

Bread and bakery products in household food waste: identifying the main factors behind the decreasing trend

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Keywords: food waste, waste measurement, waste reduction, bakery waste, bread waste, consumer awareness

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Food waste reduction has become a prominently important sustainability goal globally, extensively discussed at company, policymaker, and academic levels. In the European Union, household food waste represents the highest percentage of overall food waste. Therefore, the EU is working on establishing legally binding food waste reduction targets in the field of consumption, emphasizing the need for harmonized measurement methods and the maintenance of national awareness-raising campaigns (Oláh et al., 2022; Vittuari et al., 2023). The identification of the most relevant categories of food waste and the factors influencing their amounts is crucial for the development of more effective awareness-raising activities (Abeliotis et al., 2016; Aschemann-Witzel et al., 2018; Szakos et al., 2021). However, only a part of currently applied measurement methodologies allows for the tracking of trends in specific food types.

Existing research evidence points out that bread and bakery products are included in the most common categories of household food waste in Europe, given their popularity among consumers and their presence in many meals and dishes. Moreover, the quality of bakery products changes significantly within a short period of time, and they are sensitive to improper storage conditions. Considering these factors, a targeted analysis focusing on the wastage of bakery products could be pivotal in enhancing the performance of food waste reduction campaigns.

In Hungary, a time-series dataset is available, containing data from four direct food waste measurements, following the FUSIONS methodology. The procedure is based on physical food waste measurement combined with diaries (Szabó-Bódi et al., 2018; Kasza et al., 2020), supported by ex-ante and ex-post surveys. These measurements are conducted as a part of the Hungarian national food waste reduction programme, called Project Wasteless. The sample size of the latest dataset from 2022 contains the data of 1,473 persons (508 households), who recorded their food wastage throughout a whole week. Based on the results, the top three food waste types within the avoidable category retained their positions between 2016 and 2022: leftover meals, fruits & vegetables (together), and bakery products. At the same time, reduction in all the three types has been observed, with bakery products showing the most visible decrease compared to the previous years (Figure 1).

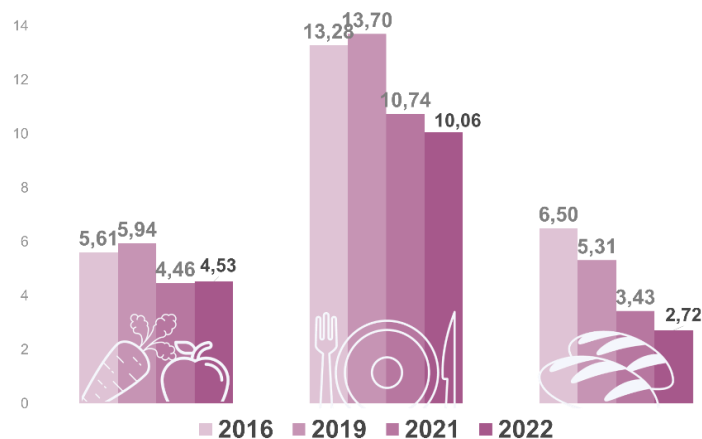


Figure 1. Quantity of the top three avoidable food waste types (leftover meals, fruits & vegetables, bakery products) in Hungarian households from 2016-2022 (kg/capita/year).

The decreasing trend can be attributed to several identified factors:

- Development in public awareness and behavioural change (Project Wasteless has promoted several good practices effectively through the media, social media, and events, including activities such as freezing bread before it becomes dry, combining the purchase of bakery products with durable substitutes, and utilizing dry, stale bread to create new dishes).
- Development of the market (we have observed a quality improvement in the bakery market, leading to a general reformulation of bakery products. The increasingly popular artisan (or artisan-like) bakery products preserve their quality for a longer period of time, are sold in smaller sizes, and are also more valued by customers).
- Lifestyle considerations (such as a decrease in carbohydrates in the diet; adaptation to a gluten-free diet; increasing trend of home bread making) drive people to purchase bakery products more consciously.
- With food price inflation of the last two years consumers are making trade-offs and economizing their food purchases.

The findings of this study could support the adaptation of good practices for awareness-raising and education campaigns. Furthermore, evaluation of the factors behind the change in the level of food waste in certain food categories could be helpful for other national or local food waste prevention campaigns. The general outcome of the research might also support the reduction aims in various other sectors beyond the household level (da Costa et al., 2022; Talens et al., 2022; Grasso et al., 2023).

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Acknowledgements

The authors express their gratitude to the National Food Chain Safety Office (Hungary) for granting permission to use the data for scientific purposes. Dávid Szakos's attendance at the conference has been supported by the Hungarian Academy of Sciences (INKP2024-35). Atilla Kunszabó's work has been supported by the Doctoral Student Scholarship Program of the Cooperative Doctoral Program of the Ministry of Culture and Innovation, which was financed by the National Research, Development and Innovation Fund. Gyula Kasza's work has been supported by the Bolyai János Research Fellowship of the Hungarian Academy of Sciences and the Bolyai+ Fellowship (ÚNKP-21-5) of the New National Excellence Program of the Ministry of Innovation and Technology.