

► Project *brief*

Thünen Institute of Market Analysis

2025/17a

Centre of Excellence for Food Service supports efficient reduction of food waste

Malin Büttemeier¹, Thomas Schmidt¹

- **With the support of the Centre of Excellence for Food Service, 201 food service establishments were able to reduce their food waste by 13%.**
- **Long-term implementation of reduction measures has resulted in a reduction in food waste of up to 23%.**
- **Sustainability assessments indicate that reduction measures result in environmental and economic resource savings that more than offset implementation costs.**

Background and objectives

To reduce food loss and waste along the value chain, the National Strategy for Reducing Food Waste was launched in 2019, based on SDG 12.3. This strategy aims to reduce food waste (FW) by 30% by 2025 and by 50% by 2030. To achieve these targets, five dialogue forums were established, bringing together industry, politics, civil society, and science to develop joint solutions. From the Dialogue Forum on Food Service, the [Centre of Excellence for Food Service \(CoE\)](#) emerged. Since 2022, the Thünen Institute has supported the CoE, assisting businesses in measuring FW and implementing reduction measures. The executing body is the association [United Against Waste e.V. \(UAW\)](#), which will continue the CoE even after the three-year project phase ends.

The objective of this Centre of Excellence is to reach as many food service businesses as possible and motivate them to participate in the National Strategy to reduce FW in the food service sector accordingly.

In addition, sustainability assessments of reduction measures from best practice examples should demonstrate the costs and benefits of different measures and the sustainability of their implementation in environmental, economic and social terms.

Approach

UAW is responsible for public relations and the acquisition of companies, presenting the CoE at events and webinars, and organizing communication with companies. To participate in the CoE, companies committed to measuring their FW over several weeks, implementing reduction measures, conduct follow-up measurements and providing the collected data to the CoE. The Thünen Institute evaluated and assessed the data. Additionally, the Thünen Institute analyzed the general approach in the CoE project and published it as an evaluation report.

For the sustainability assessments, more detailed information on the costs and benefits of implementing measures was collected in close cooperation with three companies. This involved examining both quantitative characteristics, such as CO₂ emissions saved or generated, and qualitative characteristics, such as the implementation effort and longevity.

Results

The CoE has successfully expanded its reach over three years. By the end of June 2024, a total of 251 business locations (from 39 companies) across various food service categories - including corporate canteens, educational institutions, hospitality, hospitals, retirement/nursing homes, pubs/bars/kiosks, and restaurants - had participated. Out of these, 201 business locations had completed a six-month participation period with the CoE and were honored for their successful engagement.

On average, the participating business locations reduced their FW by 20 grams (13%) per meal after one participation period. After two participation periods, the reduction was already at 23%. Figure 1 illustrates the distribution of FW quantities in grams per meal from the first and second measurements (measurement period 1 and 2) of the first participation period. Additionally, it became evident that the majority of FW was generated through overproduction (46%) and plate waste (42%). Smaller amounts occurred in storage (2%) and during production (10%). Consequently, most of the measures implemented focused on these two primary areas.

Furthermore, certain "special cases" were identified: primarily educational institutions and retirement/nursing homes often do not have their own storage or production due to external deliveries. This resulted in higher average FW and a lower average reduction potential.

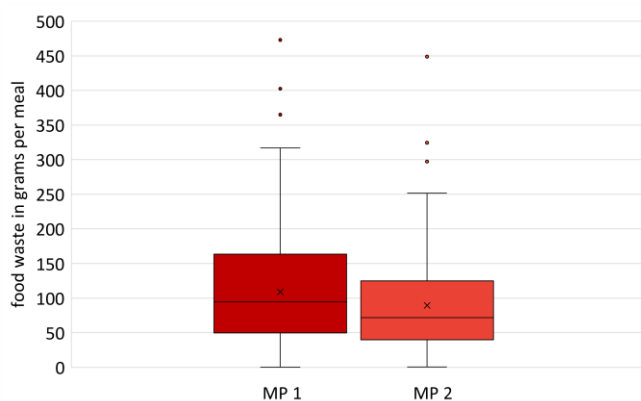


Figure 1: Distribution of food waste quantities in grams per meal from measurement period 1 (MP 1) and measurement period 2 (MP 2) (Source: Büttemeier et al., 2024).

The sustainability assessments were conducted with three business locations: a corporate canteen, a university canteen, and a hospital.

In the corporate canteen, which serves approximately 1,800 guests per day, seven measures to reduce food waste were implemented, including awareness campaigns, smaller portion sizes, and discounted meals towards the end of the meal service. Within six months, the FW was reduced by 46% (2,059 kg). In the two examined cafeterias, the waste per meal decreased from 151 g to 51 g and from 89 g to 49 g, respectively. For every euro invested in reduction measures, 0.18 kg of FW, 245 kcal, 3.23 kg CO₂ equivalents (CO₂e) and 3.60 euros were saved. Most measures were low-effort, effective in the long term, and easily transferable to other businesses.

In the university canteen, which serves about 3,100 guests daily, five measures to reduce FW were implemented, including discounted meals, staff awareness campaigns, and adjusted production quantities. Although the absolute FW decreased, the quantity per meal increased slightly from 26 g to 32 g, likely due to fluctuating guest numbers. Consequently, a conclusive evaluation of the measures was not possible. The economic costs amounted to approximately 19,500 euros, mainly due to external services.

In the patient catering of a hospital that provides full catering for about 1,400 patients daily, seven targeted measures were implemented to reduce food waste, including FW measurements, staff training, and adjusting portion sizes. Within six months, approximately 26,500 kg of FW was saved, equating to a reduction of 35 g less FW per meal. For every euro invested, 1.62 kg of FW, 1,482 kcal, 2.67 kg CO₂e and 6.53 euros were saved. The measures were evaluated as sustainable, effective, and easily transferable.

In the hospital's employee catering, five measures to reduce food waste were implemented, including FW measurements and a more diverse food offering. Through these measures, approximately 3,500 kg of waste was saved within six months – a reduction from 77 g to 30 g per meal (61%). The one-time costs for FW measurement amounted to 2,700 euros for an external evaluation tool; all other measures were cost-neutral. For every euro invested, 1.31 kg of FW, 1,048 kcal, 2.03 kg CO₂e and 5.22 euros were saved. All measures were evaluated as sustainable and easily transferable.

In summary, two of the three assessments demonstrated sustainable implementation of the measures, with benefits significantly outweighing costs.

Conclusions

The CoE has proven to be a central point of contact for reducing FW in the food service sector. On average, food waste has already been reduced by 13% after one six-month participation period, and up to 23% with repeated participation. The collected data provides an improved database compared to previous estimates and, together with the sustainability assessments, show that food waste measurement and staff awareness, in particular, contribute effectively to reducing food waste.

Our work has shown that the CoE acts as an important catalyst and platform for best practices. To reach categories in food service that have not yet been included, long-term continuation of the CoE is highly recommended to recruit more businesses, further reduce food waste, and thus contribute to achieving the National Strategy's goals.

Further information

Contact

¹ [Thünen Institute of Market Analysis](https://www.thuenen.de/)
Thomas.schmidt@thuenen.de

Partners

[United Against Waste e.V.](https://www.united-against-waste.de/)

Run time

01.2022 - 05.2025

Project-ID

2507

Publications

Orr and Goossens (2024), Trimming the Plate: A Comprehensive Case Study on Effective Food Waste Reduction

Strategies in Corporate Canteens.

Sustainability 2024, 16, 785.

<https://doi.org/10.3390/su16020785>

Büttemeier et al. (2024)

Evaluationsbericht Kompetenzstelle
 Außer-Haus-Verpflegung. Braunschweig:
 Johann Heinrich von Thünen-Institut, 89
 p, Thünen Working Paper 252,
 DOI:10.3220/WP1732093170000

Funding

With support from



by decision of the
 German Bundestag

DOI:10.3220/253-2025-92