

Two Approaches, One Goal: Food Loss Reduction Strategies Across the Bosphorus from Türkiye and the European Union

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Abstract

Food loss and waste are one of the biggest sustainability issues, and about one-third of the food produced globally is lost or wasted each year. In this presentation, innovative strategies and tactics will be mentioned for preventing food waste with a comparative analysis of new efforts in Türkiye and in the European Union (EU) that demonstrate the technology innovations and circular economy applications that are transitioning food systems in both regions. The research evaluates two central intervention areas where we are demonstrating scalable, technology-based solutions. The first area investigates digital technologies in all areas of consumption, through an examination of smart applications, use of artificial intelligence technology for inventory management, and consumer-based platforms for reducing food waste in the retail and household context in Turkish and European markets. The case examples highlight significant and measurable reductions in waste, and increased consumer awareness and activity change. In the second part of this presentation, zero-waste technology in food production will be illustrated by presenting the innovation of using cod skin chips as an example of by-product creation. The application demonstrates how fish processing outcomes that would generally have ended up in waste can be reformed into high-value food products utilizing innovative processing strategies. We have contributed quality evaluations, nutritional analysis, and sustainability impact analyses, demonstrating commercial viability and environmental benefits. The comparative analysis reveals distinct approaches between Turkish and EU contexts, where established EU policy frameworks contrast with Turkey's innovative, cost-effective solutions in resource-constrained environments. The key findings highlight that successful reductions in food waste involve integrated approaches that include technological innovation, policy support, and collaboration across the industry. The presentation concludes with practical suggestions based on the findings for scaling interventions and improving the transfer of knowledge between food systems in Turkey and Europe.

Keywords: Food waste reduction, digital technologies, zero-waste manufacturing, circular economy, sustainability, Turkey-EU comparison, cod skin valorization