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Reducing Food Loss and Waste: Unveiling Unfair Trade Practices and Root Causes in the Brazilian Leafy Products Supply Chain

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Abstract

Food loss and waste (FLW) occurring early in the food supply chain leads to increased resource wastage, including land, water, fertilisers, pesticides, fuel, packaging, energy, and labour. Targeting FLW prevention benefits various aspects such as food security, productivity, economic growth, climate change mitigation, resource conservation, and food waste management. Additionally, understanding the causes of FLW is crucial for the design of effective solutions and their prioritisation. FLW causes can originate from various factors, such as biological, microbial, chemical, technological, and behavioural causes. This study aims to investigate the risk factors and root causes of FLW in leafy products throughout the Brazilian food supply chain, spanning from harvest to retail. To achieve this, the research methodology involves case studies conducted among small, medium, and large-scale producers and retailers in Tupã, São Paulo, Brazil. The study takes a comprehensive approach by combining a systematic literature review of FLW causes worldwide and in the Latin American context, conducting exploratory research, including interviews with various stakeholders in the food supply chain, and performing root-cause analysis. By adopting these methods, the study addresses a literature gap that primarily focuses on isolated stages of the supply chain and developed countries, providing a holistic examination of FLW as an integrated issue across the food supply chain. Findings reveal that retailers' unfair trade practices towards producers contribute to the acceleration of FLW. These practices are driven by product proximity, limited shelf life, convenience, excess supply, and the market control exerted by medium and large supermarket chains. In the retail-producer dynamic of this city, retailers lack formal agreements with local leafy vegetable producers, and the abundance of local producers further amplifies retailers' power in this dynamic. The prevalent model involves take-back agreements, where retailers only compensate producers for sold products while returning "inadequate" quality items and unsold products unpaid. Supermarkets hold significant influence over product quality, risking product removal if consumers' strict expectations are not met. However, retailers bear no responsibility for appropriate storage conditions or incentives for utilising unsold products, since FLW represents no economic loss for them. It can be concluded that small-scale primary production for local

markets faces risk factors of food loss and waste (FLW) primarily rooted in behavioural and organisational causes. Although these factors are perceived as losses in the production phase, they originate in the retail phase of the food supply chain. This can be attributed to current definitions of food loss and waste, which frequently allocate responsibility for losses to specific stages in the supply chain, such as production or post-harvest handling. However, at the supplier-retailer interface, the division of responsibility becomes unclear. This study provides valuable insights into the dynamics of FLW in the Brazilian context, focusing specifically on leafy products, and emphasises the importance of addressing behavioural and organisational issues at the retail phase to effectively reduce FLW. The implications of this research are relevant for policymakers, researchers, and stakeholders, as they provide guidance for developing strategies to mitigate FLW and promote sustainability in the Brazilian food system.

Keywords: Root-cause analysis, risk factors, take-back agreements, behavioural causes, prevention

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