



BUSITEMA UNIVERSITY

FACULTY OF ENGINEERING

**DEPARTMENT OF AGRICULTURAL MECHANIZATION AND
IRRIGATION ENGINEERING**

FINAL YEAR PROJECT

**DESIGN AND CONSTRUCTION OF A MOTORIZED FISH FEED
PELLETING MACHINE FOR SMALL SCALE FARMERS**

BY

NAMODO CHRISPUS

BU/UG/2011/1180

Email: tibiwachrispus@gmail.com

Phone: +256(0)787777455

MAIN SUPERVISOR: Mr. Lwanyaga Joseph Ddumba

CO-SUPERVISOR: Mr. Okiring Patrick



Final year project presented to Department of Agricultural Mechanization and Irrigation

Engineering as a partial fulfillment for the award of a bachelors in Agricultural

Mechanization and Irrigation Engineering of Busitema University

MAY 2015

DECLARATION

I **NAMODO CHRISPUS** declare that the content in this report has never been produced by anyone for an award in any Institution of learning.

Date ... 28th May, 2015

Signature ... 

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APPROVAL

This project report has been submitted for examination with approval from the following supervisors.

Main supervisor

Mr. LWANYAGA JOSEPH DDUMBA

Signature.....

Date.....

Co- supervisor

Mr. OKIRING PATRICK

Signature.....

Date.....



DEDICATION

I dedicate this report to my parents Mr. and Mrs. Kaire for their selfless support they have given for the period spent in Busitema University.

ACKNOWLEDGEMENT

I would like in special way to thank the Almighty God for giving me the gift of life.

I extend my thanks to all my lecturers of Busitema University, Agricultural Mechanization and Irrigation Engineering Department who have equipped me with academic knowledge that has enabled me to succeed in my studies.

I am indebted to my supervisors Mr. LWANYAGA JOSEPH DDUMBA and Mr. OKIRING PATRICK for the support rendered to me and guidance in preparation of my project.

Special thanks to all technicians of Busitema university mechanical workshop for advice during fabrication of the machine.

I am privileged to my classmates and friends who have assisted me through guidance and support.

LIST OF ACRONYMS

ADCP	Aquaculture Development and Co-ordination Programme.
GDP	Gross Domestic Product.
rpm	revolutions per minute
kg	kilogram
mins	minutes
FCR	feed conversion ratio
hrs.	hours
FAO	Food and agricultural organization
EU	European Union
PTO	Power take off

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ABSTRACT

Fish is a vital source of food and a major supplier of animal protein consumed by the world's population. As the world population increases there is a demand for fish which has led to increase in artificial production of fish in ponds and cages as a means of meeting part of this demand.

However this has hardly been achieved in Uganda as most of the rural fish farmers find it hard to access the right feeds from the commercial manufacturers who are mostly in faraway towns, making the feeding inappropriate as most of them feed the fish using the feeds meant for poultry.

This has contributed to serious problems of increasing fish prices, poor quality flesh and low maturity rates and low yields from the industry. Hence there is need to construct a motorized fish feed pelleting machine for small scale farmers to increase the availability and accessibility of fish feeds.

In this project work, the design and fabrication of fish feed pelleting machine was carried out with the view to encourage local technology, as most of the machines available are not easily accessible. This project discusses the local design and fabrication of a motorized fish feed pelleting machine.

During the design of the machine, the machine components were designed by putting up some assumptions and analyzing forces acting on them, this led to selection of equations to be used in the design. After designing, the components were fabricated from selected materials and assembled together.

The pelleting machine uses a worm shaft propelling the feed mix through the die. The worm shaft is enclosed in the auger casing and is propelled by an electric motor with the aid of belt and pulleys. This auger is fed by a hopper, which is able to hold 6 kg of the feed mix at a time. A cutting blade is mounted on the shaft which cuts the pellet as it comes out from the die. The pelleting machine was tested to have the following results; pelleting efficiency and capacity as 90% and 41 kg/h.

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