



# Exploring the environmental and economic impact of fruits and vegetable loss quantification in the food industry

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## Abstract

Population growth has stimulated rising demand for agro-food products and economic activity for many years, negatively impacting the ecosystem and non-renewable resource consumption. Algeria confronts the monumental challenge of effectively choosing how to nourish everyone on a more congested globe. However, food loss is a significant issue that worsens as Algerians' population expands and food consumption increases. In Algeria, food production and processing of food items, which include fruits, vegetables, and cereals, generate a considerable amount of by-products, with no commercial exploitation and a negative environmental impact, generating enormous socioeconomic problems. These by-products are essential sources of products with high levels of added value that can be applied in different sectors. They have no studies to measure the scope of food loss in the Algerian food industry. In this background, our research aims to quantify the loss in the Algerian food industry generated by the transformation of various agricultural products, directly affecting the economy and food availability for the population. The research utilizes a mixed methods approach, including coefficients, production statistics transformed, and data analysis; the findings reveal that a significant portion of fruits and vegetables are lost in the Algerian food industry, suggesting that minimizing food loss can help companies minimize costs and mitigate the adverse environmental effects of food production. Finally, the study proposes practical options to minimize food loss to create a long-term food system in Algeria.

**Keywords** Food loss and waste · Food industry · Circular economy · Loss quantification · Algeria

## Introduction

In the twenty-first century, humanity confronts the monumental challenge of choosing how to effectively nourish everyone on a more congested globe (Sakaguchi et al. 2018). In accordance to the UN, the worldwide population will

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