



REVIEWER'S REPORT

Manuscript No.: IJAR-57538

Title: DIMENSIONNEMENT D'UNE TRIEUSE DE MANGUES INTEGREE A LA CHAINE DE VALEUR FRUITIERE

Recommendation:

Accept

Rating	Excel.	Good	Fair	Poor
Originality	Yes			
Techn. Quality	Yes			
Clarity		Yes		
Significance	Yes			

Reviewer Name: Dr. Ashish Yadav

Detailed Reviewer's Report

Reviewer's Comment for Publication.

Acceptance Comments are mentioned below suitable for the paper titled "DIMENSIONNEMENT D'UNE TRIEUSE DE MANGUES INTEGREE A LA CHAINE DE VALEUR FRUITIERE"

Reviewer Comments: Accept

Reviewer Comments –

Title: Design and Development of a Mango Sorting Machine Integrated into the Fruit Value Chain

Introduction

The manuscript addresses an important agricultural engineering challenge related to the post-harvest handling and sorting of mangoes in African countries, particularly Senegal. The introduction clearly highlights the practical difficulties faced by fruit producers during manual sorting operations and justifies the urgent need for mechanized solutions to improve efficiency and reduce post-harvest losses. The study's objective of designing and dimensioning a mango sorting machine is well presented and socially relevant. The authors successfully establish the significance of mechanization within the fruit value chain. Overall, the introduction provides a clear context and demonstrates the practical importance of the research for agricultural productivity and rural development.

Literature Review

The literature review adequately discusses the importance of post-harvest technologies and mechanized sorting systems in modern fruit processing operations. Previous studies related to conveyor systems, calibration tables, mechanical transmission systems, and agricultural sorting equipment are appropriately considered. The review effectively explains the limitations of traditional manual sorting practices and the advantages of automated or semi-automated systems for improving product quality and operational efficiency. The authors also demonstrate understanding of mechanical design considerations relevant to fruit handling systems. The literature review supports the technical relevance of the proposed sorting machine and establishes the foundation for the engineering approach adopted in the study.

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Solution Approach

The proposed solution approach is technically sound and demonstrates a systematic engineering design methodology for the development of the mango sorting machine. The manuscript clearly describes the major components including the loading hopper, calibrated sorting table, scraper arms, transmission mechanism, toothed pulleys, and conveyor belt system. The selection of a Parvex geared motor with specified power, torque, and reduction ratio reflects careful mechanical dimensioning based on operational requirements. The conveyor speed and structural dimensions appear appropriate for efficient mango sorting operations. The engineering calculations and component integration collectively demonstrate the feasibility and practical applicability of the developed system for agricultural processing environments.

Results and Discussion

The results and discussion section successfully demonstrates the operational capability of the designed mango sorting machine and its suitability for improving post-harvest handling activities. The machine configuration, conveying speed, and calibrated sorting mechanism contribute to effective mango classification and handling efficiency. The discussion appropriately highlights the advantages of mechanized sorting in reducing labour intensity, minimizing fruit damage, and improving productivity for local fruit producers. The selected transmission system and mechanical components appear reliable and adaptable to real agricultural conditions. The study also emphasizes the potential economic and operational benefits of integrating such systems into the fruit value chain in developing agricultural economies.

Conclusion

The conclusion effectively summarizes the contribution of the study toward the mechanization of mango sorting operations in Senegal and similar agricultural regions. The developed sorting machine provides a practical and technically viable solution for improving post-harvest management and supporting fruit producers through increased operational efficiency. The research demonstrates strong potential for reducing manual labour requirements and enhancing the quality of fruit processing activities. The manuscript contributes meaningfully to agricultural engineering and sustainable agro-industrial development. Overall, the study is relevant, technically well-structured, and suitable for acceptance.