

Disentangling the Roots of Food Losses in Primary Production

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Abstract

Primary production is often overlooked when it comes to addressing food losses (FL) and waste, despite accounting for a significant portion. Since FAO's 2011 1/3 of FL and waste was published (FAO, 2011), efforts to measure and understand FL in primary production lag behind those focused on food waste throughout the supply chain. Although precise targets and reporting obligations exist for food waste, FL is still considered complementary. To tackle this issue effectively, it is crucial to develop a profound understanding of the underlying causes that lead to FL. Gleaning, is a traditional activity of collecting surplus food after harvest. It now serves as a valuable tool for researching FL volumes and their causes, while simultaneously raising awareness and preventing FL. This study aims to address the issue of FL by conducting a comprehensive analysis of the causes within the fruit and vegetable sector in Catalonia, Spain. By utilizing gleaning, FL volumes were estimated and associated to their specific causes. A literature review and in-depth interviews with farmers and cooperatives were developed to gain a better understanding of the causes of FL and categorize them into different dimensions. Gleaning records provided valuable data for estimating FL volumes in terms of frequency, volume, and food commodities, as well as identifying their causes. Two panels of key actors were convened to validate the results. The causes were iteratively revised using the '3 whys' methodology, which aims to identify root causes and comprehend complex problems. Finally, a problem tree was created to summarize and structure the findings. Fieldwork data was analysed to estimate the relationship between 9 dimensions and their frequency and impact per food commodity. Nine main dimensions of FL causes were created by aggregating all the causes contributing to FL in the fruits and vegetables sector. These dimensions encompass various factors that include: aesthetic requirements of crops; low crop prices; lack of personnel; absence of buyers for harvested produce; inadequate in-farm infrastructures; absence of competitive processing plants; crops unsuitable for human consumption; insufficient out-farm public infrastructures, and failure to meet quality requirements for European Union commercialization. Through gleaning records (n=60), interactions among dimensions contributing to FL were observed, considering their combined effects. an interaction of the dimensions leading to

FL adding their effects was observed. Additionally, it was found that the factors causing FL most frequently in the field did not necessarily correspond to those resulting in the highest quantities of FL. Additionally, distinct patterns and frequencies of causes were associated with different crop types (fruits, vegetables, and tubers/bulbs). This study confirmed that FL in the fruit and vegetable sector are a complex problem arising from the interaction of various causes, each contributing to FL with its own effects. It was observed that the causes occurring more frequently do not necessarily correlate with higher volumes of FL. Finally, gleaning emerges as a promising initiative for understanding, analysing, and preventing FL in primary production.

Keywords: food loss, fruits and vegetables, primary production, food loss and waste prevention, gleaning

References

FAO. 2011. Global food losses and food waste - Extent, causes and prevention. Rome; <https://www.fao.org/3/i2697e/i2697e.pdf>

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