



FACULTY OF ENGINEERING
DEPARTMENT OF AGRICULTURAL MECHANISATION AND
IRRIGATION ENGINEERING

DESIGN AND FABRICATION OF A PINEAPPLE LEAF FIBRE
EXTRACTING MACHINE

BY

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BU/UG/2016/59

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A final year project report submitted in partial fulfilment of the requirements for the award of the BSc. In Agricultural Mechanization and Irrigation engineering of Busitema University.

ABSTRACT

The rudimentary techniques of extracting PALF are faced with various constraints such as longer extraction time and poor fibre production rate. The barriers associated with traditional methods of extracting fibers will be over come by utilizing this PALF Extracting machine. The methods employed involved design, selection of appropriate materials, fabrication and assembly of the various components of the machine. Most decorticating machines, extract fibers from sisal and plantain (banana stems) with a few machines extracting from pineapple leaves. The existing semi-mechanical extractors do not cater for clearance adjustment between the rotor and working area which is mostly a fixed roller, thus this does not cater for differences in thickness of the different leaves. Thus, this PALF extracting machine will allow for clearance adjustment and reduce cutting of fibers during extraction. In addition, the automatic extractors are bulky and their fibers are not clean thus need washing with water after extraction. This PALF constructed machine will save on the extracting time, ensure increased fiber production in comparison to the manual method and obtainable at a lower cost.

The PALF extractor is affordable to local people and can be easily repaired and maintained. The PALF extractor is powered by an electric motor of 3 hp and had an efficiency of 52.08 % with a throughput capacity of 5.24 kg h^{-1} of fiber. The machine can also be powered by an engine system. Upon testing, pineapple leaves directly from the garden were used. This machine can also be used to extract fibers from the banana stems, sisal leaves, jute and other natural fiber sources.

DECLARATION

I **JOSEPH MWESIGWA** declare to the best of my knowledge that work presented in this project report is mine and has never been presented to any University or Institution of higher learning for any academic award.

SIGNATURE:

DATE:

APPROVAL

This final year project report is submitted to the Department of Agricultural Mechanization and Irrigation Engineering for examination with approval from:

MR. KAVUMA CHRIS

SIGNATURE:

DATE:

DEDICATION

With great pleasure and gratitude, I would like to dedicate this report to my father **Mr. KISEMBO JOSEPH** and my mother **Mrs. BARUZALIRE REGINA** for the great contribution they have made towards my studies.

Let me also dedicate this report to my sister **Mrs. NYAKUBIIHA NOELINE** and **Mr. BAGUMA VICENT**, my uncle **Mr. KWEBIIHA VALENTINE**, my sisters and brothers, all other family members, lecturers, friends and all people who have helped me in one way or the other. May God grant you Blessings in your life and the life hereafter, AMEN

ACKNOWLEDGEMENT

My sincere thanks go to the Almighty God for giving me strength, good health, wisdom, and protection throughout the preparation of this work.

A big thanks goes to my supervisor; **MR. KAVUMA CHRIS**, for his guidance, knowledge and encouragement given to me throughout the writing of this report.

Special thanks go also to **MR. OBETTI. G. LAWRENCE** for his utmost advice, assistance and motivation towards the realization of this academic document. May the gracious lord reward you.

Special thanks go to the project coordinator **Mr. ASHABAHEBWA AMBROSE** for his timely and priceless guidance during the preparation of this report, may the gracious lord bless you abundantly.

Special honor goes to the lecturers of Agricultural Mechanization and Irrigation engineering for the theoretical and practical knowledge they have imparted in me throughout the four years. May the gracious lord reward you all.

Finally, I thank all my friends and fellow Agricultural and Irrigation Engineers for all the support and advice they have given me during my report writing.

May the Almighty God reward you abundantly

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