advisable to consider when to use unprocessed fresh products and when to use industrially prepared products. Fresh products require careful storage, but they can be suitable for use in a wide range of different products.

Based on the recipes, the business can prepare a **purchase list** for buying raw materials. If you alter any recipes, remember to update the purchase list.

Consider the following

- How can you make the same ingredients look and taste different in different dishes?
- Do you use ready-made and semi-ready products or products prepared in-house? How do such products affect waste?
- How do you make the most of your staff's creativity? The staff may feel that their creativity is being stifled if they have to stick precisely to recipes. It is important to harness employees' ideas at the recipe planning stage; once the recipe is finished, it should be followed.

Purchases



▶ Systematic purchasing reduces waste. The inventory ties up the company's money, so it is **advisable to buy only the necessary raw materials in the quantities required at the time.**

Use the correct purchasing rhythm to optimise the size of the inventory. Frequent small deliveries will end up being more expensive than large ones, but small orders enable the restaurant to react to changing circumstances. The size of the storerooms also affects the amount that can be ordered at one time. Compare suppliers based on how well their delivery schedules and package sizes correspond to the restaurant's activities.

Purchase carefully

- Only buy things that you plan to use. Make use of purchasing lists based on recipes and food usage estimates.
- Make purchases in the correct rhythm. Take into account your storage capacity.
- When you buy seasonal or complementary products from suppliers such as small local companies, alter the wholesale order list accordingly.
- Be thorough, check the quantities and watch out for decimal errors.

For example, if the business is running a sales campaign, it must order a large quantity of goods for the inventory, but it can be difficult to forecast sales. In such cases, it is especially important to consider the shelf life of the products.

It is important to check that everyone who places orders knows the company's ordering policy and complies with it. It is also important to ensure that information is passed from the supplier to the people planning the menus in the establishment so that they can take account of any supply problems and changes in raw materials.

Automated ordering can help to reduce waste by eliminating human error. Modern enterprise resource planning systems propose "shopping baskets", but the actual situation should always be checked before

ordering. The most important aspect is to know your own sales and plan purchases accordingly.

Consider the following

- How will you alter the menu if you do not receive an ingredient that you ordered? If you switch to a different dish, how will that affect the use of other raw materials?
- Division of labour and responsibility: who in the company makes purchases? Are the ground rules clear for everyone?

Storage



Products should only be kept in the inventory if there is a clear plan to use them: when and how will the product be used? In addition to the cost of purchases, storage is also an expense.

The process of receiving and unloading goods should be planned in advance, and the necessary staffing should be taken into consideration. Reception inspections must be carried out systematically, and a complaint should be sent to the supplier if there are any incorrect products.

Products should be stored in a way that makes it easy to keep track of the inventory at all times. Try to arrange them so that they do not obscure other products.

The use-by dates should be easy to read. New products should be placed at the back, with older products in front, so that the first products purchased or the first to expire are used. It is a good idea to check the inventory at regular intervals, even if the contents are monitored continuously.

The contents of opened packages will spoil in the same way as an unpackaged product, so mark the date of opening on the package. The name and date should be written on products

that are prepared or prefabricated in-house.

The shelf life of foods that will soon expire can be extended by freezing them before

Remember these things concerning storage:

- Check deliveries and put chilled foodstuffs into the storeroom immediately.
- Designate places for specific goods in the storeroom and keep the goods in the same places.
- Arrange and use the products in line with the:
 - FIFO (first in, first out) principle and/or the
 - FEFO (first expired, first out) principle.
- Protect unpackaged foods using lids or plastic wrap.
- Mark all the necessary information on products.

Labelling products for storage

Mark the following information on products made in-house/prefabricated products/frozen products/opened packages:

- Name of the foodstuff
- Quantity, if necessary
- Use-by date You can also use the production or packaging date: it is important to be consistent and clearly indicate which date is on the package.

A **label template** is appended to this guide (p. 41) for printing on an A4 sheet.

the use-by date. There must also be a plan for using frozen products. Products should be frozen as soon as it becomes apparent that they will not be used immediately. Mark the name of the foodstuff and the date on the packaging.

For more detailed instructions on reception inspections, storage and freezing, see [MaRa's food self-monitoring guidelines](#) (scroll down the page to see the [English version](#)).

Consider the following

- Are the package sizes suitable for the storage space?
- Are all the staff aware of the ground rules for storage? For example, what should employees do if they notice that a product in the inventory is due to expire soon?

Production



Planning

Food production begins with a process plan. **The key is to estimate the correct quantity at the correct time:** do not make too much too early. The batches of food to be produced at various times during the day should be planned in advance. In addition, it is important to specify the work phases, the order of work, the equipment required, the cooking times, the staff and the division of labour. The recipe includes some of this information.

Plan

- What?
- How much?
- When? → Times and batch sizes
- Who?
- Which methods?

It is a good idea to use the automatic features of equipment to help reduce kitchen waste. Use the correct temperatures and cooking times to reduce evaporation and burning. Different recipes and products should be programmed into the ovens separately.

Batch cooking

Batch cooking is an important way of reducing waste, especially when producing large quantities. In order for batch cooking to be effective, the customer flows and food usage should be monitored throughout the day.

Timing has a significant effect on the quality of food and on waste. Batch cooking and planning require professional skills, but once it becomes a routine, it is less demanding.

Cooking in batches is necessary, at least when:

- the service time is long
- a lot of food is prepared in relation to the capacity of the equipment
- the quality of the product demands it

During the lunch service, the peak usually occurs at the beginning of the lunch time, with fewer customers arriving later on. Therefore, smaller cooking batches and containers should be used towards the end of the service hours.

If batch cooking is unnecessary or impossible – for example, due to the short service hours or lack of staff – dishes can be finalised and served gradually.

Food that has been stored in the kitchen and has not been on service may be used later if the quality permits this. In general, food should be chilled as soon as it becomes apparent that it is not likely to be needed immediately. If necessary, the food can be heated up and used the same day.

Prefabrication and processing of raw materials

Using prefabricated components can boost efficiency. They provide extra leeway at peak times, and making food in larger batches saves time. If prefabricated products are not consumed during the day, they can usually be used later on, if necessary, in another product. However, the downside is that if a product is thrown away, the working time used to make it is also lost.

Cold proofing as a baking technique also improves time efficiency. Bread can be made at a quiet time and baked when it is needed.

Using bought-in ready-made components and highly processed raw materials usually leads to less kitchen waste. However, the waste is transferred to the previous link in the food supply chain. The amount of processing depends on the nature and operating method of the restaurant. In some cases, waste has been found to decrease when a restaurant switches to serving homemade products, as customers prefer products made from scratch.

Processed raw materials can also be used to prepare extra batches throughout the day according to the rate of food usage. Fresh, unprocessed raw materials can be used during the morning preparations for the lunch rush or at other less busy times of the day.

Examples of the reuse of waste materials

- Vegetable leftovers, cabbage cores, broccoli stems for puréed soup
- Vegetable snacks in the oven
- Vegetable spreads and pickles
- Fruit purées and compotes
- Ice creams, smoothies, sorbets
- Bread: breadcrumbs, cakes, croutons
- Porridge: for bread dough
- Pasta, unpeeled boiled potatoes, rice in salads

Careful use of raw materials

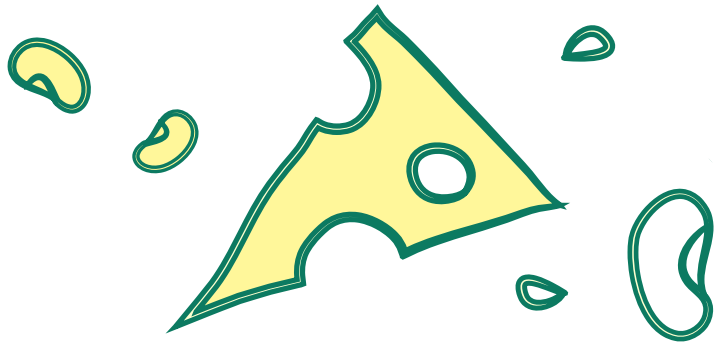
Raw materials should be used as carefully as possible. For example, vegetables can be peeled more carefully, and the contents of packages can be used to the full. A new package should only be opened once the previous one has been used up completely.

Leftovers from the preparation process, such as stalks and peelings, can be used for purposes such as making stocks and sauce bases. Leftovers that are still in flawless condition can also be used to make entirely new products. However, it is worth considering whether further processing makes economic sense and suits the restaurant's operations.

Consider the following

- How is food usage monitored throughout the day in your establishment?
- How do you schedule food production?
- How does the amount of processing of raw materials affect waste in your establishment?
- Do you produce or prefabricate products in advance and keep them in storage?
- How does the careful utilisation of raw materials fit into an efficient food production process? When is it worthwhile? Is it possible to calculate the price per kilogram of the extra raw material usage?
- How do you take into consideration ideas from employees about using ingredients that may otherwise spoil?

Service



The type of service affects the amount of waste and the means available to reduce it. On average, service waste – food that is served, for example, in a buffet but not consumed – is the largest type of waste that restaurants generate. However, this varies. In some cases, overall waste has been found to decrease when a lunch restaurant switches from plated portions to buffets: salads no longer get discarded when the main course arrives.

It is important to monitor food usage throughout service hours. If possible, extra products should be prepared in small batches according to usage. It is worth making an advance plan of what should be done at which times if:

- waste appears to be arising, or
- a certain product is running out.

Customer choices can also be influenced from a waste perspective, for example, through recommendations, pricing and the order in the buffet.

Buffet service



Products are placed on service according to usage. This also makes it easier to comply with the service periods and temperatures required by law. It is advisable to optimise the number of alternatives served at one time. The buffet should look sufficiently full throughout the service period, although the colours and materials of the service containers can also create the impression of an abundant buffet while reducing the quantity of product required.

The placement of products in the buffet influences customer behaviour, so it is also a means of affecting the amount of waste. The service containers on display at the start of the buffet line are usually the ones that customers choose first. Therefore, if the restaurant would like a particular product to be consumed in greater amounts, it should be placed first.

Things to try in a buffet

- Optimising the number of alternatives
- Placement of products/service containers: place the products that you want customers to take in greater amounts at the start of the line
- Stop using trays
- Stop using separate salad plates
- Smaller plates
- Smaller service containers, particularly towards the end of service hours
- Using visual methods to create an impression of abundance

Buffet and line service establishments have taken the actions stated in the adjacent list to reduce waste. Before you take similar actions, consider whether they are suitable for your restaurant's operations and how they will affect the business overall, including factors such as the speed and efficiency of service.

Removing trays and salad plates has proven effective in student dining facilities as well as in busy conference service restaurants, where customers value the time savings. The amount of dishwashing also decreases.

Some companies have experimented with pricing based on the weight of meals and even an additional charge for customers who leave food on their plates. The combination of the company's brand and the dining experience determine which actions the customers are willing to accept.

Plate service

It is easy to think that, from a business perspective, leftovers on customer plates are not waste because the portion has been sold to the customer. However, even in this case, the waste reduces the company's profit margin. **The best possible margin and lowest waste can be achieved by optimising portion sizes.** All plate waste also causes unnecessary environmental harm.

One commonly proposed solution for reducing waste in table-service restaurants is to offer portions in different sizes to customers. However, smaller portions can be difficult to price profitably because most of the costs represent expenses other than those of the ingredients.

Depending on the operating method and business concept, the restaurant could allow customers to adjust dishes according to their wishes. For example, customers could choose to add an accompaniment or replace one part of the dish with another.

Some restaurants consider it good customer service to offer a doggy bag for customers to take their leftovers away with them. Customers may also consider a restaurant that allows customers to take their leftovers away with them is one that cares about responsibility and sustainability.

Display cases

The display case must look attractive throughout the entire sale period, with a sufficient selection and the service containers suitably full. If necessary, smaller containers or trays could be used, and products with a longer shelf life could be displayed alongside fresh products. The placement of products and the colours and materials of service containers can also create an impression of abundance.

One way to reduce waste in businesses selling products in display cases is to offer discounts during the last hour before closing. Some cafés also sell products from the day before at a discount.

Consider the following

- How does your establishment monitor the consumption of foods during service hours?
- How do you know if the selection is abundant enough?
- How does the placement of products affect customer choices?
- Which of the waste reduction methods on the previous page are customer-friendly? What are the downsides?
- Do you tailor dishes for each customer in your establishment? Which changes are customers willing



Customer expectations and influencing choices

Customer choices can be influenced through service design when the restaurant's premises are designed. They can be guided to follow certain routes; for example, they can be guided to start at a certain point, and the premises can be designed so as to make it easy to fetch more food.

Another way of influencing customers is through the placement of products in the buffet. The service containers on display at the start of the buffet line are usually the ones that customers choose first. Therefore, if the restaurant has too much of a particular product, this product should be placed first. The order of dishes on a written menu may also make a difference: it has been observed that customers are more likely to order the first dishes on the menu.

The flavour and appearance of foods are naturally important drivers of choices. However, the effect in a buffet may sometimes be different than one would expect: monitoring of waste in school cafeterias has shown that waste can increase on days when the pupils' favourite foods are served.

In school and student facilities, portion sizes can be influenced by displaying model portions or pictures of portions. Many buffet restaurants display signs asking customers to only take as much food as they intend to eat and to fetch more if necessary. A smart scale at the dish return point can indicate the amount of leftover food, motivating customers to waste less.

In a table-service restaurant, it is important to find out what customers want and present the options when they order so as to reduce the chance of selecting the wrong dish. Menus can also include detailed written descriptions of the dishes. It is especially important to mention ingredients that some customers cannot or do not want to eat

and that could easily be left over on the plate, such as blue cheese. It is important to remember to disclose allergens, at least in accordance with the legal requirements. Some table-service restaurants modify dishes according to customer wishes.

Particularly in takeaway sales, it is possible to reduce the potential waste by switching to serving some components of the dish according to the customer's wishes. For example, in fast-food restaurants, the customer could be asked whether they want ketchup and other condiments instead of automatically providing them with every order.

Recommendations and pricing influence customer choices. At lunch time or in fast-food restaurants, businesses can

How to nudge customers:

- Routes and placement in the buffet
- Order on the menu
- Signs to remind customers that they can fetch more if they need to
- Warn customers about allergens and less popular ingredients
- Recommendations
- Ask customers about their wishes
- Reduce the price in time

recommend products that are already prepared, for example, by showing a list of items that can be purchased immediately without waiting.

Pricing can also influence customer behaviour. For example, restaurants could offer lunch at half price in the last hour of the service period or lower the price of products in display cases in advance of the closing time.

In cafeterias based on contractual relationships, communication with the customer company is instrumental in reducing waste. Information is needed concerning holiday times and other changes that affect the number of diners. When negotiating the service content, it is advisable to mention how the number of dishes affects the amount of waste.

Consider the following

- Does the food served in the buffet look as it tastes? Can food sometimes look "too good"? How can you give customers an accurate impression of the food?
- What is a good menu description?
- How do you steer customer behaviour in your establishment?
- When can price reductions be used to guide customers?

Communication and visibility



▶ **Reducing the amount of food waste is a sustainability action, which can boost the company's reputation**, so companies should talk about it. By drawing customers' attention to the matter in a positive way, the restaurant can encourage them to contribute to reducing waste. When the restaurant's managers speak about the importance of reducing waste and promoting other environmental values in public, the matter is also passed onto the staff in a new way.

Habits and values change slowly but surely. For example, shops have been using red labels for discounts on products that are about to expire. In recent years, this has become popular with customers, who consider it a climate action to buy such products and not just a money-saving action. The same mindset can be applied by taking restaurant dishes

that would otherwise be wasted and marketing them as a form of responsible consumption that saves on natural resources. Social norms are also changing, and in the future, taking mountains of food from a buffet may be considered so embarrassing that people will stop doing it for fear of being noticed.

For example, displaying signs at a buffet asking customers to take only the amount of food that they intend to eat can, in the best case, persuade customers to comply. At the same time, the sign serves as a tangible indication that the restaurant is taking steps to reduce

Communicate the reduction in waste

- Offer "waste portions"
- Put up signs
- Make a public commitment

waste and considers it important.

If the amount of waste has already been reduced or is already low, this should be communicated to customers. For example, there could be a sign at the buffet stating the amount of waste in the previous week. Bio scales at the plate return point can immediately inform customers how much plate waste they are responsible for. There are several brands of scales on the market, and users of many brands have had positive experiences. In general, customers have reacted positively. One problem is that most types of scales cannot differentiate food waste from other biowaste.

The restaurant's door or online menu could include a notice that the restaurant is taking action to reduce food waste and, consequently, certain dishes on the menu or products in the selection may be sold out occasionally.

[MaRa's website](#) provides ready-made posters for advising customers on reducing food waste and sorting biowaste. The posters are related to the Love Every Crumb biowaste campaign, which will run throughout 2021.

Consider the following

- How do you draw customers' attention to waste reduction in your establishment?
- Have you displayed signs or other information to customers? Have they had an impact?
- How do you inform customers and others about the work you have done to reduce waste?

Staff



The professional skills, judgement and commitment of the staff are essential for reducing waste. Many employees are already interested in the topic for climate and environmental reasons, and modern-day training raises awareness of the matter. However, restaurant staff rarely have a surplus of time, so **it is essential to make waste reduction a seamless part of working routines.**

It is important to lay down ground rules that are clear to everyone and ensure that everyone is committed to the rules as a part of the company's work culture. The staff should not be made to feel like they are being assigned additional work on top of their existing duties. Instead, waste reduction should be a part of the job description in order to reach the required targets.

Waste reduction is a team effort. Ensure that the related responsibilities are delegated rather than placing everything on the head chef's shoulders. For example,

every cook could have a waste form where they record the waste that arises throughout the shift, and one person then inputs the data into a common system. Keeping the forms on display increases openness and transparency. When the information is in view, the team dynamic will also encourage waste reduction.

Particularly in the early phases of reducing waste, the staff should be motivated by external means. For example, you could arrange competitions, offer prizes, etc. If the amount of waste has not previously been measured and

recorded, the staff may also have some misgivings about it. Everyone knows that waste should not occur, and recording waste makes it visible, almost as if the person recording it is at fault for it. In such situations, external incentives can be a good way of altering attitudes.

If there appears to be room for improvement in the company's operating methods, it is advisable to work together to consider how the situation could be rectified, ensure that everyone understands the matter, and incorporate new operating methods into practical work, so they become automatic.

Staff turnover poses an additional challenge. The principles of minimising waste should be included in the company's orientation for new employees.

How to motivate staff:

- Create clear rules
- Delegate responsibility
- Eliminate fear: waste is not the fault of the person recording it
- Reward people for the desired behaviours

Consider the following

- What are the ground rules for reducing waste in your establishment, as included in the orientation for new employees?
- How is waste taken into consideration in the information flow in your establishment? For example, the flow of information between the dining room and the kitchen: which things must be agreed upon in advance? Which communication tools are used?
- How are the ideas and expertise of all employees taken into consideration in order to reduce waste while ensuring that the ground rules remain clear?

Making use of leftover food

Food that has not been served to customers and has been appropriately chilled can be served later on. It is also possible to freeze food for later use immediately after chilling it.

Leftover food can also be sold to customers as “waste portions”, either directly or through apps that sell rescued waste food.

Waste food or food waste?

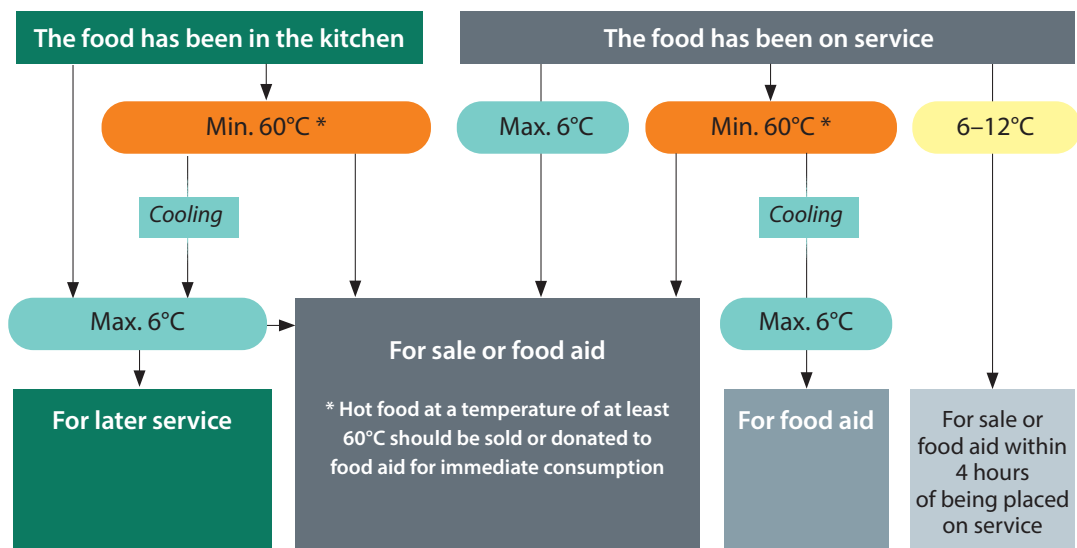
The term “waste food” generally refers to food that is still fit for human consumption but is at risk of being thrown away. It does not necessarily meet all the expectations of commercial food products, but it is edible, so it is typically sold at a discount or donated to food aid.

The terms *waste food* and *food waste* are similar. If there is a danger of them being confused – in other words, if it is not clear whether the food is still in the food supply chain or if it is no longer edible and removed from the supply chain – it may be clearer to talk about food in danger of becoming waste when referring to food that is still in the food supply chain.

Many restaurants have had positive experiences selling via rescued waste food apps. Cooling, packaging and selling require additional work, but, in the best case, they could reduce waste enough to increase the profit margin.

When considering profitability, other factors should be taken into account in addition to the sale price. Selling food that would otherwise be wasted may help to boost the company’s image as an environmentally friendly operator. It can also

For sale or food aid – remember the correct temperatures



be considered a form of marketing, which, in the best case, can bring new customers to the restaurant.

It is also permitted to sell hot food hot and cold food cold directly from a buffet. If cold food is at a temperature of 6–12°C when served, it must be sold or donated to food aid within four hours of being placed on service. Irrespective of whether the food is served hot or cold, customers must be informed that the food has been on service. This is to avoid misleading customers.

Hot food that has been on service must not be sold to customers chilled. Conversely, warm food that has been served the same day may be donated to food aid if it has been chilled rapidly to a temperature no higher than 6°C.

Raw materials approaching their expiry dates may also be donated to food aid. If a product is frozen before the end of the use-by date, it can be donated after the use-by date. However, it is only permitted to freeze cold-smoked or salt-cured fish that is vacuum-packed or packaged in protective gases if the food aid organisation intends to cook the fish once it has thawed. This is due to the danger of listeria infection.

The threshold for restaurants to donate food may be high because food aid organisations would like to receive regular donations and commitments. Food preservation is a further challenge. However, large one-off batches should be donated if possible. These may arise for reasons such as supply errors or last-minute cancellations. It is a good idea to search for the contact details of food aid organisations in advance via, for example, local associations or parishes.

Food donations should be described in the restaurant's self-monitoring plan. When food is donated, the restaurant must state the allergens required by legislation at a minimum, and, if necessary, it should give usage and storage instructions. **Only donate food or sell it as "waste portions" if it is in flawless condition (subject to a sensory inspection).**

Additional information

- Motiva's guidelines on selling and donating waste food: <https://www.saasyoda.fi/ravintolat> (Copy the link into the browser's address bar.)
- [The Finnish Food Authority's food aid guidelines](#) (a PDF is available on the right-hand side of the page)

Consider the following

- How does the sale of waste food affect the establishment's brand? What are the potential upsides and downsides?
- Do these sales affect profitability? How do they affect other sales?
- Do you know any charities or other food aid organisations that would be able to accept restaurant food? What are the requirements of food aid organisations?

Appendices



Avoid waste in the inventory

When you take something out of storage:

- Take the product that will expire soonest
- Only take the amount you need
- Do not open a new package if there is still product left in an open package

When you put things into storage:

- Check the date
- Mark the date if necessary
 - Opened packages
 - Finished products
 - Prefabricated food
- Put the product in the designated place

Check the temperatures

- Take immediate action if the temperature is wrong! This will save food from being wasted.
- Correct temperatures of refrigerators:

Plan the food preparation

- 1.** The key aspects are estimating the quantity and timing:
 - Not too much
 - Not too early
- 2.** Determine
 - Times and batch sizes
 - Work phases and work order
 - Equipment used, temperatures and cooking times
 - Staff and division of labour
- 3.** Be prepared to change the plan if necessary.

Pay attention throughout the day

- 1.** Monitor customer flows and the amount of food used.
- 2.** Prepare food in batches according to usage.
- 3.** Serve food according to usage – not too early.
- 4.** Is some food left over? Cool the food immediately
 - Within 4 hours
 - Maximum 6°C

Follow the recipe

Why should the recipe be followed precisely?

- The right amount of food will be prepared
- The portion size will be correct
- There will be fewer preparation errors
- The inventory balance will be correct, and ordering will be easier
- You will be able to forecast future needs

These actions will reduce waste and make work easier!

Tips for customer interactions

- 1. Guide customers' choices:**
 - Pricing
 - Recommendations
 - Arrangement of the buffet:
more food is taken from the first containers
- 2. Think about what you should say about the food**
 - For example, signs at the buffet:
contains garlic, hot and spicy, etc.
- 3. Ask customers about their wishes:**
 - Does the food contain ingredients that many people do not like? Ask about this specifically.
 - When you sell food to take away, ask the customer whether they need cutlery, sauces, etc.

Save food from going to waste

If food is going to be wasted:

- Sell it via a food waste rescue app
- Or donate it to food aid

Keep in mind the temperatures and times

- **Hot food is served hot: minimum 60°C**
- **Cold food is served cold: maximum 6°C**
- Food that has been served once must not be sold, but hot food can be chilled and donated to food aid on the same day.
- Cooling from 60°C to max. 6°C within 4 hours.

Our partners

(Contact details of food aid organisations):

Sort as follows:

Biowaste

Sort as follows:

Mixed waste

Company's operating

Reduce waste. Keep in mind the following:
