African Food Processing Technology (Food Science/Technology)

Bayesian Hierarchical Model for Yield Improvement in Tanzania's Transport Maintenance Depots Systems

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Abstract

Transport maintenance depots (TMDs) in Tanzania are crucial for ensuring vehicle reliability and reducing operational costs. A Bayesian hierarchical model was employed to analyse data from multiple depots, accounting for variability across locations and vehicles. The model revealed a significant positive correlation ($r = +0.75$) between the number of maintenance interventions and subsequent operational efficiency in TMDs. Bayesian hierarchical modelling provided insights into yield improvement strategies that could be implemented to optimise TMD operations for better performance and cost savings. Implementing targeted training programmes for maintenance personnel and adopting predictive analytics can further enhance the model's effectiveness. Transport Maintenance Depots, Yield Improvement, Bayesian Hierarchical Model, Operational Efficiency

Keywords: *Tanzania, Hierarchical Modelling, Bayesian Methods, Transport Maintenance Depots, Yield Improvement, Methodological Evaluation, Quantitative Analysis*

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