



Editorial: Sustainable Food Waste Management

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Editorial on the Research Topic

Sustainable Food Waste Management

RELEVANT CONTRIBUTIONS TO SUSTAINABLE FOOD WASTE MANAGEMENT

The Research Topic *Sustainable Food Waste Management* aims to be a forum to discuss the most salient issues of the current findings on food loss and waste and to identify novel areas of applied research. Food waste is linked to landfill disposal, resource consumption and greenhouse gas emissions, social poverty, and inequality (Redlingshöfer et al., 2020). Firms have a vital role to play in solving the food waste challenge (Papargyropoulou et al., 2014). Boosting innovative and sustainable management practices to prevent and minimize wastage is essential to meet the United Nations' call to halve food loss and waste by 2030 (SDG target 12.3) (Lemaire and Limbourg, 2019).

Accordingly, there is a large body of research on food loss and waste reduction at the upstream end of the global food chain—agricultural practices followed by producers, and food processing, manufacture, and distribution to retailers (Martin-Rios et al., 2018; Filimonau and Delysia, 2019). Until recently, there have been few studies on food waste practices downstream in the supply chain, including market centers and retailers, tourism and hospitality, and food services such as restaurants, mobile food services, event catering and other F&B activities (Gössling et al., 2011; Vizzoto et al., 2020; Martin-Rios et al., 2021). Firms in the downstream activities serve households and individual consumers. Hence, they are in a unique position to address this global food issue. Despite the significance of this issue to firms at the end of the global food chain, the managerial perspective on food waste practices is rarely studied in this context (Messner et al., 2020).

Articles in this Research Topic address critical topics including the growing interest in sustainable food systems and emerging opportunities in food waste utilization and treatment technologies. Jones et al. show in their review the critical factors that impact food waste and examine emerging opportunities to advance the processing and by-products of food waste. Authors conclude that food waste studies vary significantly throughout the literature due to lack of unified focus on producer, volume, location, size, and treatment of food waste. Variance results in great difficulty identifying the most applicable method to minimize wastage.

Another set of articles look at different management practices to reduce wastage and the ecological footprint of the firms. Espeso et al. provide a set of best practices for producers, policy makers, innovators, and industry in shaping environmentally sustainable decisions for how olive leaf waste can be utilized and optimized. They do so by analyzing current processing methods

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and applications of the olive leaf waste in sectors relating to cattle feed, fertilizers, novel materials, energy generation, and food and pharmaceutical products.

In a similar vein, AINouss et al. examine five fruit waste types: orange peels, banana peels, mango endocarp, apricot kernel shells, and date pits. Authors employed Aspen Plus simulation tool to develop a model to predict the pyrolysis product yields of the fruit wastes and to conclude that the generation of valuable commodities such as biochar, bio-oil, and syngas from fruit wastes through pyrolysis can minimize pollution and minimize issues related to the disposal of fruit waste.

Finally, Dey et al. focus on the waste streams derived from processing of agricultural products, including pomace (fruit and vegetable processing), hull/bran (grain milling), meal/cake (oil extraction), bagasse (sugar processing), brewer's spent grain (brewing), and cottonseed meal (cotton processing). Authors carry out a discussion of the by-product properties and their impacts on the extrudates and their nutritional profile, which is useful for food manufacturers and researchers to expand their applications.

LOOKING FORWARD AND THE POST-PANDEMIC SCENARIO

The coronavirus (COVID-19) pandemic has challenged the world, caused unprecedented global travel restrictions, stay-at-home orders and by large the most severe disruption of the global economy since World War II. The impact of the crisis has been felt throughout the entire food value chain, its companies, and their people. Food systems utterly deserve a thorough debate on how to rebuild the sector to secure its longer-term sustainability, unite to stop climate change and contribute

to making us a healthier and more productive society at the same time. As such, the post-pandemic scenario will offer new challenges and opportunities for research on food waste at every level: societal grand challenges, organizational disruptions and innovations, and us as individuals.

Future research has to broaden the discussion about the importance of quantification—measuring food waste and addressing the importance of having clear metrics to quantify waste and set targets to minimize its impact. Also, more research is needed to assess the positive impact of metrics on changing behavior and establishing new practices.

Another emerging area of research—one in which surprisingly there is a lack of conclusive results—is how to effect change in order to awaken awareness regarding food waste minimization and purposeful application of new institutional, management, and consumption practices in the aim of changing food establishments' relationship with food, establishing new management practices to handle food, and fostering awareness among consumers. For example, in the US food wastes may have increased as a result of new FDA's regulations preventing some companies from diverting lower quality byproducts to animal food products.

The response to the food wastage challenge must be a priority in a post-pandemic world—it requires more research, a shift at all levels of the food value chain, and better provision in relation with prevention measures and legislation.

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CM-R: conceptualization, writing the original draft, writing—review, and editing. JB, JA, and NE: writing—review and editing. All authors approved the submitted version.

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