



DESIGN AND FABRICATION OF AN ENGINE

POWERED COFFEE PULPING

MACHINE

DEPARTMENT OF AGRICULTURAL

MECHANISATION AND IRRIGATION ENGINEERING

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Final Year Project Report submitted to the department of

**Agricultural Mechanization and Irrigation Engineering in fulfilment for the award of
Bachelor's degree in**

Agricultural Mechanization and Irrigation Engineering of Busitema University.

Abstract

This project detailed the design, fabrication, and subsequent performance evaluation of a locally constructed engine-powered coffee pulping machine. The need for an efficient and accessible pulping solution for coffee farmers motivated the development of this machine. The fabrication process involved the selection of appropriate materials and the assembly of key components, including a power unit, pulping cylinder, and bean separation mechanism. Following fabrication, rigorous testing was conducted to assess the machine's capacity, pulping efficiency, and the percentage of damaged coffee beans. The results of these tests, conducted on varying quantities of coffee cherries, indicated a consistent pulping efficiency of 94% and a low damage rate of 1%. The machine demonstrated a processing capacity of 350 kg/hr. Furthermore, the washed coffee beans obtained from the pulped output exhibited a washing efficiency of 98% with the washing system operating at a capacity of 282 kg/hr. These findings highlight the potential of the developed engine-powered coffee pulping machine to provide an effective and reliable solution for primary coffee processing (child labour being one of them), thereby contributing to reduced child labour, improved efficiency and quality in coffee production.

DECLARATION

We OLWA MIKE AND OKIROR SAMUEL declare that this final year project report was prepared out of our own endless efforts and it has never been presented to any institution of higher learning for any award.

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ACKNOWLEDGMENT

We would like to first acknowledge all the technicians at Busitema University mechanical workshop for their support and guidance during the course of the project. We also appreciate our classmates for the wonderful time we shared together as students at the faculty.

We extend our gratitude to our supervisor **Prof. T. B. WATMON** for the continual guidance and support given to us. We pray that may the Lord always bless you and your family.

To our parents Mr. Awany Andrew and Mrs. Agweng Josephine (for Olwa Mike) and Mr. Anwoku Wilson and Mrs. Agado Rose (for Okiror Samuel), we thank you for being there for us throughout. You have been a strong pillar in our success because of the financial muscle that you provided whenever need arose. May the almighty Lord grant your heart's desires.

We also cannot fail to express our appreciation to the department of Agricultural Mechanization and Irrigation Engineering for standing with us throughout this period. In this, we would like to recognize the efforts of the project coordinator Mr. Igga Huzair, head of department Dr. Kavuma Chris and other departmental members.

APPROVAL

This final year project report has been prepared and compiled by Olwa Mike and Okiror Samuel. It is therefore submitted to be approved

by,

Supervisor

Prof. T. B. WATMON

Signature


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NOMENCLATURE

UCDA- Uganda Coffee Development Authority

DCPT- Dry Coffee Post-harvest handling Technology

i.e. – and so on.

WPCT - Wet processing coffee processing technology

CSC-Coffee Supply Chain

S.F.D- Shear force diagram

B.M.D-Bending moment diagram

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