Reducing Food Loss and Waste in South African Supply Chains through Strategic Approaches

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Abstract

In South Africa, significant amounts of food are lost or wasted throughout supply chains, contributing to both environmental and economic challenges. A mixed-methods approach combining quantitative data analysis with qualitative case studies was employed to assess current practices and identify opportunities for improvement. Statistical models were used to predict the impact of interventions on reducing food loss and waste. Analysis revealed that approximately 30% of food produced in South African supply chains is lost or wasted, primarily in the post-harvest stages and during transportation. A regression analysis model predicting reduction strategies showed a 15-20% decrease potential over two years with targeted interventions. The findings suggest that strategic approaches can significantly reduce food loss and waste, highlighting areas for further research and implementation of policy mechanisms to enhance sustainability. Implementing evidence-based strategies targeting specific supply chain segments is recommended, alongside fostering stakeholder collaboration and investing in infrastructure improvements. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African Geography, Supply Chain Management, Quantitative Data Analysis, Qualitative Research Methods, Food Loss, Waste Reduction Strategies, Geographic Information Systems (GIS)*

ABSTRACT-ONLY PUBLICATION

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