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FOOD WASTE DYNAMICS IN ROMANIA: A SECTORAL AND COMPARATIVE PERSPECTIVE WITHIN THE EUROPEAN UNION

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Introduction

European policies increasingly promote food-waste prevention as an essential component of a sustainable and circular agri-food system. The Circular Economy Action Plan and the Farm to Fork Strategy reinforce this direction, while the Waste Framework Directive (Directive 2008/98/EC), revised in 2025, and introduces binding food-waste reduction targets for 2030, complementing Sustainable Development Goal 12.3. Against this policy background, the present study examines food-waste dynamics in Romania within the broader EU context, combining a cross-country comparison with a sectoral assessment of the main stages of the food supply chain to identify specific patterns and challenges for Romania's transition towards a more circular agri-food system.

Materials and methods

The methodological framework integrates analytical and synthetic methods, descriptive and comparative statistical analysis, time-series analysis and graphical data interpretation. The empirical analysis is based on secondary Eurostat data on food waste. Food waste collected across EU Member States is analyzed for 2020–2023, while the sectoral analysis covers the main stages of the food supply chain: primary production, processing and manufacturing, retail and distribution, food services and households. Absolute values, relative shares and percentage variations are used to assess temporal and structural differences, combining a European comparative perspective with a more detailed assessment of Romania.

Results and conclusions

The comparative analysis reveals considerable differences in food waste collected across EU Member States during 2020–2023 (Figure 1). At EU level, the indicator remained broadly stable at around 128–129 kg per capita, whereas Romania followed a clear upward trajectory, increasing from 166 kg in 2020 to 188 kg in 2023 (+13.3%). Consequently, the Romanian value in 2023 was approximately 45.7% above the EU level. Considerable disparities were also observed across Member States, with 2023 values ranging from 54 kg in Spain to 286 kg in Cyprus. Comparatively high levels were also recorded in Denmark (261 kg), Greece (201 kg) and Portugal (183 kg). These differences highlight the diversity of food-waste patterns across EU.

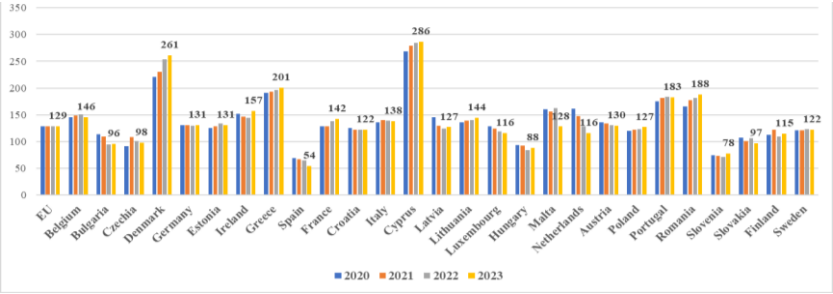


Figure 1 - Food waste collected in EU Member States, 2020–2023 (kg per capita) *Source:* Authors' processing based on Eurostat data, *Food waste collected*

The sectoral perspective provides further insight into the structure of food waste generation (Figure 2). Households represented the dominant source of food waste in 2022, accounting for approximately 54% of the total both in Romania and at EU level. However, important differences emerged across the other stages of the food supply chain. Primary production accounted for approximately 17.8% of food waste in Romania, compared with 8% at EU level, while restaurants and food services represented 15.7% in Romania and 11% in the EU. Conversely, processing and manufacturing contributed a lower share in Romania (10.9%) than at EU level (19%). The most pronounced proportional difference was observed in retail and distribution, which accounted for approximately 1.2% of food waste in Romania compared with 8% at EU level.

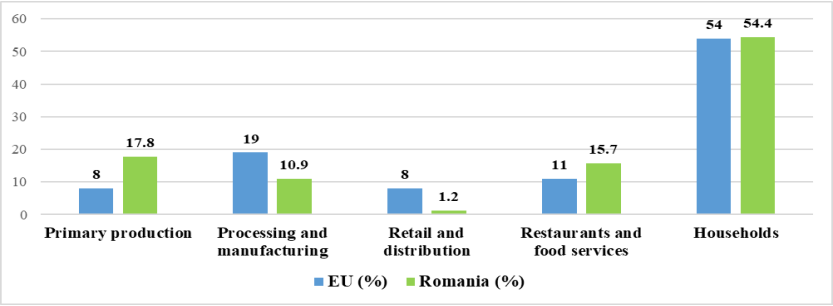


Figure 2 - Distribution of food waste across the food supply chain in Romania and the European Union, 2022 (%) *Source:* Authors' processing based on Eurostat data, *Food waste and food waste prevention by NACE Rev. 2 activity*

The results indicate that Romania combines an increasing level of food waste collected per capita with a sectoral structure that differs from the broader EU pattern. While households remain the main source of food waste both in Romania and at EU level, the comparatively higher contribution of primary production and food services in Romania highlights the need for differentiated prevention and reduction measures across the food supply chain. At the same time, the analysis revealed limitations in the timeliness and availability of national sectoral food-waste statistics, which constrain the assessment of more recent developments. This issue is particularly relevant in the context of Romania's evolving national framework for food-waste prevention and monitoring. Starting in 2026, economic operators covered by the

national legislation are required to submit annual food-waste reduction plans and, where applicable, reports concerning food transfers through the National Platform for Food Waste Prevention and Reduction. The resulting improvements in data collection and monitoring could contribute to more targeted interventions and provide a stronger evidence base for assessing Romania's progress towards national and European food-waste reduction and circular-economy objectives.

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