T.C. TARIM VE ORMAN BAKANLIĞI

GIDANI KORU
SOFRANA SAHİP ÇIK

METRO
İŞİN MUTFAĞINDA

GUIDELINES ON THE PREVENTION OF FOOD WASTE AT HOTELS, RESTAURANTS AND OTHER PUBLIC CONSUMPTION POINTS

This guide has been prepared in cooperation with Metro Turkey, T.C. the Ministry of Agriculture and Forestry and the Food and Agriculture Organization of the United Nations (FAO)

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Our purpose

According to the Food Waste Index Report under the United Nations' (BM) Environment Programme, nearly 931 million tons of food was lost or wasted in 2019. While 61% of this amount was wasted at the household level, 26% of total waste took place in food services and the remaining 13% at the retail level.

According to the report issued under the UN programme, which has been carried out in order to reduce global per capita food waste at the retail and consumer levels by half by 2030 and support the global effort for the reduction of food waste in production and the supply chain, including post-harvest losses, food waste is a global issue observed not only in developed countries but also in underdeveloped and developing countries.

BThe United Nations announced that from the point of consumers, 17% of all food prepared for consumption was going to waste in its original form, without being touched. On the other hand, it is estimated that nearly 690 million people are experiencing hunger around the world. Based on the calculation that a person has 70,000 meals on average during his or her life, which corresponds to 25 to 30 tons of food, it is seen that the amount of food wasted is sufficient to feed more than 30 million people throughout their life. The United Nations Food and Agriculture Organization (FAO) and the Ministry of Agriculture and Forestry of the Turkish Republic launched the "Save Your Food – Protect Your Meal" campaign on 20 May 2020 in order to raise general public awareness about the loss and waste of food and mobilize all actors in the food supply chain. Item 1.1.10 of the "National Strategy Document and Action Plan for the Prevention, Reduction and Management of Food Loss and Waste in Turkey" requires the development of guidelines for the reduction of food waste in cooperation with the private sector. These guidelines were developed based on the "Fighting Food Waste in Hotels" guidelines, which were prepared by the WWF, AHLA (American Hotel & Lodging Association) and the Rockefeller Foundation in order to support the efforts made by the hotel, restaurant and other public consumption industries for the prevention of food waste by providing guidance in relation to the challenges in PREVENTING food waste in the industry, DONATING food waste that cannot be prevented, and DIRECTING the remaining part. In addition, the document contains the results revealed by the Food Waste Measurement Project conducted by Metro Turkey at hotels and restaurants.

In this context, these Guidelines were prepared by Metro Turkey, which has put sustainability in the centre of all its operations for 30 years to preserve Turkish cuisine and culture and ensure that it is passed on to the next generation, in cooperation with FAO and the Ministry of Agriculture and Forestry.

In addition to the information provided in these Guidelines, implementation of the "Guidelines on the Principles of Hygiene and Good Practices for Public Consumption Points", which was developed under the coordination of the Ministry of Agriculture and Forestry and published by the Confederation of Turkish Tradesmen and Craftsmen (TESK) in order to support businesses in terms of the good hygiene practices required to be followed by public consumption points to comply with the applicable food legislation and produce and/or offer safe food, will ensure that hygiene conditions can be fully met by businesses and food waste is reduced in a way to support the implementation of these guidelines.

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01 Background Information

Unplanned production and unconscious consumption of food deplete the limited resources of our planet. The most important means available to us for the establishment of sustainable and renewable food systems is to eliminate and reduce food losses and waste and change our consumption habits.

Food losses and waste should be considered as a whole from the field to the point of waste. Around the world, 1/3 of all food produced is wasted[1] every year and 40% of this waste originates from retail businesses including public consumption points such as hotels and restaurants.[2] Wasted food constitutes 10% of the global greenhouse gas emissions[3] and consumes approximately one fourth of global water resources. Preventing and reducing food loss and waste is one of the easiest and most effective ways to reduce the environmental impact of our food system and improve access to food for both people at risk of hunger and the gradually increasing population without increasing agricultural production.

At restaurants and at hotels where the delivery of food and beverages are important parts of the business, while it is very important to offer guests memorable and rich menus, the biggest sources of worry are that food may fall short of satisfying guests and the preferences of consumers are not known in advance. Thus, every actor in this system adds a kind of "insurance" to prevent the realization of this scenario. For example, when a customer states the number of guests as 2 500 for a meeting event, the organizer may consider all the guests to be male adults who will consume all the food served, looking at the main structure of the

group. The chief, just to be on the safe side, may add a 3% safety margin on the number given by the meeting organizer. On the day of event, the banquet manager offers food prepared for a group larger than 2500 people in order to ensure that the buffet seems generous, while the guests heap their plates, worrying that there will not be enough food for them to take a second plate. Due to such measures taken throughout the process, tons of surplus food are produced and served.

In 2018, Metro Turkey conducted a food waste measurement study at certain pilot hotels and restaurants to see at which stages food waste takes place in the hotel and restaurant industry.

The project revealed that the rate of food going to waste from the plate was 65% in all-inclusive hotels, while it was 52% at boutique hotels and 74% at restaurants. Meanwhile, the rate of waste at the production and storage stages was 19% at restaurants and 5% at hotels due to the lack of sufficient storage areas or the inability to know the exact number of guests.

Similarly, according to research carried out by the World Wildlife Foundation (WWF) during an 800-person event, while an average person is known to consume 450 grams of food at a meal, the amount of food prepared per head by the kitchen was 900 grams[4], meaning that nearly **360 kilograms of food was prepared in excess** for just one meal!

01 Background Information

This excess food, which normally could be avoided by the use of menus designed for reducing food waste in ideal conditions, **should be reused in-house by the restaurant or hotel, donated to people in need if reuse is not possible, used as animal feed if donation is not possible, or directed to compost production if use in animal feed production is not possible, while sending it to waste should be considered as the last option only when no other option is available.** Here, 85% of restaurants and hotels admitted that they were adding some kind of safety factor in the amount of food produced, and only 32% of them stated that they were implementing a donation program for excess food.
Yet, many public consumption businesses have internal reuse practices and policies in place for managing some part of this excess production.

Unfortunately, there is no hotel or restaurant in Turkey that has launched food donation operations. We hope that organized food donation operations will be launched by hotels, restaurants, and other points of public consumption in order to prevent food waste in the forthcoming period.

When you start to implement your own food management strategy by benefiting from these guidelines, you are strongly recommended to adopt good practices in food planning, menu planning and food services through innovation.

These guidelines are a document designed to guide you step-by-step in developing an effective recycling program and food management strategy in order to be able to prevent the production of excess food at your restaurant or hotel, reduce food waste, support the establishment of donation partnerships, and keep excess food from landfills.

The guidelines contain the steps to be taken and principles to be adopted for taking the following actions:

1. Establishing a **Food Waste Prevention Team** and develop a **Food Waste Prevention Strategy** to carry out the initiative,
2. Developing a favourable **Sorting and Measurement Plan** that will monitor the waste reduction performance and appreciate and reward the staff for innovations and achievements,
3. Making the staff part of certain tasks and **training** them on preventive action in order to minimize staff-related food waste,
4. **Managing and recycling unavoidable food waste,**
5. Communicating with internal and external stakeholders for the development of **food donation programs.**

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Food is the most vital connection between us and the planet. In addition, food is sacred in our culture since we rely on the sustainability of food resources to be able to survive and continue raising healthy new generations. We have to value food at the level it actually deserves during production, transportation, handling, and consumption, based on its indispensable place in our lives.

If, as estimated, the world population reaches 9.8 billion by 2050, we will need a three-times larger planet to be able to carry on our current consumption habits. In order to meet the food demands of the increasing global population, food production will have to increase by 60% compared to today.

On the other hand, one third of all the food produced, which corresponds to 1.3 billion tons of food, goes to waste every year.

In the EU, it is estimated that 88 million tons of food, with a cost of nearly 143 billion Euro, is wasted annually. Meanwhile, while 20% of the food produced in the EU is wasted, at least 55 million people have to struggle to access a sufficient amount of food.

In Turkey, the amount of food going to waste every year is 18.9 million tons. We know that nearly 50% of all fruits and vegetables harvested is lost or wasted. Every single day, 4.9 million loaves of bread are thrown away. It is estimated that 40% of food waste takes place at retail businesses such as restaurants, supermarkets, and hotels.* (*https://ec.europa.eu/food/safety/food_waste/stop_en)

When we waste food, we also waste the soil, water, energy, and labour used in the production of food.
It is high time to appreciate and consider the value of food.

While food loss and waste is the top global problem when considered with hunger and malnutrition, it also causes enormous economic losses to be suffered by farmers, consumers and all other stakeholders in the food value chain.

01 Background Information

WHY DID WE PREPARE THESE GUIDELINES?

These guidelines were developed in order to guide the hotel, restaurant and other public consumption industries in overcoming the following challenges in the prevention of food waste:

- **PREVENTION or REDUCTION** of food waste at the facility level,
- **DONATION** of food that may be wasted but can be still consumed safely,
- **RECYCLING** of food waste that could not be saved.

WHY SHOULD YOU USE THESE GUIDELINES?

By preventing or reducing food waste in your business, you will do much more than just feed people and support the environment:

1. Ensuring material savings by reducing food or food waste transportation costs.
2. Motivating the staff for fighting a global issue.
3. Reinforcing consumer relations.

When considered from the point of savings that can be made by fighting food waste, the report generated by Wrap (Waste and Resources Action Programme) reveals that every 1 Euro of investment made in the reduction of waste at hotels provides 7 Euros of savings.[5]

WHO CAN BENEFIT FROM THESE GUIDELINES?

The target group of these guidelines is public consumption facilities offering food services, such as restaurants, cafes, and hotels. However, it contains various topics, including but not limited to sorting and measurement charts, tips for the development of anti-waste menus, and strategies for the development of food donation programs and ideal waste recycling processes for all kinds of businesses and organizations that provide food services, such as open buffet facilities, business cafeterias, cruise lines, and catering companies.

HOW MUCH TIME WILL IT TAKE TO MAKE PROGRESS?

Reduction of food waste requires leadership, commitment, and continuous effort.
To implement a successful food waste management strategy, it is necessary to allocate 5 to 10 hours a week to train staff at the initial stages and ensure daily or weekly reinforcement by management through staff meetings for the sustainability of the program. For the strategy to be successful in practice, the evaluation and management culture of the staff should be evolved, which can be achieved in time by daily reinforcement of better practices.

OTHER RESEARCH IN THE FIELD

In the food services industry, various reasons, including unfavourable menu planning and inventory management, incorrect cooking methods, failure to adjust the amounts properly, open buffet practices, the use of food items as decorative elements, and the use of plate sizes not considering the actual needs of consumers may cause waste.

In fact, it is quite possible to reduce food waste through modest touches starting from menu planning to plate size.

According to the Turkey Waste Report (2018) generated by the Ministry of Trade, 5.4% of consumers throw away excess food, while 23% of all food purchased goes to waste without being consumed. A survey conducted by an independent consultancy firm under the Save Your Food campaign found that only 66% of households go shopping with a shopping list. Unplanned and excess shopping may cause purchased goods to spoil without being utilized. According to another study, Turkish people throws away fruit and vegetables most (42%), followed by milk and dairy products (41%) (Nielsen, 2019).[6]

Interviews on food waste were made with 16 chefs in Antalya, who were experienced at hotels adopting the all-inclusive / ultra-inclusive concept. According to the findings, the most important cause of food waste at hotels was unconscious consumption. In addition, improper cooking methods and lack of knowledge and experience of the production staff were found to be among the primary causes of food waste. During the interviews, it was stated that restaurants were the primary place of food waste while preliminary preparation of food was the main activity generating waste. In general, fruit and vegetables were stated as the most wasted food groups while cheese at breakfast, bakery products at lunch, and vegetable dishes at dinner were wasted the most. Various suggestions made by the chefs for reducing food waste at hotels included cooking to order, raising awareness among both producers and consumers through training and visuals, expanding the food friendly "orange flag" practice, purchasing higher-quality raw materials in smaller amounts, eliminating the use of food for decorative purposes, increasing the number and varieties of dishes, serving in portions, increasing the number of a la carte restaurants as an alternative to the open buffet practice, and improving thematic offerings based on the guest profile *(Ceyhun Sezgin, and Ateş, 2020).*

The all-inclusive concept and open buffet practice are said to trigger food waste, especially at accommodation facilities. At this point, the fact that guests at the hotel consume all day and pay in advance for products and services is asserted to be an important factor. In addition, differences in the consumption and eating behaviours and expectations of guests may be among the factors. In this context, in a study aiming to find out guests' perceptions and opinions about the open buffet practice and waste at all-inclusive hotels, interviews were conducted with individuals who stayed in hotels providing unlimited open buffet services in various districts of Mugla province. Perceptions of the guests about food waste and health problems related to the open buffet practice, and their food and

consumption habits were reviewed from the demographic perspective. According to what the interviewees said, the food and beverages taken from the open buffet were not fully consumed by the guests, and they unavoidably went to waste. When compared to women, more men thought that the open buffet was a source of waste. In addition, according to the interviewees, the open buffet might trigger overeating and in turn cause health problems, which was stated more frequently as age and education level increased *(Doğan, Dengiz, and Tarhan, 2020)*.

Another study was conducted with kitchen staff working at 4-star and 5-star hotels and high-profile restaurants in Istanbul, Bolu, Afyon and Sakarya provinces in order to examine the effect of food loss and waste on costs in the food and beverage business. In the study, the participants were asked the following four questions: 1. Do you think that food loss and waste during food production have any relationship with costs and cost control at hotels / restaurants? 2. Do you think that food loss during the purchase of food has any relationship with costs? 3. Do you think that food waste during food production has any relationship with costs? 4. Do you think that food waste during food consumption has any relationship with costs? According to the results of the study, the participants, in spite of their relatively high level of education, did not have any awareness or perception regarding the cost reduction effects of preventing waste during production and other food waste. The study made the following suggestions, based on the results: Reviewing universities' education programs; raising awareness among consumers and staff about the reduction and prevention of food loss and waste; developing strategies for the reduction of food waste by examining/analysing consumer behaviours in detail; and establishing better data management for the donation of excess food *(Kırmızıkuşak, and Yücel, 2021)*.

In a study conducted to determine food waste generated by restaurants, interviews were conducted with 29 restaurants located in Istanbul province. According to the findings of the study, more than half of the restaurants (58.6%) stated that they were carrying out waste-monitoring activities. However, it was found that almost all participants did not have detailed information about food waste. The vast majority of the participants (79.3%) identified the service department as the most prominent source of waste at restaurants. According to 68.9% of the participants, vegetables are the most wasted type of food. Regarding the reuse of food waste, all participants said that they stored waste oil for biodiesel production, while 82.7% of them reused waste food in food production in different ways (vegetable juice, soup, sauces, etc.). The most prominent factors causing food waste in the kitchen were specified as customer expectations (31.1%) and negligence of the staff (21%). On the other hand, the reason for table waste was stated

as excessive food ordered by guests. Various solutions for the reduction of food waste were suggested based on the findings of the study *(Çirişoğlu, and Akoğlu, 2020)*.

In a master's thesis, a mobile application called LUSE was developed in order to value and reuse surplus food at restaurants. The application aims to deliver delicious, affordable, healthy and excellent ("LUSE" as the acronym for the Turkish equivalent) food to people in need. Restaurants can set more affordable prices for surplus food at certain times of the day. For example, a restaurant can sell soup at a 50% discount from 19:00 PM to 22:00 PM, and the restaurant owner can place 50% discounted soup on the application. Then, people can order the product online and it can be delivered to their addresses *(Erik, 2019)*.

For more information on food loss and waste:

- Protect Your Food Campaign, https://www.gidanikoru.com
- National Strategy Document and Action Plan for the Prevention, Reduction and Management of Food Loss and Waste in Turkey, http://www.fao.org/3/cb1074tr/CB1074TR.pdf
- Document samples, Hotelkitchen.org, and information on food loss and waste in the USA, FurtherwithFood.org
- WWF's efforts for the prevention of food waste, WorldWildlife.org
- Food loss and waste in the EU, https://www.restorankitchen.org/ https://www.leanpath.com/ https://www.epa.gov/sustainable-management-food/excess-food-opportunities-map http://www.fao.org/save-food/regional/easterneurope/en/ EU platform on Food Losses and Food Waste: https://ec.europa.eu/food/food/food-waste/eu-actions-against-food-waste/eu-platform-food-losses-and-food-waste_fr
- http://www.ggd.org.tr/resim2/ggd_gida_kaybi_ve_eftiket_okuma_aras__tirmasi_25_04_2019.pdf
- http://www.fao.org/save-food/en/
- Guidelines on the Principles of Hygiene and Good Practices for Public Consumption Points, /https://www.tarimorman.gov.tr/GKGM/Belgeler/Uretici_Bilgi_Kosesi/Egitim/Hijyen_Kilavuz/Toplut%C3%BCketim%20Yerleri%20%C4%B0%C3%A7in.pdf
- https://wrap.org.uk/sites/default/files/2020-10/WRAP-Hotels_The%20Business%20Case%20for%20Reducing%20Food%20Waste.pdf

02 The Project for the Measurement of Food Waste at Hotels, Restaurants, and other Public Consumption Points

In 2018, Metro Turkey conducted a food waste measurement project at pilot hotels and restaurants in an effort to reveal in figures the stages of the consumption chain where the most food waste is generated.

In 2018, Metro Turkey started to conduct studies in order to determine the stages at which the most food waste is generated at public consumption businesses.

During the project, the amount of waste was measured at all stages from menu planning to service of the food to guests **at an all-inclusive hotel, a restaurant, and a boutique hotel.** As a result of the project, it was determined that the **biggest source of waste was food put on plates but not fully consumed.** The share of table waste was seen to be 54% at hotels, 65% at boutique hotels, and as high as 74% at restaurants. In addition, the share of waste generated at the production and storage stage was measured at 19% at restaurants and 5% at hotels, due to the **lack of sufficient storage areas or failure to accurately estimate the number of guests.**

The study shows that a 360-degree holistic perspective is required for the reduction of food loss and waste, and there are many stages open to improvement, from menu planning to inventory management, guest profiles, plate size, and order and storehouse management.

At the boutique hotel, all-inclusive hotels and restaurants selected for the **Project for the Measurement of Food Waste in the Horeca Industry,** amounts of food waste at all stages from menu planning to service were measured step-by-step.

AT THE BOUTIQUE HOTEL, the weight of the food wasted in the main kitchen, stewarding area, breakfast hall and pool bar were measured separately at the production, buffet and service stages for 3 days.

The results showed that **plate waste** was the biggest source of waste with a share of **65%**, followed by the **staff dining hall** with **16%**, the **buffet** with **15%**, and **production** with **3%**.

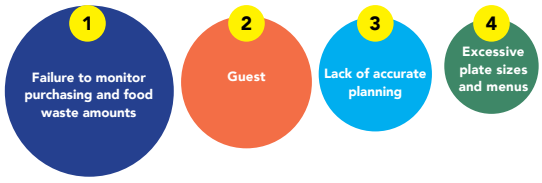
Based on the current potential and benefit analysis conducted for the boutique hotel, it is possible to reduce plate waste by 40%, buffet waste by 40%, and production waste by 20% if an effective food waste management system is implemented. The total amount of waste that can be prevented thanks to the project is 2.1 tons, corresponding to carbon dioxide (CO_2) emission reduction equal to 34 barrels of petroleum (5 406 litres).

The amount of waste that can be prevented annually thanks to the project is 2.1 tons, corresponding to CO_2 emission reduction equal to of 34 barrels of petroleum.

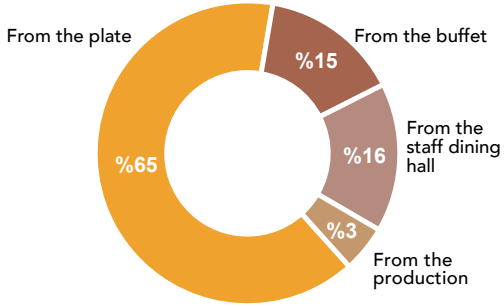
Targeted saving rates:

- Plate waste: 40%
- Buffet waste: 40%
- Production waste: 20%

Key factors causing food waste costs



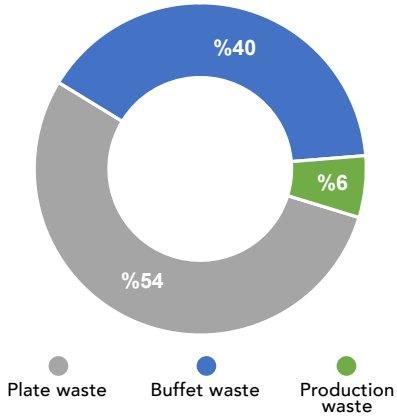
Distribution of waste by source



Kitchen losses generating during production materials not suitable for consumption are not included.

AT THE ALL-INCLUSIVE HOTEL the weight of the food wasted in the main restaurants, *a la carte* and snack restaurants, patisserie, and staff dining hall were measured separately at the production, buffet, and service stages for 4 days. The results showed that **plate waste** was the biggest source of waste in the all-inclusive hotel with a share of **54%**, followed by **buffet waste** with **40%**, and **production waste** with **6%**.

Distribution of losses / waste by



02 The Project for the Measurement of Food Waste at Hotels, Restaurants, and other Public Consumption Points

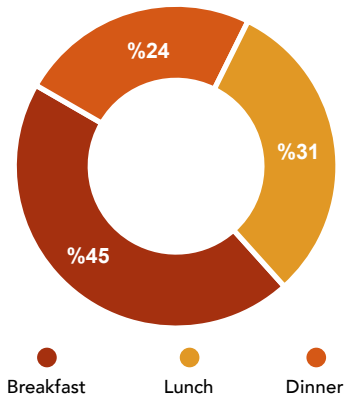
Primary causes of food waste at the all-inclusive hotel were determined as follows:

- Failure to plan the next production shift based on the actual waste data (ranking of wasted product groups and products).
- Failure to optimize the open buffet design and form of service.
- Failure to plan production based on the demographic profile of guests.
- Lack of a strategy for the utilization of reusable surplus food.

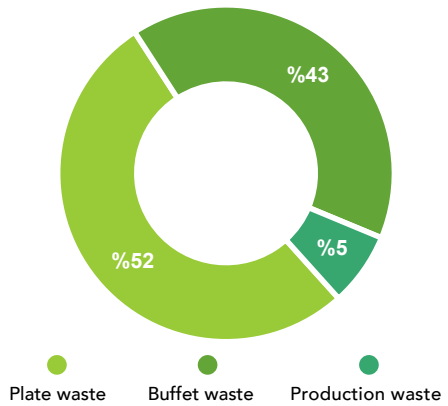
It will be possible to create financial savings and prevent food waste by implementing correct waste management in relation to the factors specified above.

The following graphs show the distribution of food waste at the all-inclusive hotel by meals and sources. When the distribution of waste by meals is examined, it is seen that the amount of food waste gradually increases from morning to evening, suggesting that dinner should be prioritized in the improvement efforts. Regarding the sources of waste generation, plate waste and open buffet waste are seen to stand out, suggesting the requirement to design a joint waste reduction project for these two sources of waste.

Distribution of loss / waste by meal



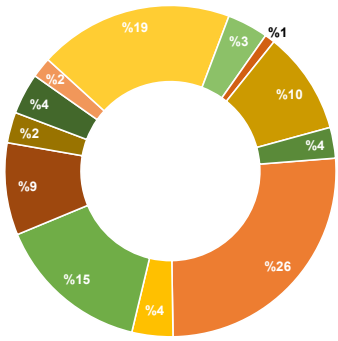
Distribution of loss / waste by sources



Distribution of plate waste by types of food

In the measurement of plate waste at the facility, it was seen that sea food, desserts, and meat dishes were the three most wasted types of food in order of amount. Measurement results suggest that plate waste can be reduced to a large extent through solutions such as quality improvement, portioning, and display design.

Distribution of plate waste by types of food

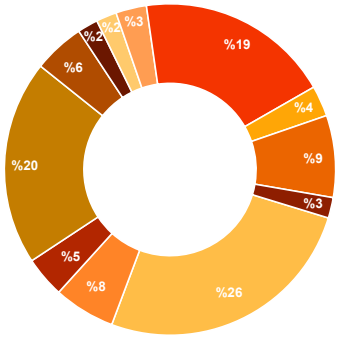


Fruits & Veg. %9 | Meat %15 | White meat %4
Seafood %26 | Cold starters %3 | Hot meals %10
Soup %1 | Bakery products %4 | Desserts %19
Deli meat %2 | Dairy products %4 | Dry food %3

Distribution of buffet waste by types of food

In the measurement of buffet waste at the facility, it was seen that meat dishes, dairy products, and hot meals were the types of food with the highest cost. Measurement results suggest that improving the quality of products in meat dishes and optimizing the number of chafing dishes can quickly provide benefits for the reduction of food waste.

Distribution of buffet waste by types of food

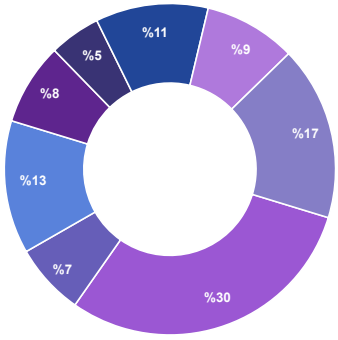


Fruits & Veg. %6 | Meat %26 | White meat %2
Seafood %8 | Cold starters %3 | Hot meals %19
Soup %3 | Bakery products %2 | Desserts %2
Deli meat %5 | Dairy products %20 | Dry food %4

Distribution of production waste by types of food

In the measurement of production waste at the facility, it was seen that the butcher station, hot meal preparation and fruit / vegetable washing were the units generating the highest amount of waste. In the case of hot meals, most of the waste was resulting from food going to waste without being placed in the buffet, while materials purchased but not suitable for use (extra-fat meat, overripe fruits and vegetables, etc.) were causing waste at the butcher and fruit / vegetable washing units.

Distribution of production waste by types of food



Hot meals %17 | Fruit and vegetable cutting %7
Bakery %11 | Fruit and vegetable washing %13
Butcher %30 | Vegetables (preparation for hot meals) %8
Cold starters %9 | Salad %5

Based on the current potential and benefit analysis conducted for the all-inclusive hotel, it is possible to reduce buffet waste by 25%, plate waste by 20%, and production waste by 15% if an effective food waste management system is implemented. In this way, 69 tons of food waste can be prevented annually, corresponding to 5% of saving in purchasing

02 The Project for the Measurement of Food Waste at Hotels, Restaurants, and other Public Consumption Points

costs and 224 tons of reduction in carbon dioxide (CO_2) emissions.

The amount of waste that can be prevented annually thanks to the project is 69 tons, corresponding to 224 tons of reduction in CO_2 emissions.

Waste Reduction Targets on the Stage and Source Basis

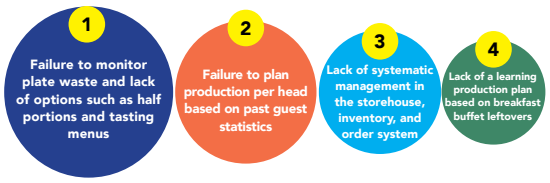
- Buffet waste: 25%
- Plate waste: 20%
- Production waste: 15%

Targeted Purchasing Savings:

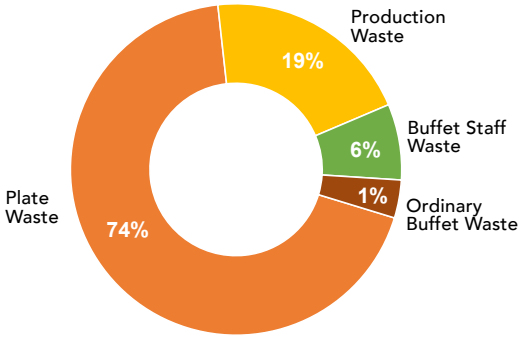
- Cost Saving in Purchasing: 5%

AT THE RESTAURANT the weight of the kitchen, breakfast buffet and plate waste were measured separately at the production, buffet and service stages for 4 days for breakfast, lunch and dinner. The results showed that plate waste was the biggest source of waste at the restaurant with a share of 74%, followed by production waste with 19%, buffet staff waste with 6%, and ordinary buffet waste with 1%.

Main Causes Of Food Waste



Distribution Of Waste By Source



Kitchen losses generating during production - materials not suitable for consumption are not included.

Open buffet is offered only for breakfast, while lunch and dinner are provided a la carte.

Based on the current potential and benefit analysis conducted for the restaurant, it is possible to reduce plate waste by 25%, buffet staff waste and ordinary buffet waste by 20%, and production waste by 10% if an effective food waste management system is implemented. In this way, 7.3 tons of food waste can be prevented annually, corresponding to 10% of saving in purchasing costs and 23 tons of reduction in carbon dioxide (CO^2) emissions.

Targeted Purchasing Cost Savings:

- Plate waste: 25%
- Total Buffet Waste: 20%
- Production waste: 10%

The amount of waste that can be prevented annually thanks to the project is 7.3 tons, corresponding to 23 tons of reduction in CO_2 emissions.*

** https://www.epa.gov/energy/greenhouse-gas-equvalencies-calculator.*

The Potential and Benefit Analysis

Consists of the Consumption Analysis, Profit Analysis, Production, Purchasing and Order Estimation, and Donation components.

• To be able to carry out a **Consumption Analysis**, first of all, the guest profile should be determined, and production and waste data should be generated based on the determined guest profile. Then, consumption trends should be identified for each product, based on which menu planning suggestions should be made and plate sizes should be determined. From the point of guest profile identification, the business should provide answers to various questions such as "Who are the main guests of the business?", "Do guests mainly consist of men, women, or children?", "What is the nationality of the guests?", "Are the guests mainly white-collar or blue-collar workers?", "Which products are consumed most?", and "Which products go to waste from the plate the most?"

• **Profit Analysis** include the determination of the amount of profit for each dish based on production costs and sale prices, upon which revisions should be made on the recipes or in purchasing / pricing.

• Production Estimation should be made, and raw material needs should be determined on a dish basis, considering past guest figures and preferences, and current reservation information.

• For **Purchasing and Order Estimation** purposes, total material needs should be determined based on the production estimation and recipes and purchasing orders should be generated for materials not included in the inventory by carrying out inventory tracking.

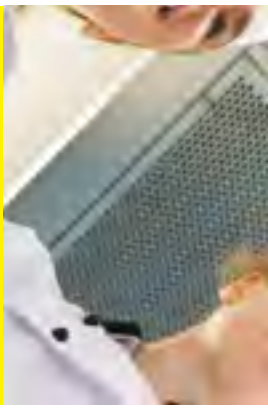
• Buffet and production surpluses suitable for human use should be directed to **Donations**. If donation is not possible, alternative solutions should be adopted, such as discount resale, sending to animal shelters, or utilization in animal feed or compost production.

General Conclusion: As a result of the measurement project conducted, it was found that the biggest source of food waste was plate waste in all three business. On the other hand, the share of waste generated during production and storage due to lack of sufficient storage areas or failure to estimate guest numbers accurately was around 19% at the restaurant and 5% at the hotels. In fact, these figures show that there are many stages and areas open to improvement in the industry, from menu planning to plate or portion sizing based on the guest profile, and order and storehouse management. Essentially, the most effective way to make these improvements is to determine the problem and its root causes and develop solutions depending on the root causes (Reference: Metro Project for the Measurement of Food Losses and Waste in the HORECA Industry).

Meanwhile, the financial benefits that can be obtained by developing a food donation program reducing waste disposal costs and providing tax incentives or deductions are not included in the saving figures given here. Raising the awareness of the staff is the most important factor contributing to the reduction of food waste at hotel and restaurant businesses. In these guidelines, you can find information on how to obtain similar results by implementing a food waste management strategy in your business.

03 Getting Started

Establishment Of The Food Waste Management Team



Goals and Targets

Establishing an effective food management strategy requires cooperation between all units and departments of a business. All units and departments taking part in the purchasing, storage, preparation, service, and disposal of food should be included in the process.
For this reason, a Food Waste Prevention Team consisting of leaders and staff with key and cross functions from all operations should be established to be able to develop an effective food management program and improve the way in which food is prepared, transported, and served.

The targets and priorities for this team are listed as follows:

- To measure the total amount of waste generated by the business in order to determine the baseline metrics.
- To determine the targets of the business for the reduction of food waste.
- To implement preventive tactics at the planning, handling, and service stages.
- To manage the food donation program of the business in cooperation with NGOs and/or municipalities.
- To manage the food waste reduction and prevention processes as a whole.

Figure 1: Related Departments and Members

Members of the Food Waste Management Team

As shown with symbols in Figure 1, the team should consist of representatives from every department taking part in food services or waste management and the food waste prevention champion of the business.

General Manager
The General Manager or another member of the executive team who will lead the initiative, delegate the responsibilities, and select members of the team.

Business Owner & Finance Lead
Asset managers from the internal finance team, working in tandem with the business owner, provide a monetary view of the costs and benefits associated with specific changes to operations, such as changes to disposal options for underutilized food, purchasing activities that involve capital costs, and tax exemptions earned from donations. This person can establish the business model for tackling a food management initiative.

Event & Catering Sales Lead
The team member who will approach food waste prevention from the guest perspective, communicate the business' food waste prevention initiatives to guests, prepare the banquet menu, and finalize headcounts at key points during the sales cycle.

Purchasing & Receiving Lead
The team member (might be the same as the culinary lead at smaller businesses) who ensures that orders are correct, the food is in good condition upon receipt, and the first in, first out (FIFO) principle is followed for all food items, especially highly perishable items such as produce, meat, and dairy products.

03 Getting Started

Culinary Lead

Often the Head or Executive Chef, this member of the team is responsible for developing waste-reducing menus, managing reusable overproduction waste, and working with the sales team to determine the most accurate guest number for each event

Service Manager

A leader from the Banquet Team is responsible for the flow of service during an event, providing recommendations when trying to serve large crowds and can present opportunities to improve efficiency related to open buffet set-up and replenishment.

Stewarding (Dishwashing) & Engineering Lead

A leader from stewarding who can provide expertise on operationalizing the goals of the team. The stewarding team will be responsible for the separation and measurement of food waste, disposal, and possibly donation of surplus food.

Human Resources Lead

The HR lead organizes new employee orientation and directs training under new staff engagement and awareness campaigns.

PR & Marketing Lead

Communication leads can develop external or guest materials that explain the importance of proper food management and the business' commitment to providing an amazing guest experience with minimal waste.

ANNEX-M An example of good practice from Turkey

"Creating awareness among all kitchen staff members is of vital importance."

Interaction With the Team

1. Organize a business kick-off meeting: Convene all members of the Food Waste Management Team to discuss the goals of your food waste prevention initiative and discuss how to implement the plan around the business. See Annex A for a sample Agenda for Business Kick-off Meeting.

2. Develop a plan and set the goals: After the meeting, draft an outline that includes the project goals, project activities, schedule for future meetings, and a plan to clearly communicate project methodology and goals to all relevant operational staff (event sales, culinary, banquets, and stewarding). See Annex H for a sample strategic roadmap.

3. Schedule regular checksn: Meet regularly to discuss project achievements and obstacles. Continue to communicate frequently outside of scheduled meetings.

03 Getting Started

Creating A Culture Committed To Food Waste Reduction And Prevention

Goals and Targets

For the food waste reduction strategy to be effective, it must be incorporated into everyone's daily activities and routine. It must be an institutionalized process, and it must lead to a culture shift across the organization that alters how food is prepared, handled, and served. Ideally, this culture shift should start at the top of the organization with the instructions of the General Manager, but it can also come from a line cook who notices patterns of overproduction. No matter who takes the initiative, it can help improve the efficiency of operations and save time and money.

Catalysing this culture shift is a daunting task, but it can be accomplished if a group of passionate and engaged staff set an example. It will take time, patience, leadership, and perseverance, but it is possible to slowly introduce new operating procedures across all departments that can drive progress and improvement.

Staff Engagement for Cultural Shift

- **Communication is the top priority.**
Engage staff during morning meetings, during casual conversations on the job, or through other training opportunities.

- **Reinforce continuously.**
Highlight your business' food management goals weekly, if not daily, emphasizing targeted strategies specific to staff roles. (Please see section 5, "Preventing Food Waste" for detailed information.)

- **Encourage cooperation**
Collaborative work can be more powerful than leadership mandating a change. Provide opportunities for staff to work together in non-traditional teams to inspire new ideas.

- **Highlight and reward achievement**
Provide a forum to share stories across departments or on social media and to reward staff who are helping the property achieve their goals. Make it fun!

• Empower the staff

One of the most important problems in the industry (especially in seasonal business regions) is high turnover of staff. For this reason, employees do not have a sense of belonging, and it becomes difficult to expand waste reduction as a culture.

For this reason:

- Encourage the staff to actively observe their contribution to food waste and find opportunities to take initiative for reduction.
- Include the business waste policy in the new staff orientation program.
- Give the staff responsibility and follow their fulfilment.
- Include food waste targets in performance targets.

"In fact, the whole thing depends on the establishment of a waste prevention culture and communication."

03 Getting Started

Working With External Stakeholders

Goals and Targets

External stakeholders play a key role in preventing food waste and managing overproduction. However, as with any stakeholder relationship, balancing varied interests can be a challenge. Although it may seem to be extra work to involve external stakeholders in standard meal and banquet event conversations, maintaining consistent communication to accurately prepare for an event or manage surplus food after an event is essential to success.

Key External Stakeholders

The following list includes important external stakeholders in the flow of food in a kitchen..

1. Meeting Planners

Meeting planners are tasked with the logistical organization of an event, including menu selection, registration, providing periodic headcount updates to the client and venue, and ensuring sufficient and high-quality food is provided to guests – all while staying within budget and timeline.

2. Guests

Guests are key partners in reducing food waste in hotels as their presence or absence at mealtimes is a key driver of overproduction.

3. Donation Partners

You need to be in contact with food banks or other similar organizations to ensure the utilization of reliable food that is still in good condition. For more information on establishing this type of partnership, please see the “Donation” part of section 6.

4. Diversion Partners

To manage excess food that cannot be reused or donated, businesses can contract with a local organic waste transporter. For more information on the issue, please see the “Diversion” part of section 6.

Interaction With External Stakeholders

Interaction with key external stakeholders can be ensured in the following ways.

Clients / Meeting Planners

• Sales Conversations

Train the sales staff to have effective conversations with clients and meeting planners. These conversations should utilize guiding principles for preventing food waste (for more information, please see the "Planning" part in section 5, "Preventing Food Waste").

• Menu Planning.

Encourage meeting planners to specify guests' dietary needs and meal attendance during the registration process to accurately forecast the headcount for each meal.

• Communication and RSPVs.

Set clear expectations for accurate headcounts before and during an event with the goal of minimizing overproduction. Encourage meeting planners to use software that can track meal attendance to provide your business with accurate headcounts by meal.

• Communication and RSPVs.

Fazla üretimi en aza indirmek amacıyla etkinlik öncesi ve sırasında kişi sayısı beklentilerinizi netleştirin. Toplantı planlayıcılarını, işletmenize öğün başına doğru kişi sayısını sağlamaları için, öğünlere katılımı takip edebilen yazılımları kullanmaya teşvik edin.

• Reporting

Report final overproduction and food utilization results back to the client / meeting planner to inform their future events. Meeting planners predict food consumption patterns, attendance, and attrition using data trends and experience with similar events – continuing to provide them with data can help them plan for future events at your business.

Guests

• Food Policy

Your food policy is an articulation of how your business, brand, and chef value food, which can resonate with guests' personal values and increase brand loyalty. Sharing your food policy and food waste goals in the open buffet area can engage guests while drawing their attention to the amount of food they take and leave on their plate.

• Communication Channels

Consider including your food policy on multiple guest interfaces, including your website, banquet contract, on a breakfast buffet, and/or in guest rooms as part of your in-room entertainment video or on a table tent near the room service menu.

04 Separation and Measurement

Establishing Separation and Measurement

Why Should You Separate and Measure Food Waste?

Once you have established a Food Waste Management Team for your business and identified your external stakeholders, the next step is to develop separation and measurement. Separating and measuring your food waste is the single most important thing you can do to start preventing future waste. In order to reduce waste, you need to know how much waste you generate.
In order to do this, you have to analyse the content of your waste container. Separation and measurement provide transparency and insights into the largest drivers of food waste so that you can start planning for reduction. You can define your waste reduction targets after developing the separation and measurement plan.

Steps To Implementing Separation and Measurement

1. Choose a separation and measurement scheme that fits your needs and budget.
2. Procure and place bins (preferably brown for food waste) in appropriate areas of the business to capture all waste streams. Keep bin placement permanent.
3. Train and monitor staff on the new separation and measurement system.
4. Gather data over the course of a definite period (~2 weeks) to generate both total food waste and kilogram per guest baseline metrics.
5. Set reduction goals for overproduction and underutilized food. Institutionalizing a new separation and measurement scheme takes time, but you can reduce this time by half by benefiting from these guidelines.

For advice on how to overcome the common challenges experienced during the implementation of a separation and measurement system, please see **Annex G.**

04 Separation and Measurement

Step 1: Choosing a Separation and Measurement System

Separation and measurement methods should depend on the size of your business, your resources (workforce, capital, etc.) and your targets. If possible, separation should be done separately for each production area and product group (olive oil dishes, main dishes, salads, desserts, etc.), and the waste amount in different product groups should be measured at certain intervals to develop menu planning based on the prominent groups of waste.

Separation Type	Definition	Measurement System	Pros	Cons
Single Stream	One aggregate bin for all food waste	Aggregate weight data recorded by waste collector / transporter firms	· Low cost · Singe additional bin · Easy to communicate	· Insights drawn from data will be limited
Dual Stream (Pre-Service and Post-Service)	· Pre-Service (kitchen trim waste, spoiled food, etc.) · Post-Service (plate waste and overproduction that cannot be reused)	Manually counting and recording bins on a spreadsheet from the two phases	· Simple · Low cost · Data will provide insights to make changes to both front and back of house	· Requires more staff training · Additional time required for data collection · Requires long-term dedication
Phase Separation	*Food waste separated by production phase (storage, preparation, service, plate)*	Manually counting and recording bins on a spreadsheet from all phases	· Low cost · Additional data points provide deeper insights into waste drivers	· Requires sophisti cated staff training · Procurement of multiple coloured bins · Manual data tracking
Item-Level Separation	Food waste separated and tracked by food type / item or production method * Example: Olive oil dishes, salads, desserts, main dishes, etc.) * Fruits, vegetables, meat, chicken, legumes, etc.	Technology-enabled tracking via an application or other software platform	· Provides immediate data to make real-time adjustments · Deeper insights from which to find cost-saving potential	· Capital investment or subscription service · Requires staff training

Common Challenges and Solutions

• For the separation of food waste, replace the existing waste bins in waste-generating areas including the kitchen and stewarding area, or place waste bins in the colours required by the applicable legislation.
• Mark the floor or wall with coloured tape or signage so after the bins are emptied they can be returned to the correct location.
• Use magnetic bins to catch valuable metal items, e.g. silverware.
• When you notice contamination, discuss with the staff immediately and provide warnings about correct waste separation.

While the type of system you choose will depend on the size, resources (workforce, capital, etc.), and goals of your business, please remember that getting started on any system is better than continuing to mix food with other waste and sending it to a landfill.

Step 2: Purchasing and Placing Waste Bins

Purchasing Waste Bins

"It all starts with knowing how much of each food item you buy and how much you send to the waste bin."

After you decide how to separate your waste stream, the next step is adding additional bins to capture food waste. It is important to visually designate, with colours and signage, the difference between bins capturing food and other recyclable waste. The applicable waste regulations may require certain waste bin properties, or the municipality / authorized waste collector may provide you with bins for use in your operation.

It is very important define waste bins in advance and place them on the correct places for effective waste tracking. Each waste bin should be numbered and tracked. For a sample waste bin tracking table, please see **Annex J.***

**https://Hotelkitchen.org/wp-content/uploads/2019/07/Bin_Tracker.pdf*

Technology-Assisted Tracking in Waste Management

Today, thanks to technological developments, the hotel, restaurant, and other public consumption industry is starting to adopt technologies that can be used in the facility, which can affect business and operational decisions and provide instant food waste measurement to facilities by creating daily waste records at the product level.

04 Separation and Measurement

Although technology-assisted waste monitoring has a certain cost, it provides highly applicable foresight and high returns. Facilities using this type of technology achieve at least 50% reduction in food waste and benefit economic savings. Some examples of these technologies in the world and in Turkey are given.

Winnow

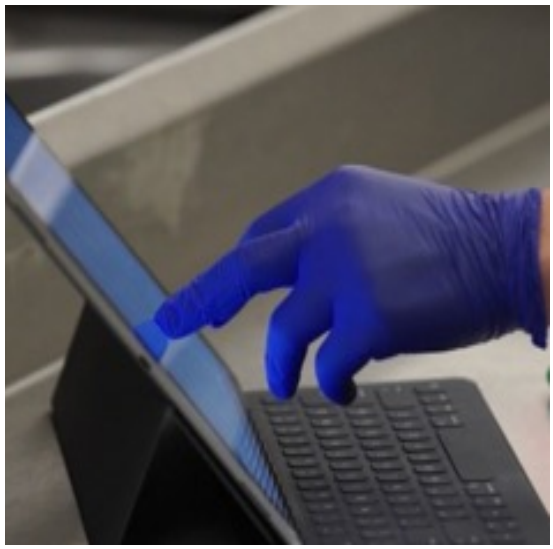
"Winnow is designed to make the job easier for chefs. It provides more control over the kitchen and staff and helps food waste to be reduced by half. "

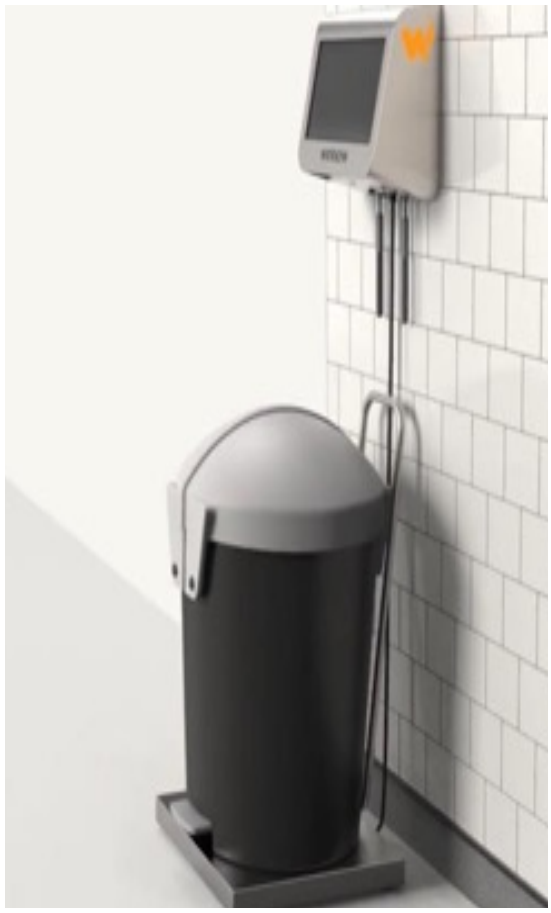
Winnow is a British company that provides technological and digital services for waste reduction to hotels, restaurants, and other public consumption points. Winnow's innovative technology cuts food waste in half and saves chefs time and money. In this way, they can reach their profit targets or design more creative menus. As much as 20% of the food purchased can be wasted, which often equates to the total net profit in the kitchen. This is because cooks often lack the necessary tools to accurately measure and manage waste. Using the data offered by Winnow, chefs can cut food waste in half and significantly increase their kitchen's profit margins. For more detailed information on tips to increase your profit margin in the kitchen using the Winnow solution, you can check out the company's website at the address below.*

**https://info.winnowsolutions.com/profitabilityguide*

Winnow was designed with busy kitchens in mind. You can place any bin on the appliance, and your staff will throw the food into it as usual, but only by selecting the waste source and the item on the menu. Winnow then calculates the cost of food and provides feedback. All this happens in seconds, making the work of your kitchen staff easier. Winnow's cloud analytics platform can access real-time information and generate reports in just a few clicks. It also provides chefs with the data they need to stay in control of their kitchens. While reporting is provided by the cloud-based reporting platform, chefs can access daily, weekly, and monthly reports showing how to reduce food waste and determine strategies for the solution. Thanks to the reporting feature, the main sources of food waste can be quickly identified. Some foods may be overproduced, unpopular with customers, and wasted during storage, plating, or preparation. Thanks to the reports, immediate action can be taken to reduce food waste and identify long-term strategies and training needs.

While many chefs have a passion for developing creative and quality menus, requirements related to profit margins limit this. Thanks to this technology, they can choose more creative and quality menus, with significant savings in food costs.





04 Separation and Measurement

*Sensa-T from Fazla Gıda

SENSA-T is a start-up technology company based in Turkey that specializes in reducing food waste. SENSA-T is a smart weighing system for surplus food, which aims to reduce your expenses by reducing the food waste in your business. The Smart Weighing System SENSA-T, an Internet of Things (IoT) solution, aims to provide maximum benefit by making all waste tracking processes and results in hotels, restaurants, cafes, and dining halls 100% autonomous with the support of artificial intelligence.

The system is available in 3 different models based on the kitchen types in the HORECA industry as Large (in kitchens with high waste potential), Small (suitable for countertop use in kitchens with lower waste potential) and Light (suitable for kitchens with a narrow space and relatively low waste potential). While the Large and Small models provide the opportunity to make the measurement via the smart weighing device, in the Light model, the data entered via mobile and web applications can be tracked on a phone, tablet or computer.

Method of Use

1. The waste bin used in the kitchen is placed on the scale located at the base of the product. The food waste / surplus put in the waste bin is recognized by the camera on the product. Product name and weight are automatically reported to the server.
2. In line with the transmitted data, the source and amount of waste is analysed by the server and shared with the user. By entering the content and financial recipes of the products, the economic and environmental effects of the waste can be examined.
3. The business gets the maximum benefit by receiving automatic suggestions from the Surplus Food Waste Management System in order to evaluate its waste and reduce food costs.

It is critical to train the staff. They need guidance to build confidence.

Consider the following factors when purchasing food waste bins:

- **Size:** Must seamlessly integrate into your operation and be easily handled by staff when full.
- **Color:** Should be bright and distinguished as dedicated to collecting food waste or organics. BROWN bins are the industry standard for food waste according to the applicable legislation.
- **Packaging Material or Bin Liner:** Must be compostable.
- **Labels:** Use labels and signs to indicate bins designated for organic food waste. Please see Annex B for sample signage.

Principles for Waste Bin Placement

- Communicate any changes in the waste management strategy to all staff before they occur
- Place food waste bins near the source of waste.
- Keep them in the same place.
- Ensure new waste bins do not disrupt the existing flow of operations.

Remove Excess Waste Bins

BImplementing these principles may require assessment of other streams and possible downsizing, replacing, or removing waste bins that are no longer appropriate or needed. For example, you may find that adding a new waste bin to collect food waste at the end of the service station significantly reduces waste and almost eliminates waste going to the landfill. However, this indicates that there is no need for a second waste bin at that location. Removing unnecessary waste bins not only creates more space, but also gives staff a clearer picture of how much food waste they create and raises awareness.

04 Separation and Measurement

Step 3: Staff Training

Train your staff on prevention and reduction of waste. Successful separation and measurement can only be accomplished if staff are aware of the changes being implemented and provided with the knowledge and skills required to adjust to the new separation scheme. Once those two goals are accomplished - reinforce, reinforce, reinforce!

Reinforcing proper separation behaviour during staff meetings, in employee dining rooms, and during periodic walk-throughs of the kitchen is key to changing behaviour and breaking old habits. When contamination is observed in the waste bins, have positive conversations with staff to identify the reasons and what can be done differently.
Emphasize that waste-reduction activities are not a kind of audit and highlight the importance of staff cooperation during trainings.

The Zero Waste Regulations entered into force by being published in the Official Gazette dated 12 July 2019 and with issue number 30829. The Regulations, in line with the effective management of raw materials and natural resources and sustainable development principles, cover the general principles for the establishment, expansion, improvement, monitoring, financing, recording and documentation of the Zero Waste Management System, which aims to protect the environment and human health and all resources in waste management processes. According to the Regulations' Implementation Schedule for the Establishment of a Zero Waste Management System, businesses with an accommodation capacity of 100 rooms or higher must establish the Zero Waste Management System by 31 December 2020, while the term is 31 December 2021 for businesses with an accommodation capacity between 50 and 99 rooms, and 31 December 2022 for businesses with an accommodation capacity less than 50 rooms.

In this context, the Implementation Guide for Tourism Facilities in the HORECA (Hotel, Restaurant, Cafeteria) industry has been published by the Ministry of Environment and Urbanization in order to assist in the establishment of a zero-waste management system.

In accordance with the zero-waste management system, all waste should be collected separately according to their type in the waste collection bins shown in the figure and then kept in the temporary storage area of your facility to be delivered to the relevant municipality or licensed recycling and recovery firms or licensed waste transporters. The most common type of waste, especially in the HORECA sector, is “biodegradable waste”. Thus, food waste should be collected separately from other waste for being used in useful applications such as compost and/or energy generation.

** The Guide is available at https://webdosya.csb.gov.tr/db/cygm/icerikler/saturztssklvz-20200911140833.pdf*

Under the Zero Waste Regulations, waste must be kept separately according to type as shown in the top image, and it is also possible for businesses to keep it in groups as in the bottom image.

04 Separation and Measurement

Step 4: Gather Baseline Data

AOnce food is separated, the next step is tracking or measuring the food waste at daily, weekly, or monthly intervals to plot trends and understand the impacts of food waste. To track and quantify your food waste, consider one of the following methods in order of increasing complexity and insights.

- Asking your waste collector to provide weights for each month, or week, if possible, as most collectors already generate internal reports for clients.
- Performing daily waste bin counts, which will provide a daily volume of food waste produced and can be converted to weight by multiplying the size of the bin (in litres) by 0.45 kilogram [14].
- Using a technology solution that weighs food onsite each day and gathers accompanying data such as the reason for the waste and the location generated (e.g. Winnow, LeanPath, or a weighing in-vessel digester such as ORCA or BioHiTech).

In addition to gathering the monthly, weekly, or daily weight or volume data, consider tracking your guest counts at the same frequency to normalize the data to a kilogram per guest metric that can be compared week over week and month over month.

Step 5: Set a Goal

Once your baseline is set, it will be important to set a measurable food waste reduction goal to engage staff on working towards a common, achievable purpose. The goal can start out simple, like committing to effectively separate food waste from the rest of your waste and might evolve into a more refined reduction goal as you collect more data. Setting a reduction goal is critical to successful food waste prevention and reduction.

Example goals include the following:

- In 2021, we will reduce pre-service waste by 15%.
- By 2020, our business will reduce overall food waste by 10%, institutionalize a donation program, and divert 100% of our organic waste away from landfill.

The subsequent sections provide guidance on actions you can take to achieve your prevention and reduction goals.

Audits

Conducting periodic waste-control audits allows you to dig deeper into the content of your food waste and the factors behind it, and can reveal new opportunities to prevent food waste in your business. For example, a lunch or dinner audit at the open buffet will allow you to understand how much of the food produced is not consumed. Detailed audit results at the product level will reveal the chef's numerous waste prevention opportunities, including the reduction of standard portion sizes for desserts, breads, and vegetables.

Conducting regular audits can provide valuable information on additional ways to optimize the use of the food purchased by the business. In Annex E, you can find a one-page outline of how to conduct an audit, which is a much more detailed data collection practice when compared to daily or weekly waste tracking.

05 Preventing Food Waste

Preventing food waste is a critical part of everyday work. Preventing food waste should be among the top priorities in your business. By reducing and preventing food waste, you not only save money in your operations, but also prevent the waste of water required to produce food, and energy and labour resources required for growing and transporting food.

Goals and Targets

A business has multiple opportunities to prevent waste along the "flow of food". Figure 2 shows the key points formulated as "plan, handle, and serve", where you can prevent food waste. The goal of this section is to provide helpful tips on how to prevent food waste during the planning, handling, and service phases of food production.

The stages included in the following table outline opportunities for prevention at each stage, who must be involved, and a feasibility ranking for each action. For additional challenges and solutions encountered during prevention of food waste, please see Annex H.

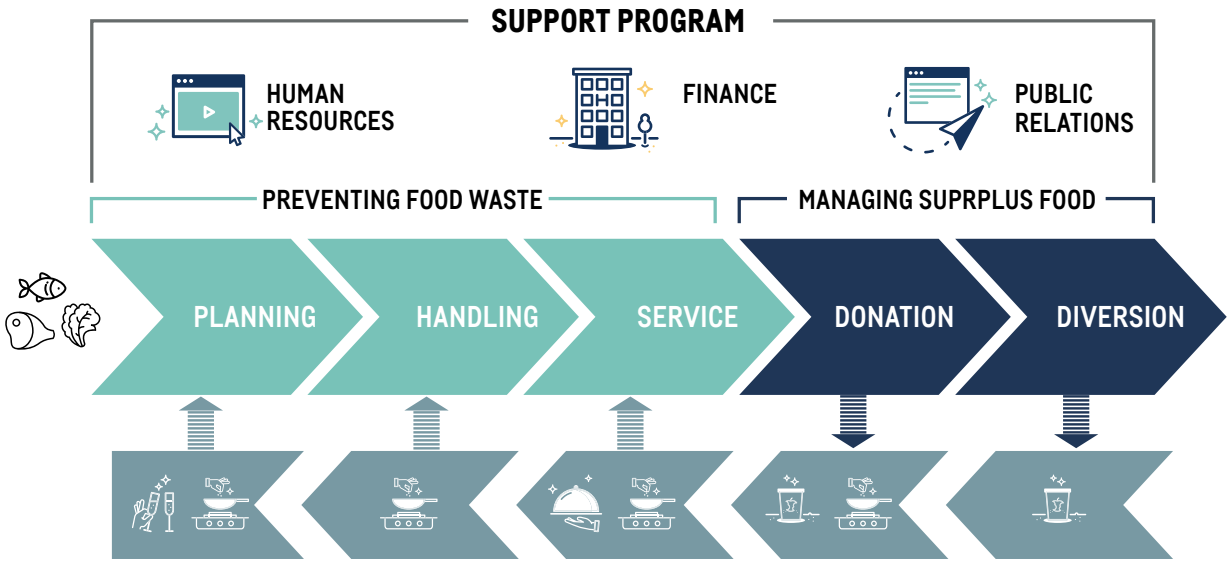


Figure 2. The Flow of Food

Success in reducing and preventing food waste requires concerted and careful planning by different teams.

PLANNING

Preventing Food Waste When Planning Meals

To prevent food waste when planning for meals and events, key actions include data use, menu design, and effectively engaging external stakeholders when sourcing ingredients and planning events.

The following table outlines guiding principles to follow in each stage of meal planning to reduce food waste, listed by ease of implementation. Please see Annex J for a list of 17 strategies to prevent waste before and during events.

05 Preventing Food Waste

Event Sales

• Communicate your property's food waste reduction and food recovery efforts to clients and guests.
• Discuss food waste reduction strategies in every banquet event order meeting. A template can be found in Annex C.
• Promote plated meals or buffets with stations as an alternative to a traditional buffet.
• Promote the reduction of food use for decoration purposes.
• Include menu of the day or reduced waste menu options in your event menu portfolio and promote these to guests. Customize menus for attendees using historic or supplied food preference data.

Data Use

• Ensure accurate guest counts through frequent communication with the event organizer.
• Communicate food waste data to the client after the event.
• Use historic or provided consumption or food preference data to inform procurement decisions.
• Use meal-specific RSVPs to guide production.
• Use technology solutions or email to communicate last-minute changes in attendance to culinary staff.

Event Contracts

• Include the food waste reduction and food recovery strategy in event contracts.
• Include a final set time for buffets in contracts and banquet event orders.
• Require updated guest counts 10 and 5 days prior to the event and the day of the event.
• Decrease the overage guarantee.
• Include an overage menu for unexpected attendance instead of a percentage of overproduction on each dish.

Sourcing

• Work with suppliers that have committed to minimizing food waste.
• Double-check inventory before ordering to prevent spoilage. You can send reliable but unusable products for donation.
• Arrange regular orders based on the business volume to avoid spoilage.
• Request delivery by vehicles with cold chain capacity, especially for the transportation of temperature-sensitive food products to your business.
• Request that data loggers and similar measuring devices that monitor the temperatures of foods during transportation are functioning in the vehicle. If possible, temperature-measuring devices should be capable of providing instantaneous data flow digitally.

• Evaluate ingredients for alternative sourcing methods to reduce spoilage or preparation waste, such as frozen or pre-prepped.

Waste-Reducing Menus

• Use low-waste ingredients in your menus. You can indicate these ingredients with menu icons. Please see Annex F for sample icons and fruit and vegetable ingredient rankings. Low-waste materials are also listed in the fruit and vegetable ingredient rankings in Annex F.
• Include "seconds" or "ugly" products in recipes.
• Limit dessert portions, especially at lunch.
• Reduce the total number of ingredients you use by cross-utilizing the same ingredients in different meals. Plan a second use for all edible preparation surplus.
• Reduce food weight produced per serving. Most adults consume about 0.54 kg of food per meal.
• Prepare overage à la minute or develop a menu of the day or overage menu that can be used across events for unexpected attendance. Suggest all events order the menu of the day.
• Develop a reduced food waste event plan using the above concepts and include in the event portfolio.

HANDLING

Preventing Food Waste When Receiving and Storing Food

Following standard storage management best practices is key to reducing waste from spoilage. The following part outlines specific guiding principles to reduce food waste during receiving and storage phases, listed by ease of implementation.

Receiving

• Make sure that correct items are delivered.
• Measure the central temperature values of foods that need to be stored at room temperature / cold / frozen and accept products that comply with the storage conditions specified on the product label.
• When receiving cold chain products, if possible, you can request a report on temperature changes in the logistics process.
• As soon as the items are accepted, transfer the items that need to be kept at room temperature / cold / frozen immediately to the warehouses at the appropriate temperature.
• Ensure that items received are of expected quality.

05 Preventing Food Waste

• Receive items without compromising food safety. Update quality standards to disregard aesthetics and procure “seconds” or “ugly” produce.
• Dedicate food waste bins to this area, track waste and conduct monthly audits to uncover and resolve challenges in the receiving area.

Storing

• Ensure all inventory best practices are followed including FIFO, labelling and temperature standards.
• Dedicate space in storage areas for foods to be donated.
• Review food stores monthly and use or donate underutilized foods.
• For foods prepared using different materials, create standard labels for prepared food that include use-by date and other information important for its reuse or donation.
• Dedicate food waste bins to storage areas, track waste and conduct audits to identify opportunities for waste reduction.

Preventing Food Waste When Preparing Food

Food waste from meal preparation can be prevented by using reliable data to create appropriately portioned dishes from maximized ingredients.

The following information outlines specific guiding principles to reduce waste when preparing food, listed by ease of implementation.

Preparation

• Check updated headcounts before trimming, preparing, or cooking any food.
• Ensure that recipe specifications are accessible and that preparation tools are in good condition and are best suited for each task.
• Plan a second use for preparation waste, like bones.
• Plan a second use for prepared meals in the event of overproduction. Methods such as freezing food before service can be applied.
• Fire some items à la minute and avoid firing overage until necessary.
• Encourage preparation chefs to share preparation waste reduction strategies during staff meetings.
• Provide preparation and cooking trainings to the kitchen staff in order to reduce waste.
• Dedicate a food waste bin to each preparation station to identify opportunities for waste reduction.
• If possible, set aside food scraps for animal feed, compost, or other alternative solutions.
• Use proper equipment, such as the cook & hold technology, to maintain food quality.

Plating and Portions

• Check updated headcounts before plating food.
• Adjust portion sizes relative to historic consumption data or observations of overproduction.
• Ensure measuring tools are available for accurate portioning.
• Offer portion options to guests and keep secondary meal portions small.
• Consider alternative display or plating strategies to avoid overconsumption on the open buffet. Avoid using food for decoration purposes on the open buffet.
• Conduct a semi-annual waste audit with menu review to reveal and resolve overproduction challenges.

Please see **Annex K** for examples of pre-service good practices

SERVING

Preventing Food Waste During and After Service

Buffets are one of the most important factors contributing to food waste in businesses. This waste can be reduced by strategically setting the buffet, giving awareness-raising messages to guests, and maximizing the utilization of initiatives for the donation of unavoidable overproduction.

The following table outlines guiding principles, listed roughly from easiest to most difficult to implement, to reduce waste during service to guests and maximize food recovery after meals. Please see Annex I for the suggestions made in the WWF Buffet 2.0 study for the prevention of waste during buffet setup and service.

Setting the Buffet

• Check headcount before setting buffets or plated meals.
• Display foods horizontally instead of piling for items like breads and pastries.
• Serve items in small, individual serving dishes.
• Separate mixed items whenever possible to give guests choice while maintaining freshness.
• Use dispensers, jars and dishes with lids to preserve food quality for reuse.
• Reduce plate size and shrink serving utensils. Offer small utensils for sample servings at the open buffet.
• Use temperature-controlled vessels to preserve food quality.
• Set certain high-value items as à la carte or reduce the number of side dishes.
• Place conscious consumption cues on the buffet to engage guests in waste-reduction efforts.
• Use service stations at the buffet to control portion size and maintain food quality.

05 Preventing Food Waste

During Service

• Put out increasingly smaller chafing dishes and top off or backfill when necessary.

• Facilitate communication between banquet and culinary staff to relay buffet supply status and instant replenishment.

• Use cook – chill – rethermalizing systems to maintain food quality for service and maintain food safety for reuse or recovery.

After Service

• Dedicate food waste bins to banquet breakdown stations. Track the waste and enable feedback to culinary on which items went unused, overset or wasted on guest plates. Inform future procurement and meal preparation with this data.

• Use blast-chilling equipment to preserve food quality for reuse or recovery. However, shock cooling may not be suitable for all foods that have been waiting in the buffet for a long time in terms of food safety. This technique should only be used for products that do not pose a food safety risk.

Please see **Annex L** for examples of post-service good practices.

> *“When we produce the right amount of food for an event, we reduce food waste and become more efficient, which affects our profitability.”*

06 Recovering Underutilized Food

By now, you have established a separation and measurement protocol for your business and implemented waste prevention methods. Now, it is time to manage overproduced food.

Multiple options exist to make use of these valuable Nutrients rather than sending them to the landfill. We break this down into two categories:

1. Donation: Safe leftover food is sent to those in need, and

2. Diversion: Inedible or unsafe food and organic waste are disposed of using environmentally preferable options that recover energy or nutrients. Diversion handing over food waste to an organic waste collector or managing food wasted in-house using processing methods in order to avoid disposal and burning of food waste.

DONATION

Goals and Targets

All businesses should have at least one active community donation partner who will pick up food that is still safe for human consumption but unable to be reused in-house. Businesses should feel confident that establishing a food donation program is not only good for business and the environment but also for the community and that is encouraged by law.

By donating edible surplus food, your business can help support people in need, preserve the resources that went into making the food, and reduce the amount of edible nutrients sent to compost, landfill, or other end-of-life solutions. For common challenges encountered during donation and recommendations for resolving them, please see Annex G.

Since donors have their own needs, it makes sense to set up multiple partnerships that can meet the different needs of your business. For example, one donation partner may choose to collect only bread or other basic food items on a weekly basis, while another organization may pick up other foods and arrive on the day of the event to collect excess food when major events are announced in advance.

Steps to Establishing a Donation Program

1. Designate a donation lead at your business.
2. Identify a trusted and experienced food recovery community partner (food bank or initiatives that act as intermediaries).
3. Develop standard operating procedures for handling food set for donation.
4. Inform and train staff on new procedures.
5. Gather data and develop a performance report.
6. Optional: Form a donation alliance with other businesses in your immediate area.

Step 1: Designate Donation Leads

Designate 1–2 staff members (from the Food Waste Management Team or from food & beverage or kitchen departments) to lead food donation efforts, including the following:

- Establish and maintain a relationship and communication with food recovery firms receiving the donations.
- Communicate program intentions to the brand or management of the business.
- Explain details about logistics in food donation to the staff in a simple way and ensure adoption.
- Actively monitor food donation handling and pick-up.

06 Recovering Underutilized Food

• Collect and communicate reports on donated food for comparative evaluation of the level of success of the donation program.

Step 2: Identify Food Recovery Partner(S)

Most large cities have multiple food rescue and recovery organizations that will work with you to schedule pick-ups, draft agreements that further limit liability, and provide you with supplies and guidance on what can be donated. When looking for a donation partner, make sure that they can meet the following expectations:

• Establish a regular pick-up schedule that fits your food production schedule.
• Provide company contacts for urgent matters.
• Accept your commonly overproduced food items at suitable intervals.
• Provide detailed food safety handling practices.
• Provide the documents needed for eligibility for tax incentives under the donation program.

Step 3: Handling of Food Donations

Each partner will have their own requirements for how they prefer to receive food and the type of food they can accept. However, for all donations, you must

follow your local food safety standards and any additional standards required by your donation partner for properly cooling down food after an event and storing and labelling food. When you have one or a few partnerships established, this process will become second nature.

Step 4: Inform and Train All Staff

Staff will need to be trained on the donation organization's specific operating procedures. This can be accomplished through multiple hands-on exercises with relevant staff. While this can add requirements to a staff member's functions, most chefs are excited to see their food being used to feed the local community and are happy to take on the task. Most of the waste is suitable for human consumption and able to be donated when intervention occurs in a timely manner. For this reason, it will be easier for all business staff to intervene in donation products suitable for human consumption before they become waste by placing signs in areas where excess food is generated, separated, and stored. The importance of this subject should be emphasized in the training.

Step 5: Collect Data

Track the type and quantity of donations by keeping records or collaborating with the food recovery partner, who will often provide their own reports. This allows your business to view trends, understand overproduction drivers, and make further changes to prevent overproduction in the future.
In addition to volume or weight measures, follow the success indicators:

- Cost savings by month / quarter / year from reduced waste transportation;
- Percentage of food donated from total food procured;
- Percentage of food donated from total food disposed;
- Average weight of food donated per pick-up;
- Number of weekly / monthly donations; and
- Number of staff trained on food recovery best practices.

Step 6: Form a Donation Alliance With Other Businesses (Optional)

Forming an alliance with other local restaurant, cafes, or hotels can help overcome common obstacles to food donation. Your property may not regularly have an abundance of food available to donate, or local food recovery partners might prefer higher volume pickups. In such cases, aligning with other businesses can help everyone reach their food recovery goals.

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06 Recovering Underutilized Food

Tax Deductions and Incentives

Your business may qualify for tax deductions when it donates food to food banking foundations and associations. According to the Communiqué no 251 of the Revenue Administration* and Article 40** of the Income Tax Law, VAT exemption is granted for donated foodstuffs, and donations are allowed to be deducted from the revenues in the calculation of the income forming the tax basis. It should also be noted that in order for businesses to claim a tax deduction, the food must not have already been sold for profit or belong to the customer as per the banquet (event) contract. Therefore, food prepared for a banquet event or purchased for the event and not consumed may be donated but may not be eligible for tax deduction. Before you can claim a tax deduction for food purchased for an event but not prepared, you must specify your business's ownership of raw food in contracts.

** Communiqué no 251 of the Revenue Administration - https://www.resmigazete.gov.tr/eskiler/2004/03/20040321.htm*
*** Article 40** of the Income Tax Law - https://www.mevzuat.gov.tr/MevzuatMetin/1.4.193.pdf*

Example: Tax Deductions for Food Donation

A business can deduct 22% of the cost of the donated part of its products and all the VAT it has incurred in relation to such donated products for tax deduction purposes. Below is a sample invoice prepared by a business for a food bank association. The reason for VAT exemption is stated as 229-17/2-b I, Food, cleaning supplies, clothing and fuel donated to associations and foundations engaged in food banking activities.

DIVERSION

Goals and Targets

If food cannot be used in the business or recovered for donation, the next attempt should be to recycle it through diversion. When food (and its associated inedible parts) is sent to a landfill, it gradually decomposes in an environment devoid of oxygen, producing methane, a harmful greenhouse gas at least 25 times more potent than carbon dioxide. According to the Food Losses and Waste, An Industry Guide for Turkey report issued by the European Bank for Reconstruction and Development[29], the total amount of greenhouses gases generated due to food loss and waste in Turkey was calculated as 32 million tons, equal to 7.5% of the whole greenhouse gas bill of the country. Similarly, methane emissions from landfills account for close to 18% of total methane emissions in the U.S. Alternately, when food is composted, while some greenhouse gases are emitted during decomposition, and. precious nutrients are returned to the soil, providing benefits for local farms or gardens. Returning vital nutrients to the land in the form of compost provides multiple forms of environmental benefits, including reduction in landfill methane emissions, reduction in synthetic fertilizer use, and improved soil health. Keeping food out of landfills should be a priority for every business!

Steps to Establishing a Diversion Program

1. Understand your local regulations and waste disposal requirements.
2. Evaluate local options for diversion (compost, biogas, etc.) based on business needs.
3. Train staff on compost production, recycling, and related processes.
4. Collect data.

Step 1: Become Familiar With Local Regulations

Check the websites of the relevant institutions (Ministry of Environment and Urbanization, Ministry of Agriculture and Forestry, municipalities, etc.) and contact the local waste management unit. It will be the responsibility of the Food Waste Management Team to determine the steps to be taken in accordance with the national legislation regarding the recycling of food waste.

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Regulation on the Control of Waste Vegetable Oils

Oils that do not comply with the criteria specified in the Regulation on Special Hygiene Rules for Solid and Liquid Oils Used in Frying, which was published in the Official Gazette dated 12 May 2012 numbered 28290, are not suitable for use as food in businesses. These oils should be handled according to the Regulation on the Control of Waste Vegetable Oils published in the Official Gazette dated 6 June 2015 numbered 2937. According to the regulation, waste vegetable oils should not be disposed of as food waste. In order to comply with this regulation, hotels and restaurants are required to collect vegetable waste oils separately and then deliver this waste to local licensed carriers or relevant municipalities that can provide collection services. Every 1 litre of vegetable waste oil mixed with the environment and the sewage system pollutes 1 million litres of drinking water, and if dumped into the sink, it causes clogging of the sewer pipes (https://sifiratik.gov.tr/bitkisel-atik-yag).

In addition, vegetable oils in the wastewater mix with the fresh water and kills fish deaths and causes deterioration of fish flavour. If you want to be one step ahead, train your staff on the separate collection of waste vegetable oil for good management, focusing on minimizing and preventing waste vegetable oil.

Feeding Animals with Food Waste

As an example, excess food that cannot be sold in meat, fish, fruits and vegetables and delicatessen departments of Metro Turkey stores is sent to animal shelters affiliated with municipalities under the agreements made with the relevant municipalities where the stores are located. In this way, excess food that cannot be sold is not only saved from going to landfills but is also used to feed animals. You can also evaluate the alternatives of transporting your food waste to animal shelters by contacting your municipality.

In addition to animal shelters, animal feed suppliers are also potential buyers for surplus food. Explore your options locally and start an unconventional partnership to manage excess food. This way, you can make new connections with your community and gain exciting success stories to convey to your staff and guests.

Establishing a Compost Program

Establishing a compost program can be daunting as it requires constant monitoring. However, the results will be gratifying. For example, in the compost study conducted as a pilot project, Metro Turkey succeeded in creating compost from fruits and vegetables, eggshells and tea and coffee grounds in the garden of its stores located in Günesli for a period of 1 to 2 months. If there is a suitable area in the garden of your business, it is possible to turn your food waste into compost.

In addition, by finding a local compost collector, you can give your organic waste to be turned into useful compost for the soil instead of being sent to landfills.

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Step 2: Explore Options and Implement Solutions

Once you understand your local regulations, communicate with **licensed waste transporters** to determine alternative solutions. Licensed waste transporters may offer these services or have insight into other local options for offsite composting or biogas (anaerobic digestion).

Explore options for on-site management if there are limited opportunities to transport food waste to dedicated processors. There are several available technologies, some offering enhanced data collection and environmental efficiency, such as the following:

- On-site composting, which can be used for on-site landscaping or redistributed or sold to staff, guests or communities for use in gardening.
- Digesters, with or without enzymes, which process food waste into greywater and flush to local wastewater treatment plants. With this technology, prioritize options that use enzymes to minimize nutrient loading on local wastewater treatment plants (remember to check local regulations) and only use equipment that incorporates measurement technology.
- Dehydrators can reduce the volume of food waste by up to 70%, minimizing waste transport costs.

Step 3: Train Staff

Train all relevant staff to separate and track food waste as appropriate. Train the kitchen staff, including the overnight shift and temporary employees, to accurately empty and replace bins. This may take several weeks of reinforcement before habits are successfully adopted.

Step 4: Collect Data

As with donation, collecting data via reports from transporters or on-site management software is essential to assessing progress against goals, understanding continued problem areas, and establishing new goals. This data can contribute to a holistic understanding of your operations and continued areas for improvement.

07 Conclusion

Sustainability is not a new consideration for public consumption points such as restaurants, cafes, and hotels. For years, many restaurant and hotel chains have addressed water conservation, sustainable seafood procurement, and soap recycling. Your business may even have an active "green" team in place. While these teams often acknowledge that food waste is a problem, it is usually not a top priority or a performance goal. The good news is that food waste is a problem that can be solved, and you can be a part of the solution by changing the culture, attitudes, and behaviours to encourage thoughtful food consumption.

It starts by understanding the many costs of waste. This can be achieved by incorporating prevention activities into job descriptions, requiring training during the onboarding process, and continually reinforcing waste reduction as a cultural norm.
In many food service operations, there is little recognition of the environmental impact of food production and waste, and food is merely a line item or expendable amenity. By addressing food waste, you can save money and time, improve staff loyalty and morale, and contribute to your local community, while simultaneously reducing global resource consumption, improving soil health, and reducing greenhouse gas

emissions. Reducing food waste is a major step forward toward shrinking humanity's ecological footprint.

This attitude and behavioural shift can be challenging, but it can become a new cultural norm. It requires commitment, from senior leadership to the newest employee. Reducing food waste must be part of the cultural identity of the business, an identity that constantly influences staff behaviour as new employees enter and experienced employees move to new opportunities.

This new culture starts with a fierce commitment to a daily PREVENTION-FIRST mindset. Both financial and environmental benefits are magnified when food waste is avoided. When prevention and reuse within a hotel are not possible, DONATION should be a consistent option, one that also builds stronger communities. Finally, all food that cannot be prevented or donated should be DIVERTED away from landfills so it can become energy or nutrients for the soil.

The resources and tips provided in these guidelines will help you get started, set goals for your business, and develop a successful food management strategy that fits your business operations. Saving food saves energy and water and preserves wildlife habitat. It also increases profits and can help battle food insecurity in your community.
We encourage you to begin today and join the fight against food waste!

08 Annexes

ANNEX A: SAMPLE SCRIPT

The following agenda outline and script can be used to introduce key leadership to your business's food waste reduction effort and each team member's role in the initiative.

Meeting Targets

- Introduce food waste reduction initiative's objectives.
- Discuss possible food waste reduction goals.
- Review project timeline and immediate next steps.
- Review individual department responsibilities.
- Discuss how to implement food waste separation and tracking.

Participants and Program Responsibilities

General Manager
Support staff participation

HR Director
Deliver staff surveys, schedule trainings, and develop project communication

Kitchen Chef
Separate and track pre-service food waste

Head of Service/Catering Staff (could be Food and Beverage Director)
Encourage staff support of tracking activities

Kitchen Head
Separate and track post-service food waste

Sustainability Director (if applicable)
Program support

Key Talking Points (Adjust as Needed)

Introduction. We will be implementing a **Food Waste Reduction** program over the next few months with the goal of creating a food waste prevention culture at our business. This effort will require the tracking of food waste production data, like the Weight Watchers model for weight loss, to track our reductions over time. We will separate our food and organic material from other waste streams and monitor its production in the various areas of food service. Once our separation and measurement system is

running smoothly, we will implement a series of prevention actions to improve efficiency and cost savings across our operations.

Separation. We will be using organic waste bins (brown or labelled in brown) to capture food waste throughout the hotel. This week, report the number of bins currently capturing any food waste to management so that organic waste bins can be procured and installed next week. Storage, culinary, service and stewarding teams must be briefed on this process change and our new separation strategy prior to green bin installation next week.

Tracking. At the end of each workday or as bins are emptied, stewarding staff will weigh bin contents or count the number of full bins by bin size and record. These numbers will be delivered daily to the Food Waste Management Team or Data Manager, who will track them using a simple Excel sheet or online data management tool, if available. We request that the Kitchen Head select persons to be responsible for this data recording task. These individuals should be put in contact with the Team or Data Manager to determine the best way to manage and transfer data (or describe the technology-enabled tracking strategy).

Communication. HR will distribute updates to staff twice a month to show the progress our business is making.

Next Steps. Our immediate next step is to develop a fully functional separation and measurement system to monitor our production of food waste. Over time, this data will help us find opportunities to improve our operations and prevent more waste. Please encourage your teams to look for these opportunities in their day-to-day tasks and report them back to you.

ANNEX B: SAMPLE POSTER

ANNEX C: WASTE-REDUCING MENU AND GUIDING PRINCIPLES

Waste-Reducing Menu Theory

Across the hospitality industry, the primary goal is to satisfy guest needs and desires, which can translate into an overabundance of food. The downside of this overabundance is that it can result in food waste both during ingredient preparation and in the form of leftover food on guests' plates or on the open buffet.

The Waste-Reducing Menu intentionally creates opportunities for all ingredients to be used, including leftover ingredients, while still offering high-quality food to the guest. Any safely preserved leftover food can be donated after service. The key to successfully reducing waste through menu design is using ingredients multiple times across brunch and lunch menus. Additionally, most ingredients in the brunch menu are not mixed with other ingredients or heavily cooked, which makes it easier to repurpose them in the lunch menu, resulting in little, if any, overproduction.

Ingredients are carefully chosen based on the Fruit and Vegetable Yield Ranking Guide (see Annex F), which rates ingredients based on how much is typically considered edible (e.g., food). For example, a tomato is a 5, which means the entire product is edible. Strawberries are a 4 – which means that it is mostly edible except for a small portion, the leaves and stem. All the fruit and vegetables on the Waste-Reducing Menu are a 4 or a 5, which encourages hotel chefs to reduce trimming by using the entire product.

This menu concept will require a team effort with participation from the sales staff, the banquet staff, culinary staff, stewarding staff, and food and beverage staff. It is imperative that all parties are trained on their role in implementing this type of menu. Here are a few of the key responsibilities for each of these roles:

- Catering Sales staff – selling the menu, explaining the additional strategies, and working on accurate guest counts at all stages;
- Kitchen staff – brainstorming ideas, working with sales staff to get accurate numbers for ordering, prepping, and cooking;
- Banquet staff – managing the food service and flow to ensure abundant appearance on buffets with minimal post-service waste,

shutting down buffets when required during service, and consolidating trays; and

• Stewarding staff – working with the kitchen staff to salvage all food that can be recovered either for donation or for reuse during lunch.

Strategies Beyond the Menu That Reduce Waste

While trimming and kitchen waste can be a problem for a large food service establishment, it is only half of the puzzle. Clients and guests can also do their part to help the hotel prevent and reduce food waste from banquet events.

• **Headcount:** One of the primary ways to prevent food waste from an event is to have an accurate guest count prior to food being ordered, but especially before food is prepped and served. When speaking with clients about this menu, reinforce the need for an accurate guest count at each stage in the production process. Key points for waste reduction where the most accurate numbers are needed include the number of days in advance for accurate ordering, the number of days required for accurate prepping, and the day of changes to drive the amount that is cooked.

• **Guest Preferences:** In addition to accurate guest counts, understanding guests' food preferences can also prevent common

sources of food waste from a buffet. A few items to discuss with the client may include:

> Bread and rolls – do you need to supply enough for every guest, or will there likely be some who do not eat carbohydrates or follow gluten-free or low-carb diets?

> Desserts – for a lunch buffet, will guests want large desserts, or are smaller bite-size options better? Our audits have shown that desserts at lunch are often a large source of overproduction due to the use of a very generous portions per guest. Chefs can consider decreasing the dessert portion size for lunch.

• **Service Style:** The way the food is served can also impact the amount of waste generated. Consider discussing the following non-traditional buffet setups with your guests:

> **Stations –** This controls the amount of food exposed to guests, minimizing plate waste and allowing for more reuse or donation post-service since the food was not exposed to potential food safety risks. It requires more staff and can be slower; trade-offs should be discussed with the client.

> **Mixed buffets –** A portion of the meal may be served plated, and a portion may be served via buffet.

> **Buffet replenishment –** Discuss with the client how the buffet service and replenishment should run to minimize overproduction and over-service resulting in unrecoverable food. Propose the following options:

» Decrease the number of lines to consolidate trays, or, if more buffet lines are preferred, use smaller dishes and consolidate pans as they are brought to the back of the house for replenishment.

» Using smaller portions and pans as service moves along to create a look of abundance with less food.

» Ask when buffet staff can stop replenishing trays based on pace of service and how many people have already eaten.

> Requirements:

(1) The food must be donated to a non-profit organization in good faith, meaning that the food must be donated with the honest belief that it is safe to eat.

(2) The food must meet all legal requirements from the point of food safety, labelling, and informing the consumer.

(3) The non-profit organization that receives the donated food must distribute it to needy individuals without receiving funds.

(4) The end recipient must not pay anything of monetary value for the donated food.

Donation: When prevention is not possible, discuss with your clients your intention to donate any food that is over-produced and still safe to serve.

ANNEX D: SAMPLE WASTE REDUCING MENUS

Sample Waste Reducing Menu Introductory Text

Worldwide, we waste approximately one third of all food we produce. About 40% of that comes from consumer-facing businesses like hotels. This means we are not only wasting food, but we are also wasting resources, water, and energy and, simultaneously, emitting more potent greenhouse gases that harm the environment.

[BUSINESS X] is doing its part by developing a waste-reducing menu that uses all edible parts of fruits and vegetables and uses other ingredients that are easily repurposed or donated at the end of an event.

This menu will be prepared with thoughtful consideration for your event attendees' experience and with an eye towards eliminating unnecessary food waste. However, menu creation only addresses one aspect of food waste. [BUSINESS X] encourages you to discuss with our event staff other strategies we can all employ to reduce food waste and improve event sustainability.

Note: The ranking (1–5) indicates yield efficiency for All product items. Higher-ranked items create less organic waste in the kitchen.

Waste-Reducing Brunch Buffet Menu

Breakfast Sandwich Bar:

- Bagels
- Multi-grain bread
- Tomatoes (5)
- Red onions (4)
- Seared mushrooms (5)
- Greens: rocket (5), spinach (5)
- Cheeses: cheddar, goat cheese, Ezine cheese
- Spreads: butter, cream cheese
- Proteins: smoked salmon, soft scrambled eggs, bacon, sausage

Parfait Bar:

- Yogurt
- Fruits: Strawberries (4), Blueberries (5), Raspberries (5), Watermelon (5)
- Toppings: walnuts, almonds, sunflower seeds

Additional Items:

- Fried potatoes (5)

Pastries:

- Berry muffins

Beverages:

- Coffee
- Teas: summertime flower tea blends or berry tea blends
- Compote

Soups:

- Mushroom soup (5)
- Purple cabbage soup (5)
- Tomato soup (5) (croutons may be used)

Salads:

- Mixed greens salad: Mixed greens (e.g. spinach, lettuce (5), pickled watermelon rind, goat cheese, toasted almonds, bacon vinaigrette
- Caesar salad: kale (5), tomato (5), sliced onion (4), croutons, Caesar dressing
- Smoked salmon and potato (5) salad

Sandwiches:

- Sandwich: Salami, lettuce (5), tomato (5), pepper, sauce
- Bagel
- Halloumi cheese Sandwich: grilled halloumi cheese (5), rocket, olive paste, peppers, thin multi-grain bread slices

Hot Dishes

- Meatballs
- Stuffed squash blossoms (5)
- Green beans (4)

Desserts:

- Mixed fruit pie with sugar and walnuts (4)
- Magnolia dessert: strawberries and cream, biscuits (4)

ANNEX E: FOOD WASTE AUDIT GUIDE

Steps of a Food Waste Audit

Step 1: Develop Goals For Your Audit

• Developing goals will help guide your classification system and the type of audit you should perform.

• Goals could include:

> Determine my largest driver of food waste.

> Determine my largest volume of food waste.

Step 2: Gather Materials

For most audits, you will need the following:

• A large space / table for sorting

• Buckets for each category

• A scale

• Gloves, other protective outerwear

• Samples (bags of food) to measure from every outlet (banquet kitchen, restaurant, etc.) and tagged by outlet. For more details on a sampling plan refer to the Food Loss and Waste Protocol (FLW) is
Annex A, Section A2*

https://flwprotocol.org/wp-content/uploads/2017/05/FLW_Standard_final_2016.pdf

> Samples should include food that is both fed to guests (e.g., plate waste) and not fed to guests (this would include plate and preparation materials, sent to any destination, including for animal feed, composted, or poured down the drain).

Step 3: Sort and Separate Food Waste

Use the goals you outlined in Step 1 to determine the categories you would like to sort the food waste into. The FLW Protocol has additional suggestions on categories (e.g., food versus inedible parts). For sorting efficiency, lightweight packaging can remain on food, but remove heavier packaging. Examples of categories for sorting include:

• Plate waste

• Spoiled and inedible food (e.g., over seasoned food, mouldy product, fruits and vegetables, expired milk)

• Still edible food put in waste
• Inedible parts of food (e.g., pits, bones, rinds)

Step 4: Weigh and Record

Gather all bags or waste bins of underutilized food by category (e.g., restaurant outlet or location of waste). Bags and bins should include food waste from plates and prep material that would be sent to any destination, including for animal feed, composted, or poured down the drain). Weigh each category and make notes on reasons for waste (if possible to discern), type of waste and any other comments that will help inform strategies for prevention using the audit results.

Take detailed notes and photos of the piles to help you remember what was in each category and why it likely ended up there.

Consider doing occasional guest surveys to better inform the reasons for waste.

Step 5: Analyse

Use the recorded results to analyse how standard operating procedures (SOPs) along all stages of the flow of food are contributing to waste, and take steps to update these SOPs to minimize overproduction. Instructions on how to scale your results to estimate the scope of the issue at your property can be found in the FLW Protocol: Annex A, Section A3.*

**https://flwprotocol.org/wp-content/uploads/2017/05/FLW_Standard_final_2016.pdf*

ANNEX E: FOOD WASTE AUDIT GUIDE

You can use a table like the one below to track food waste:

TIME	RECORDED BY	FOOD TYPE	REASON FOR LOSS	SELECT ONE		
				NUMBER OF PORTIONS	IN LITRES	IN KILOGRAMS

ANNEX F: FRUIT AND VEGETABLE YIELD RANKING GUIDE

FRUIT AND VEGETABLE YIELD RANKING GUIDE

5	Ingredient is entirely edible and versatile.
4	Ingredient is entirely edible and versatile; the part(s) that is/are typically discarded could be used but may not add value to a dish
3	Ingredient has part(s) that are NOT edible and are challenging to repurpose, but what is edible is versatile.
2	Ingredient has part(s) that are NOT edible and challenging to repurpose, and the edible part(s) are not versatile.
1	Ingredient is mostly INEDIBLE and challenging toreuse.

This Scale is Based on:

- How much of an ingredient is edible;
- How versatile the ingredient is; and
- How much value it will add to a dish and the guests' dining experience.

FRUITS			
Ingredient	**Score**	**Reasons**	**Recommendations**
Grapes	**5**	The entire ingredient is edible.	
Honeydew Melon	**3**	Honeydew skin is not edible, flesh and seeds are The seeds are edible and could be roasted but do not add value to a dish.	SAMPLE DISH: Roasted as a garnish or in pastries.
Citrus lemons, oranges, limes	**4**	The entire ingredient is edible, including the peel, pith, and seeds. The pith can be bitter, and the seeds can be challenging to reuse.	WASTE REDUCTION TIP: If you are going to remove the peel and pith, use the peel by grating to add flavour in a dish. SAMPLE DISH: Sugared citrus – cut the whole fruit into thin slices, add sugar to it, and use in desserts.
Peaches	**3**	The seed is not edible, and it is difficult to reuse. The rest of the peach is edible, including the skin.	
Pears	**4**	The entire ingredient is edible, including the skin, seeds, and core. Seeds can be reused but do not add value to a dish. Seeds are poisonous if consumed in large quantities.	WASTE REDUCTION TIP: Use bruised or overripe pears in sauces like barbeque sauce

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FRUITS			
Ingredient	**Score**	**Reasons**	**Recommendations**
Pears	4	The entire ingredient is edible, including the skin and the core. The texture of the skin is difficult to work with and reuse.	WASTE REDUCTION TIP: If you're going to remove the core, save it and use in juices or smoothies. you can also use it as an aromatic.
Pineapples	4		
Raspberries	5	The entire ingredient is edible	
Strawberries	4	The entire ingredient is edible, including the leaves and seeds. The tops with the leaves are not very flavourful and may not add a lot of value to a dish, but they can be reused.	WASTE REDUCTION TIP: If you're going to remove the tops of strawberries, use them to infuse water. Use overripe strawberries to make syrups, sauces, or pastry fillings.
Tomatoes	5	The entire ingredient is edible, and it is a very versatile ingredient.	
Watermelon	5	The entire ingredient is edible, including the skin and the core.	SAMPLE DISH: pickle the watermelon rind to add flavour to a dish
Apples	4	The entire ingredient is edible, including the skin, seeds, and core.	WASTE REDUCTION TIP: Use bruised or overripe apples in pastries or smoothies as a natural sweetener.
		Seeds can be reused but do not add value to a dish. Seeds are poisonous if consumed in large quantities.	WASTE REDUCTION TIP: Only remove the seeds and use the entire apple. Removing the seed does not take as long as removing the core, as cooks generally do. WASTE REDUCTION TIP: If you are going to remove the core or skin, use it in producing vinegar. Skin can be also used in making tea.
Cucumbers	5	The entire ingredient is edible, including the skin and the core.	SAMPLE DISH: Grilled cucumbers for those reaching the end of their shelf life. WASTE REDUCTION TIP: If you are going to peel/and or deseed cucumbers, brine them or add them to stir fry.

FRUITS			
Ingredient	**Score**	**Reasons**	**Recommendations**
Cherries	3	The stem and pits of cherries are not edible.	
Melons	3	Honeydew skin is not edible, but the flesh and seeds are. The seeds are edible and could be roasted but do not add value to a dish.	WASTE REDUCTION TIP: Roast seeds as a garnish or add to pastries.
Blueberries	5	The entire ingredient is edible and is best used in desserts, pastries, breakfast dishes.	
Blackberries	5	The entire ingredient is edible, and it is a versatile ingredient.	
Bananas	4	The entire ingredient is edible, including the peel, but the peel can be challenging to reuse. The banana flesh, which is called the "pulp", is a versatile ingredient.	WASTE REDUCTION TIP: If using organic bananas, the peel can be used as a wrap to steam food or as a waterproof serving dish. They peel can also be added to smoothies. WASTE REDUCTION TIP: Caramelize overripe bananas, use them to make gluten-free pancake batter (just eggs and bananas), or add to smoothies.
Avocados	3	Avocado skin is not edible. However, the flesh and seed are edible. The seed is edible but only in small quantities, and it would be challenging to repurpose in a kitchen.	SAMPLE DISH: Consider using in gelato or chocolate mousse. WASTE REDUCTION TIP: Be sure to fully scrape the inside of the skin. The darker-green flesh just underneath the skin is edible and extremely healthy.

VEGETABLES			
Ingredient	**Score**	**Reasons**	**Recommendations**
Acorn Squash	5	The entire ingredient is edible, including the skin and seeds. Compared to other squash, the skin of acorn squash is typically thin and delicate. It is simple and easy to cook.	Seeds can be toasted and eaten like pumpkin seeds. Could be used as an edible bowl (like a bread bowl). SAMPLE DISH: Rice pilaf, garnished with toasted acorn squash seeds served in an acorn squash bowl.
Artichoke	2	Most of the artichoke is not edible and would be challenging to reuse. Leaves can be cooked and eaten, but the yield is very low, so it would not add much value to a dish. The heart of the artichoke is the only true edible part.	

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VEGETABLES			
Ingredient	**Score**	**Reasons**	**Recommendations**
Asparagus	**5**	The entire ingredient is edible, but yield depends on quality. The thick ends that are lighter in colour should be snapped off and can be repurposed. Does not need to be peeled, since the skin and leaf sheaths are edible.	SAMPLE DISH: Spring asparagus and pea risotto or soup using the ends. WASTE REDUCTION TIP: If you choose to peel asparagus, use the peel to make soup or immediately submerge the peelings into cold water with ice. The peelings will curl and can be used as a garnish. The asparagus curls can enhance the aesthetics of a dish and tie it together. Another alternative is to use a paring knife to remove the leaf sheaths.
Beets	**5**	The entire ingredient is edible, including the skin and leaves	SAMPLE DISH: Beet green salad or sautéed beet greens.
Bell Peppers	**4**	The entire ingredient is technically edible. The seeds and ribs are bitter raw and, even if repurposed, would not add value to a dish.	WASTE REDUCTION TIP: Do not hack off the tops and bottoms, as perfectly edible and delicious flesh is lost. If you must, consider saving them for a salsa or other side.
Broccoli	**5**	The entire ingredient is edible, including the leaves and stalks. The ingredient is easy to prepare and versatile.	SAMPLE DISH: The ingredient is easy to prepare and versatile. SAMPLE DISH: The leaves can be sautéed or used in a pesto. WASTE REDUCTION TIP: Unless the stalk is going to be eaten raw, it does not need to be peeled.
Brussel Sprouts	**4**	While the entire ingredient is technically edible, the stalk is difficult to prepare, and even if you did cook it, the stalk would not add much value to a dish. Sprouts and leaves are completely edible and easy to prepare.	
Butternut Squash	**4**	The entire ingredient is edible, including the skin and seeds. The flavour and texture of the skin depend on its quality. Typically, the bigger the squash, the thicker the skin. If the skin is really thick, it may still be difficult to chew even if it is cooked.	SAMPLE DISH: Cut the squash into steaks and grill or roast them. SAMPLE DISH: Make butternut squash soup or a puree with toasted seeds. WASTE REDUCTION TIP: Keep the peel to make a broth or stock. Please note that making stock or broth will take up space in the walk-in if it is not going to be used immediately. WASTE REDUCTION TIP: Often times, butternut squash is cut into medium-sized cubes, which can result in a lot of trimming. If you are going to cut the squash into dice, use the trim to make a puree or soup.
Cabbage	**4**	The entire ingredient is edible, core and outer leaves included. The outer leaves are tough to eat, and the core will require additional cooking.	WASTE REDUCTION TIP: Use the outer leaves of a head of cabbage to line steamer baskets for dumplings. SAMPLE DISH: Stir fry with cabbage core and braised cabbage core.

VEGETABLES			
Ingredient	**Score**	**Reasons**	**Recommendations**
Carrots	**5**	The entire ingredient is edible, including the tops and greens. Carrots are a very versatile and useful ingredient.	SAMPLE DISH: Pesto from carrot tops and greens. WASTE REDUCTION TIP: Save trim waste from julienning, small dicing or brunoising and use for a puree, carrot soup, or mirepoix.
Cauliflower	**5**	The entire ingredient is edible, including the leaves and stalks. The ingredient is easy to prepare and versatile.	SAMPLE DISH: Braised or sautéed cauliflower leaves. WASTE REDUCTION TIP: The stalks and core could be added to a stir fry or used for cauliflower soup.
Celery	**5**	The entire ingredient is edible, including the tops, bottoms, and leaves. The ingredient is versatile and easy to prepare.	WASTE REDUCTION TIP: Use leaves as garnish and slice the tops and bottoms and use as mirepoix, add to salads, put in stews or pot pies. WASTE REDUCTION TIP: If you choose to peel celery, use the peel to make soup or immediately submerge the peelings into cold water with ice. The peelings will curl and can be used as a garnish.
Chard	**5**	The entire ingredient is edible and versatile, including the stems.	
Collard	**5**	· The entire ingredient is edible and versatile. · Collards can stand up to long cooking times, so you can leave the stems on.	SAMPLE DISH: Pickled chard stems or deep-fried chard stems. SAMPLE DISH: Chard salad, gratin, and/or pasta. SAMPLE DISH: Braise or blanch collards, or eat them raw or use the collards as wraps.
Corn	**3**	· Parts are inedible and/or challenging to reuse. · The corn silk can be reused and has a lot of health benefits. · Leftover corn cob and corn husks are not edible but can be reused.	WASTE REDUCTION TIP: Corn silk can be dried and used to make tea. WASTE REDUCTION TIP: Leftover corn cobs can be used to make flavourful stock and soups. Please note that making stock or broth will take up substantial space in the walk-in if it is not going to be used immediately. WASTE REDUCTION TIP: Corn husks can also be used instead of cheesecloth to bundle herbs and aromatics.
Eggplant	**4**	· The entire ingredient is edible, but the leaves are not very flavourful, so they would not add much value to a dish. · The ingredient is very versatile and used in a variety of cuisines.	WASTE REDUCTION TIP: If you plan on cutting the eggplant into dice cuts, use the trim to make an eggplant puree, which can add sweetness, colour, and texture to a dish.
Fennel	**4**	· The entire ingredient is edible, but the bulb is the most versatile part of fennel. · The stalk and fronds are edible but require a lot of time and space to reuse. · The entire ingredient is edible. part of fennel.	SAMPLE DISH: Fennel bulb sandwiches, fennel gratin, and fennel salad. WASTE REDUCTION TIP: Use the stalks to make broths and infused oils. WASTE REDUCTION TIP: Use the fronds as a garnish.

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VEGETABLES			
Ingredient	**Score**	**Reasons**	**Recommendations**
Garlic	4	· The wrappers are edible but are challenging to repurpose and would not add much value to a dish.	
Green Beans	4	The entire ingredient is edible and versatile. The ends are removed because they are tough and fibrous and are still difficult to eat even after they're cooked.	
Kale	5	The entire ingredient is edible, including the stems.	SAMPLE DISH: Fermented or sautéed kale stems. SAMPLE DISH: Risotto with finely chopped kale stems.
Leeks	4	The entire leek is edible; however, the smaller white and light green parts of the leek are typically desired, and the rest is discarded	SAMPLE DISH: Break down the tough leek greens vertically, chop them into bite size pieces, and stir fry them with minced pork and aromatics. WASTE REDUCTION TIP: Flash fry the roots and use them as toppings on salads or in sandwiches and burgers.
Lettuce	5	The entire ingredient is edible, including the bottoms	WASTE REDUCTION TIP: Instead of throwing out the bottoms, shred them and use them as a topping on Mexican dishes.
Lima Beans	2	The pods of lima beans are inedible and challenging to reuse. Removing lima beans from their pods is time consuming.	
Mushrooms	5	The entire ingredient is edible, including the stems.	WASTE REDUCTION TIP: The leaves, stems, and tendrils can be stir fried with a little broth or added to soup.
Okra	5	The entire ingredient is edible, including seeds, stem and leaves.	
Onions	4	The entire ingredient is edible, but onion skin is challenging to repurpose and would not add much value to a dish.	
Peas	4	The leaves, stem, and tendrils of a pea plant are all edible. The pods of peas are tough and challenging to repurpose.	WASTE REDUCTION TIP: The leaves, stems, and tendrils can be stir fried with a little broth or added to soup.
Potatoes	5	The entire ingredient is edible, including the skin.	WASTE REDUCTION TIP: Consider deep-frying the skin and using it as a garnish.
Pumpkin	4	The entire ingredient is edible, including the skin and seeds. If the pumpkin is young and small, it can be a versatile ingredient.	WASTE REDUCTION TIP: Toast the pumpkin seeds, use it as a garnish or in crackers made in-house. SAMPLE DISH: Roasted young pumpkin; roasted pumpkin ravioli.

VEGETABLES			
Ingredient	**Score**	**Reasons**	**Recommendations**
Radishes	5	The entire ingredient is edible, including the skin, tops and greens.	ÖSAMPLE DISH: Chimichurri made with radish leaves. WASTE REDUCTION TIP: If you are going to peel the radish, save the peels and pickle them.
Spinach	5	The entire ingredient is edible, including the stems.	WASTE REDUCTION TIP: If you remove the stems, cook them in pasta, sauté them, or add them to a smoothie.
Summer Squash	5	The entire ingredient is edible, including the skin and squash blossoms.	SAMPLE DISH: Fried squash blossoms.
Turnips	5	The entire ingredient is edible, including the skin and leaves	SAMPLE DISH: Raw young turnip slaw. WASTE REDUCTION TIP: Sauté the turnip leaves.

ANNEX G: OVERCOMING COMMON CHALLENGES

OVERCOMING COMMON CHALLENGES		
Phase	**Challenge**	**Solution**
Separation & Measurement	Waste Bin Placement	· Alert and train staff prior to placing the bins to make sure they are aware what the new bins should be used to collect. · Mark the floor or wall with coloured tape or signage so after the bins are emptied, they are returned to their appropriate location.
	Waste Bin Placement	· Use magnetic bin tops to catch silverware. · When you notice contamination, discuss with the staff immediately and with positive messaging to reinforce the intended behaviour. · When you notice staff making an extra effort to reduce or divert food waste, positively reinforce the behaviour.
	Union Labour	· Communicate openly with union representatives about your program goals and staff roles as early in the process as possible. · Assign certain tasks to non-union staff. · Offer professional incentives to self-electing staff volunteers and champions.
	Overnight Staff	· Host a meeting with the night managers and staff to discuss new waste procedures. · Engage this group early in the process and explain the proper disposal of the food in the new coloured bins and the proper placement of the bins once they have been emptied.
	Temporary Staff	· Whenever a new temporary staff team joins your operation, clearly communicate proper food waste management techniques to staff and managers. · If using a temporary staffing agency, communicate program goals with the agency and work together to assure habit adoption. · Use clear and multilingual signage throughout the operation to reinforce habits.

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OVERCOMING COMMON CHALLENGES		
Phase	**Challenge**	**Solution**
Prevention	Staff Turnover	· Embed operating procedures and food culture in the HR process by incorporating it into job descriptions, requiring training during the onboarding process, and continually reinforcing the theme throughout the year.
	Dispersed Operations	· Multiple kitchens and outlets can lead to complexity implementing and enforcing such a program. Identify a champion to own the program in each outlet or kitchen. They will be responsible to communicate successes and obstacles from their zone.
	Program Adoption across Functional Departments	· Bring all relevant departmental leaders to the table before program implementation and collaborate on program logistics and goals as appropriate to each distinct food service function.
	Concurrent Campaigns	· Find ways to connect the various sustainability campaigns or initiatives throughout the property. Food is a cross-cutting issue that has significant connections to water and energy usage as well as community welfare. Emphasizing the interconnectedness of property initiatives can bolster adoption of each program.
	Changing Behaviours	· Use the Lobster Ink video series to introduce staff to some prevention strategies. · Send staff to HotelKitchen.org to find additional prevention resources and activities they can undertake as part of their job functions. · Provide incentives to staff who implement new strategies, and encourage fellow staff to do the same.
	Balancing Benefits of Reduction with Labour Investments	· Successful food waste reduction programs can achieve savings in food and waste hauler costs. Assess the financial benefits of such a program within the context of your operation.
	Buffet Expectations and Standards	· Consult the Prevention section of this toolkit for comprehensive guidance on limiting waste from buffet service.
Recovery	Availability of Options	· When offsite options for food waste diversion from landfills are not available through your waste hauler, consider the following options: > Sending food to a farmer; > Sending food to an animal feed production operation; and > Investing in an onsite option (digester or compost).
	Donation Volume Requirements	· Form a donation alliance with other hotels or restaurants in your area to meet volume requirements for larger-scale food recovery partners.

ANNEX H: STRATEGIC ROADMAP*

***Source: L4S Leaders for Sustainability (http://l4sconsulting.com/wp-content/uploads/2018/03/Kimpton_Otel_Food_Waste_CaseStudy_11-11-17_FINAL.pdf*

VISION

Our business will be a pioneer in food waste management until 20xx. To this end, we will develop an effective food recovery program, train our staff on how to prevent waste, and involve our guests in the process. Thus, we will set an example for other businesses in the sector with our food waste management program.

STRATEGIC FACTORS

Sales	Training	Donation	Measurement
KEY STR ATEGIC INITIATIVES			
Cultivate working food waste prevention partnerships with clients. Create seasonal (low-waste) sustainable menus. Empower staff to make waste reduction decisions	Develop one-pager for onboarding new employees and for clients. Create food recovery standards. Implement Item-level overproduction log with established thresholds.	Identify multiple partners for specific purposes and needs. Partner with Others. Give donation options to guests; recognize groups who are engaged in the process.	Number of events sold with zero-waste menus Number of calls from clients requesting zero waste menus Number of restaurant clients that choose zero-waste menu items sold, percentage of total sales

OUR MISSION

We prevent food waste by using food to its highest potential for the benefit of our community and the earth.

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ANNEX I: FUTURE OF THE OPEN BUFFET

WWF developed the "Buffet 2.0" system for the reduction of food waste.

SALES CONVERSATION SOLUTIONS

Interactions between the client, CMP and hotel event staff that move an RFP to an approved event order. Opportunity to create upfront content, tools and resources to influence informed menu choices.

Food Philosophy

Create a philosophy of how the hotel/client values food. Reveal the context of food waste while presenting an inspiring goal to be achieved through collaboration. Use in sales and event planning conversations and on the buffet as a conscious consumption cue..

Data Bank Program

Make smarter procurement decisions using historic data trends and case studies on attendance and food consumption from similar properties/events. Create a company data bank and/or contribute to a shared data bank with other businesses in the brand and industry.

Food Waste-Certified Meeting Planners

Develop working relationships with meeting planners committed to sustainability and waste reduction. If available, consult certifications or courses distinguishing food waste conscious CMPs.

Waste-Reducing Menu Packages

Generate menus optimizing available and seasonal food resources with the aim of reducing food waste. These packages should be "plug and play" or adaptable based on client needs.

GUEST FORECASTING SOLUTIONS

Inform procurement and day-of food preparation using information gathered during online and on-site interactions with guests.

Consumer Profile

Collect basic food preference information from guests during event registration or at another point to inform procurement and/or preparation.

Meal

Gather data on meal attendance during event registration or at check-in. Subtle prompts during the event – on an event app, if available – can keep unneeded food off of buffets.

MEAL SERVICE SOLUTIONS

Attendees are busy with the event schedule. Hotel staff and CMPs are monitoring and optimizing meal production, adjusting portions and service based on attendee behaviour.

Conscious Consumption Cues

Share the hotel/event's food philosophy with verbal prompts and written communications at buffet check-in, buffet lines and on dining tables. Display options include table tents, napkins, lunch boxes, to-go bags, etc.

Phasing Down Vessels

Put out increasingly smaller trays of food as meal service ends. This minimizes unrecoverable food left on the buffet, maximizes the possibility for donation, and keeps the buffet looking full for the last guest.

Portioned Vessels

Prep single-serve dishes for items like yogurt to avoid wasting large amounts, guide portions to prevent waste on the plate, and to increase aesthetic appeal.

SEPARATE VESSELS

Separate mixes like fruits to create visual interest, avoid wasting out-of-season items, and prevent items from being smashed as customers pick through the mix.

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Meal Service Solutions *Continued*

Food Dispensers

Use tall, clear cylinders/jars/ dispensers to hold items like apples. This adds visual appeal and unclaimed items are food safe for reuse on future buffets.

Instant Displays

Instead of allowing expensive items like cold cuts, cheeses and cured fish to go bad on the buffet, display an à la minute plate that can be ordered from banquet servers.

Adjust Pastries

Display pastries and breads in small, horizontal batches instead of in piles or bowls. Call attention to any house-baked items as a specialty..

Always Full Chafers

Use chafers with adjustable tray heights that create the visual effect of a full chafer.

Food Kit 2.0

Elevate your boxed lunch experience. Use reusable or otherwise sustainable packaging printed with food philosophy messaging. Formats could include a "build your own" lunch box or a "barter table" for exchanging items. This can prevent waste of standard snack options while encouraging interaction between guests.

RACKING CONSUMPTION DATA SOLUTIONS

After the event, provide an opportunity to exchange data between the hotel, meeting planner, client, and other partners to inform future events and benchmark successes.

Resource Reports

Share a report with meeting planners and clients that summarizes experiences and data from the event, showing the connection between thoughtful event planning and maximization of procured food. Donating leftover food to local groups can also contribute to the client's CSR goals. This information can help institutionalize waste reducing practices for hotels, planners and clients.

Weekly Achievement Sharing

Share emerging experiments, experiences and data (anonymized, if necessary) with your local group, brand or industry.

ANNEX J – FOOD WASTE TRACKING CHART

With this chart, you can track pre-service food waste, kitchen waste during storage or preparation, post-service food waste, and food wasted due to overproduction or plate waste. You can use this worksheet as a template to develop a food waste tracking practice customized for your operation.

Date	Location of the Waste Bini	Pre-Service / Post-Service	How Many Bins?	Bin Size (Litre)	Person in Charge

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Date	Location of the Waste Bin	Pre-Service / Post-Service	Waste Weight (kg) (Full Bin (kg) – Empty Bin (kg)	Person in Charge

ANNEX K–PRE-SERVICE GOOD PRACTICES

Finance:

• Discover the financial viability of various food waste recycling strategies (transport contract, on-site management)
• Consider investing in tracking software (e.g. LeanPath and Winnow) or technology (e.g. cook-freeze, blast freezer) to maintain food quality and reliability.

Event / Catering Sales:

• Consider food waste during banquet event organization discussions and discuss options with customers for reducing and recycling food waste, including a contract to donate non-reusable food at your business.
• Include donation options in contracts. In this way, customers will know how to handle excess food after an event.
• Emphasize the importance of determining the correct number of guests to minimize excess food production.
• Promote sustainable or waste-reduced menus developed by kitchen staff and explain the facility's food policy to customers.

Banquet / Service:

• To preserve full containers for donation, fill trays as needed when food runs low and use as small containers as possible for buffets and offerings.
• Note the high-waste buffet items and notify them to the kitchen staff for menu adjustments.

Communication:

• Help the event sales team develop communication content they can use so they can tell customers about reduced-waste events.
• Prepare a one-page document detailing the importance of food waste, your business' food waste prevention goals, and your program's impact on society through donations.
• Place conscious consumption tips and food policy messages on buffets, tables, and guest rooms

Purchasing / Receiving:

• Buy "ugly" products whenever possible.
• Review your storage practices and focus on the use of whole foods to maintain food safety and quality.
• Remember to always apply the "First In, First Out" principle.
• Identify stored items that have no identified use or are close to "use by" date, strategize their use or donate them to the kitchen staff. ekibiyle bağışlayın.

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Human Resources:

• Consistently emphasize food waste prevention, recovery and recycling behaviours.
• Have best practice materials for food waste reduction and recovery available for employee review.
• Include a review of your food management policy in new recruitment orientation materials.

Stewarding:

• Put trash cans in designated locations and use appropriate bin labels.
• Request a presentation from the Food Waste Management Champion to learn proper food waste disposal techniques.
• Ensure that non-recyclable food waste from storehouses and kitchens is disposed of according to your business' recycling strategy.
• Keep accurate records of the number of full bins each day and record common items in each bin to provide kitchen staff with daily data on food waste generation.

Kitchen:

• Develop waste-reduced menus or a "Menu of the Day" programme.
• Use the most appropriately sized preparation and serving utensils for each meal to standardize portion sizes and prioritize whole food use.
• Store raw materials and prepared foods in suitable conditions to maintain food safety. Indicate "use by" dates on the label. Meet with financial or administrative managers to discuss options for investing in waste tracking software or other equipment that will help understand current waste and identify opportunities to reduce waste.

ANNEX L: POST-SERVICE GOOD PRACTICES

Kitchen:

• Request a report from warehouse personnel regarding unused raw materials.
• Ask service personnel to report on buffet leftovers for future meal preparation.
• Collaborate with donor partners on best practices for food preparation, storage, and handling for donation.

Event / Catering Sales:

• Make sure food that cannot be recovered from guests' plates or the buffet is disposed of according to your business' recycling strategy (e.g. compost).
• Ensure food safety is maintained to allow any unused food to be reused in the kitchen or donated to your local donor partner.

Banquet / Service:

• Tell your customers about your prevention, donation, and conversion successes.
• Collect data on attendance rates and food preferences, including what is consumed and what is wasted at each event, and use it at similar events.

Communication:

• Tell guests and customers about your prevention, recovery and recycling successes.

Finance:

• Compare and review the return on investment from food and transportation costs and prevention, recovery, and recycling activities.

Stewarding:

• Ensure that non-recoverable food waste from guest dishes and buffets is disposed of according to your business's recycling strategy (e.g. compost).
• Put all waste bins in the correct place.

Human Resources:

• Communicate prevention, recovery and recycling success to staff and reward food waste management champions.
• Organize a food waste program for staff in employee dining halls or on environmental days (Earth Day, Food Day).
• Continuously reinforce prevention, recovery and recycling behaviour through tutorials, posters and engaging events or competitions.

In addition to all these studies and measures, businesses can offer products that they overproduce but cannot sell and that preserve their freshness and taste to consumers at a discount over the shelf price. To achieve this, applications such as “MORE” and “OREKA” can be used.

FAZLA is an innovative solution created by, which turns surplus into benefit with its technological solutions and collaborations by finishing the fight against food waste 360 degrees and involving consumers in the process. Thanks to this application, while consumers become a part of the movement to fight food waste, they also have the opportunity to access the products of the brands they love for half the price or the products of the businesses that they have not had the chance to experience before. Thanks to this application, additional benefits are created, and additional financing resources are provided for businesses that cannot optimize their production planning and have surplus products, that value sustainability and the food recovery movement, and that want to increase their recognition and visibility and reach different customer groups.

OREKA is a digital marketplace where restaurants, patisseries, cafes and markets deliver surplus products to consumers at half the price or cheaper, with the technological solution it has developed. In this way, businesses generate additional income and reach a wider customer base, while consumers reach fresh and delicious products at affordable prices. Environmental gain is achieved by reducing food waste.

ANNEX M: AN EXAMPLE OF GOOD PRACTICES FROM TURKEY

Food-Friendly Orange Flag

Orange Flag is a comprehensive and interactive quality management system developed to contribute directly to the efforts to prevent food waste and protect food in all institutions of the society, especially in tourism enterprises, to raise awareness in the society and to offer radical solutions to the problem of food waste. This system covers the production, processing, storage, sale, presentation and consumption of food and all kinds of services related to food. Orange Flag Procedures, Principles and Practices are completely original and domestic, and have been developed together with the Orange Flag Project team in the light of relevant experts, professional managers and scientific articles.

What does it contain?

1.Representatives
2. Activities
3. Visibility
4. Training
5. Audits
6. Waste Management Systems
7. Performance Indicators
8. Analysis
9. Monthly and Yearly Reporting
10. Certification

Representatives

An Implementation Team is formed where one person from each business department is selected. Through visual materials, events and surveys specially prepared for each department in the team, one-on-one contact is made with the guests staying at the hotel, and awareness is created among the guests. Waste during the purchasing, production and presentation phases is prevented.

Trainings

At the beginning of the Orange Flag implementation process, awareness training is given to all staff of the hotel/enterprise in order to raise awareness about preventing food waste. Representative training is given to the personnel determined within the enterprise in order to maintain the application better.

Activities

Twenty dedicated periodic events are held for guests in the departments by the representatives.

Visibility

In total, 52 awareness-raising visual materials prepared in four languages, which will attract the attention of the guests, are positioned inside the hotel. The Orange Flag kit is offered to address the needs of each business in line with its capacity.

Kitchen

There is a 28-item criteria list that includes production, preparation, presentation, storage, purchasing and hygiene in the kitchen.

Audits

Audits are carried out by the Food-Friendly Orange Flag Coordination Team in the middle of the season in order to check whether the criteria, which are conveyed to the representatives during the training and then reported in writing, are applied correctly throughout the year. In addition, comprehensive level determination audits are carried out in hotels that have reached the required score for level advancement.

Scoring, Online Tracking System, Performance and Reporting

In the implementation of the Food-Friendly Orange Flag, training is given to all personnel in the hotel with which the agreement is made. Thanks to the training, first of all, the awareness level of the people who will be involved in implementation is increased and they are provided with information, and it is aimed to guide the guests in the

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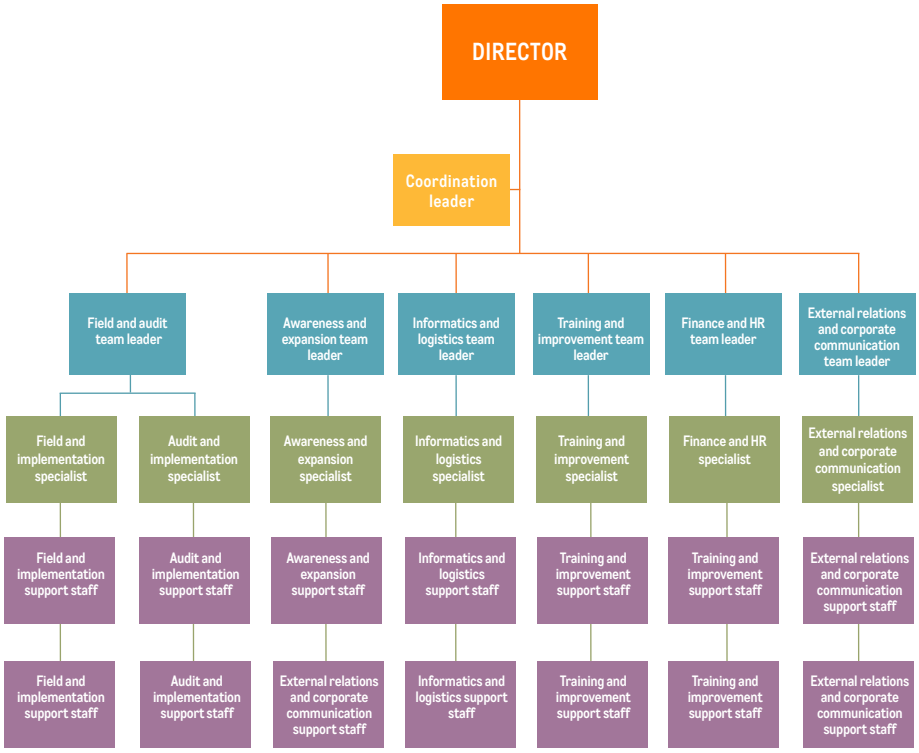
right way. The activities, activities and surveys carried out are carried out within a scoring system and each representative has a score to be achieved in monthly and annual periods. Representatives record the activities and activities they have done in the "e-Orange Online System" and, thus, the practices are systematically followed by the Food-Friendly Orange Flag Coordination Team. At the end of each month and year, the performance indicators obtained are presented to the hotel team leader to report the situation.

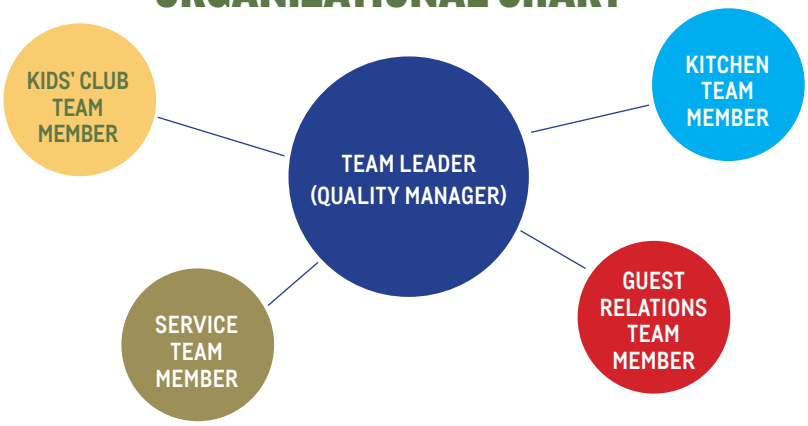
Levels

The Food-Friendly Orange Flag consists of levels associated with the scoring system. Levels are determined according to the success of the hotel. Levels increase in line with the score received.

ORANGE FLAG COORDINATION TEAM ORGANIZATIONAL CHART



HOTEL IMPLEMENTATION TEAM ORGANIZATIONAL CHART



09 References

1. Wasted: How America Is Losing Up To 40 Percent of Its Food From Farm To Fork To Landfill (Second Edition), NRDC, (2017), https://www.nrdc.org/sites/default/files/wasted-2017-report.pdf
2. America's Food Waste Problem, EPA(2016), https: //www.epa.gov/sciencematters/americas-food-waste-problem
3. Global Food Losses and Food Waste, UN FAO,(2011) http://www.fao.org/food-loss-and-food-waste/en/.
4. Convention on Biological Diversity, CBD Technical Series No 79, 2014
5. ReFED, A Road map to Reduce US Food Waste by 20 Percent, (2016), www.refed.com.
6. Statista. 2017. "Food and drink sales of hotel restaurants in the US from 2009 to 2017.".2017."
7. Results provided by LeanPath and Winnow based on their work with the hospitality sector.
8. Food that is fit for human consumption, but is not consumed because it is left to spoil or is discarded by retailers or consumers.
9. USDA estimated in their 2011-2012 What We Eat in America report that an average meal is 1.2 pounds of food.
10. Number derived from savings seen by demonstration properties and other industry stories gathered through this project.
11. ReFed. 2016. http://www.refed.com/solutions/trayless-dining
12. Winnow and LeanPath provided data
13. http://bursa.meb.gov.tr/enerjiyonetimi/sifir-atik/sifir-atik-gorseller.php
14. US Environmental Protection Agency. April 2016. Volume-to-Weight Conversion Factors.
15. "Don't Waste, Donate: Enhancing Food Donations Through Federal Policy. "Chlpi.org. Harvard Food Law and Policy Clinic, Mar. 2017. Web. Page 3 .https://goo.gl/v3w3Nh.
16. "Liability Protections for Food Donation. "William Mitchel College of Law Public Health Center, Mar. 2013. Web. Page 3. https://goo.gl/ttYaLT
17. As of October 2017, the following states: California, Connecticut, Massachusetts, Rhode Island, and Vermont, and cities: Austin, TX, New York, NY, Portland, OR, San Francisco, and Seattle, WA all have organics to landfill bans.
18. http://www.ggd.org.tr/resim2/ggd_gida_kaybi_ve_etiket_okuma_aras__tirmasi_25_04_2019.pdf
19. https://www.tarimorman.gov.tr/GKGM/Belgeler/Uretici_Bilgi_Kosesi/Egitim/Hijyen_Kilavuz/Toplut%C3%BCketim%20Yerleri%20%C4%B0%C3%A7in.pdf
20. https://wrap.org.uk/sites/default/files/2020-10/WRAP-Hotels_The%20Business%20 Case%20for%20Reducing %20Food %20Waste.pdf
21. Sezgin, and Ateş, 2020. "Otel İşletmelerinde Gıda İsraf Boyutunu Belirlemeye Yönelik Bir Araştırma", Journal of Tourism and Gastronomy Studies.
22. Doğan, Dengiz, and Tarhan, 2020. "Otel Restoranlarında Gıda İsrafı Algısına Yönelik Bir Araştıma", International Marmara Social Sciences Congress (Autumn) 2020 Abstracts & Proceedings E-Book
23. Kırmızıkuşak, and Yücel, 2021. "Yiyecek İçecek İşletmelerindeki Gıda Kaybı ve İsrafının Maliyete Etkisi", Journal of Tourism and Gastronomy Studies, 2021, 9 (1), 448-469
24. Çirişoğlu, and Akoğlu, 2020. "Restoranlarda Oluşan Gıda Atıkları ve Yönetimi: İstanbul İli Örneği", Akademik Gıda 19(1) (2021) 38-48, DOI: 10.24323/akademik-gida.927664
25. Erik, 2019. "Restoran İşletmelerinde Gıda İsrafının Önlenmesi ve İhtiyaç Fazlası Yemeğin Değerlendirilmesine Yönelik Bir Mobil Uygulama Modelinin Geliştirilmesi: LUSE", Master's Thesis, Necmettin Erbakan University, Institute of Social Sciences, Department of Gastronomy and Culinary Arts
26. http://www.fao.org/food-loss-and-food-waste/flw-data
27. ReFED, A Roadmap to Reduce US Food Waste by 20 Percent, (2016), www. refed.com.
28. https://news.un.org/en/story/2021/03/1086402
29. https://www.ebrd.com/documents/legal-reform/turkey-food-waste-sector-guidelines.pdf?blobnocache=true

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ORMAN BAKANLIĞI

GIDANI KORU
SOFRANA SAHİP ÇIK

METRO
İŞİN MUTFAĞINDA