

# KuttMatsvinn2020

## *Food waste in the food service industry 2017-2020 in Norway*



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# 1 Introduction

## 1.1 Background

The aim of the KuttMatsvinn2020 (CutFoodWaste2020), hereafter referred to as KM2020, is a project which aim to reduce edible food waste in the food service industry by 20 % over the period from 2017 until 2020. This objective supports Norway's commitment to follow up UN's Sustainable Development Goal 12.3, to halve food waste by 2030. The goal will be achieved by mapping the quantities and causes of food waste in the various stages of the processes (procurement, storage, production and serving) and by introducing measures in the participating businesses.

## 1.2 Organisation of the project

The project KM2020 consists of two parts. 1) A three-year research project. 2) A sectoral project initiated by distributor and wholesaler NorgesGruppen and ASKO.

1) The research project of KM2020 is funded by the “Bionær Programme” (Sustainable Innovation in Food and Bio-based Industries) of the Research Council of Norway. It is a sectoral partnership with the goal of reducing food waste by 20 percent by 2020 and, in the longer term, reaching the UN Sustainable Development Goal 12.3. Matvett<sup>1</sup> is the project owner and Ostfold Research<sup>2</sup> manages the project. The partners are the Bama Group, Compass Group, ISS Facility Services, NorgesGruppen, Scandic Hotels, Nordic Choice Hotels, the Norwegian Hospitality Association, IntoLife, Mepex, Fredrikstad Town Council and Østfold County Council. Nofima, Ostfold Research, Luke (Finland) and RISE (Sweden) are also involved in the research.

2) The sectoral project of KM2020 runs in parallel with the research project. At present, about 1850 food service facilities are involved in this project, where the main focus areas are measure and monitoring food waste, employee competence development and the implementation of anti-waste measures. The aim of the project is to involve as many operators in the food service industry as possible (hotels, restaurants, contract caterers, catering services, kiosks, cafés and gas stations and the public sector) who will attempt to reduce their food waste by 20 percent by the year 2020.

In KM2020, one of the main tasks is to collect food waste data from different actors in the food service industry.

Each company or public actor joins the project by signing an agreement, stating that they will monitor their food waste, share their data with Ostfold Research and implement measures to reduce food waste. In return, each participating player will have access to an implementation kit, which is developed by the project. Participating companies pay a project fee based on

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<sup>1</sup> Matvett is an organisation for the food and food service industry to prevent and reduce food waste and collaborate on behalf of the industry with authorities and research institutes.

<sup>2</sup> Ostfold Research is a research institute, focusing on environmental challenges in different sectors

their annual turnover of food and drink. The table shows how the different levels of a company's turnover equivalent to the fee of participating in the project.

**Table 1.1 Different levels of annual project fee**

Level	Turnover food and drink	Annual project fee*
1	<5 million Euros	200 Euros
2	5 – 30 million Euros	1 000 Euros
3	30 - 100 million Euros	3 000 Euros
4	100 - 150 million Euros	5 000 Euros
5	>150 million Euros	10 000 Euros

## 1.3 Main activities

The main activities in the research project are:

- **Identify causes and define baseline**

Continuous systematic measurement of food waste is initiated in the participating hotels, contract caterers and restaurants in the project. The registration methods vary from simple registration forms to advanced digital solutions. Waste composition analyses have also been conducted to achieve better knowledge about the composition of food waste.

- **Technical and innovative solutions**

Example of solutions are digital tools for monitoring food waste, sharing best practice, communication material for guests involvement on reducing food waste and development of new food products of residual raw materials. Also, guidelines for safety use of food rework and redistribution of food is under development and will be tested at some selected food service facilities.

- **Value chain collaboration**

Together with selected food suppliers, wholesalers and food service companies, various challenges involving the supply chain have been identified. The chosen topics for the collaboration are:

- Procurement, ordering routines and assortment
- Knowledge of shelf life and food safety
- Optimal raw material utilization

The participating suppliers and wholesalers shall together with the food service companies find measures to reduce food waste

- **Food service industry statistics**

The collected food waste data are used to calculate the key figures "gram of food waste per guest", and by upscaling the numbers using economic figures, we will get national statistics of food waste in the food service industry.

## 2 Data basis

Data from hotels and contract caterers has mainly included both edible and non-edible food waste, the number of guests and sales figures. Only a few hotels and contract caterers have registered edible food waste as a separated fraction. Data for hotels and contract caterers are either obtained by using digital tools for monitoring food waste (smart scales), data from waste management (tons of food waste), or via manual weighing on kitchen scale and registering the amounts in Excel or similar sheets.

The use of different data collection methods and recording tools may lead to different understandings of what to include in the data basis, which may therefore involve some uncertain factors. The data base for hotels and contract caterers covers waste generated from both storage, food preparation, buffets and plate leftovers/waste by guests.

### 2.1 Key performance indicator

The project uses the key performance indicator “Edible food waste per guest” to monitor food waste over time. This means that there has been made a distinction between edible and non-edible food waste. The edible part of food waste is defined as “the share that includes all the edible parts of food produced for humans, but that is thrown away or taken out of the value chain for other purposes than feeding humans, from the point plants or animals are harvested or slaughtered”.

The number of guests is determined by the amount of meals they consume. This means that a hotel guest eating breakfast, lunch and dinner should be registered as three guests. As for the public sector, food waste is measured per user (e.g. number of pupils at school or residents at elderly homes).

For kiosks, cafés and gas stations the key performance indicator is "the value of food waste in percentage of revenue". See figure 2.1.



**Figure 2.1 Key performance indicators in the segment of the food service industry**

The overall key performance indicator for the whole food service industry is food waste per inhabitant, to be comparable to the other parts of the supply chain.

## 2.2 Data registration in the companies

Each restaurant/unit should appoint a food waste expert to manage the work at each site, often the kitchen chef. For companies which consist of a chain, should appoint a project manager to lead the project on an overall level and to be in close contact with the food waste expert on each site.

Typical tasks of a Project Manager:

- Responsible for managing, planning and organising the work for the chain
- Main contact person for food waste experts at each site
- Make instructions on how the sites should monitor their food waste
- Compile data from the units

Tasks of "Food waste expert" at each site:

- Inform, communicate and motivate staff
- Manage the daily on-site work
- Register food waste and number of daily guests and report data to the project manager

## 2.3 Data collection

The detail level on how each company chooses to measure its food waste is optional. It depends both on the type of restaurant and on what kind of measurement system used. Since it is optional, not every food service facilities register food waste at the same way.

### 1) Data from waste companies

At the simplest level, all food waste from a food service facility is registered and summed per week or month. In practice, this means that project participants deliver data from waste companies collecting their bio-waste. This enables Ostfold Research to observe seasonal variations in food waste generations (if any), but does not allow for any detailed analyses on where it occurred or what type of food it contains.

### 2) Weighing and registering on different levels

#### a) Edible or non-edible food waste

One can choose to register food waste, or only the edible part of food waste. Liquids should not be included in the measurements. The projects' indicator is the amount of edible food waste per guest. Because it might be difficult for each actor to divide food waste in an edible and non-edible part, project participants are not obliged to split between these two fractures. To convert the amount of food waste to the amount of edible food waste, a factor representing the edible share of the total food waste has been used. A unique factor for both hotels, canteens and restaurants has been developed based on waste composition analyses carried out through the project. In total, three hotels, four canteens and one restaurant have been analysed in closed detail

#### b) Type of meal (breakfast/dinner) and process (storage/cooking/plate waste)

Companies will get a better overview of when and where the food waste occur when they can monitor their food waste by having separate registrations for breakfast, lunch and dinner and implementing different waste stations for storage/spoilage, production, buffet and plate waste. Due to different type of restaurants, not all processes will be relevant for each company. Therefore, companies are free to choose which meals and waste stations they include in their mapping.

c) Type of food

To determine the financial and environmental impact of the company's food waste, and to gain more insight in what has been thrown away, one can register per food type (e.g. fish, meat, vegetables, ...).

To facilitate data registration, different registration tools have been used. In general, a distinction can be made between two types of registration methods. The first method entails food waste being collected in buckets, which are weighted and registered manually in an excel file or other applications afterwards. The second method uses smart scales that are linked to a tablet and a database to store the registrations. This system is considered more suitable for detailed registrations, but is not free of charge.

## 2.4 Data reporting

Each participating company must send their registrations to Ostfold Research twice a year. Most of the hotels, contract caterers and public actors are grouped under a chain or organization with a project manager. This person serves as the contact person for each company and is responsible for collecting and delivering the food waste registrations from the individual food service facilities. In addition, the project manager is asked to answer a questionnaire that is used to get insight on how each company registered food waste.

## 2.5 Data analysis

Based on data received from the participating companies, the amount of edible food waste per guest is calculated for each sector, i.e. hotels, restaurants, contract caterers and public actors. These results serve as a benchmark for the sector and can be used by individual actors for comparison. As there is no random sample selection of the companies delivering data, the representability of the sector results can be questioned. To handle this problem, the following method has been used for private companies:

- The amount of food waste has been converted into edible food waste using a key figure for the proportion of edible food waste in total food waste based on waste composition analysis from seven catering establishments. Note that this conversion is not very reliable as the sample is very small.
- The average amount of edible food waste per guest for each company chain is calculated. This is based on a weighted average of the individual food service facilities belonging to that specific company chain.
- Once the average for each company (chain) is determined, their “market share” is used to weight their influence on the segment average. To determine the market share, the revenue from the past six months is used. The revenue of a specific company (chain)

relative to the total revenue of all companies delivering data for a specific group is used as “market share”.

- Each company is assigned to a specific segment, these sectors are based on the industry groups used by the Norwegian statistics bureau.

## 3 International activities

### 3.1 The AVARE Research Project

The AVARE research project is a SUSFOOD project, involving collaboration between research partners from Germany, Sweden, Finland and Norway on research questions related to food waste in the food service industry. The Norwegian activities are financed by the Research Council of Norway.

The project will measure food waste and analyse the effects of various anti-food waste measures. The measures will aim to prevent or reduce waste and be linked to organisation/planning and redistribution. They will be analysed in terms of amounts of food waste, environmental effects using LCA, social effects using social LCA and economic effects by estimating the utility value for the catering establishments concerned. There will also be technical experiments involving the use of food waste in bioprocesses to assess how the waste can be best utilised. Communication with various target groups is an important part of the project, and the last part of the project will include national workshops for participating catering establishments.

Five research partners are participating in the project: The University of Applied Science in Münster, Technische Universität Berlin, The Swedish University of Agricultural Sciences, The Finnish Natural Resources Institute and Ostfold Research.

### 3.2 Participation in the EU Platform on Food Losses and Food Waste

The European Commission agreed to create an EU platform for food waste to bring together key public and private actors from member states to collaborate on important food waste issues. The aims of the platform are to share experiences, develop joint anti-waste measures and help the EU to reach the UN Sustainable Development Goal of a 50% reduction in food waste by 2030. Matvett was included in the group as part of a consortium with Ostfold Research. Three general meetings have been held, along with several meetings in working groups dealing with mapping, redistribution, date labelling and anti-food waste measures. The reasons for including the Norwegian participants are that Norway has developed methodology and data for measuring food waste throughout the value chain that is unique in Europe. Furthermore, Norway is recognized to be more advanced compared to other countries in organising food waste cooperation across the value chain and in collaboration with the government.