Design and Development of the Mechanical System of a Peanut Shelling Machine

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ABSTRACT

This study aims to design and test a peanut shelling machine capable of improving shelling efficiency and production capacity, particularly for small-sized peanuts. The machine is mechanically designed by combining a perforated curved stator as the shelling base and a kernel-shell separation system utilizing a blower *and fan. Performance tests were conducted using load variations ranging from 1 to 5 kilograms to evaluate shelling efficiency, production capacity, and filtering efficiency. The test results showed that the highest shelling efficiency, reaching 87.2%, occurred at a 5-kilogram load, with an average shelling efficiency of 82%. The average production capacity reached 69 kilograms per hour, while the machine's filtering efficiency reached 86%. This machine design has proven to improve operational efficiency, and it has strong potential as a practical solution for small-scale businesses in post-harvest peanut processing.*

Keywords: *Shelling machine, peanuts, curved* stator*, kernel and shell separation, small-scale enterprise, agricultural processing.*