
FACULTY OF ENGINEERING

DEPARTMENT OF AGRICULTURAL MECHANISATION AND IRRIGATION

ENGINEERING

**DESIGN AND CONSTRUCTION OF AN ANIMAL DRAWN MAIZE PLANTER WITH
FERTILIZER APPLICATOR.**

BY

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A Final Year Project Proposal Report Submitted To The Department Of Agricultural Mechanization And Irrigation Engineering In Partial Fulfilment For The Award Of The Bachelor Of Science In Agricultural Mechanization And Irrigation Engineering Degree At Busitema University.

ABSTRACT.

Proper seed planting is an important farm operation which aims at increasing production through ensuring optimum plant population per area, even stands as well as reducing unnecessary plant competition for nutrients. Local Small holder farmers in Uganda are faced with numerous maize planting challenges ranging from the activity being tedious, labor intensive and inefficiency, the available modern methods like use of engine powered or tractor drawn planters are expensive for small holder farmers. This study is focused on the design, construction and performance evaluation of an animal drawn maize planter with fertilizer applicator which is adapted for gardens and small holder farmers cultivating less than two hectares. The major components of the planter are hopper, seed metering mechanism, seed chute, furrow opener, furrow closer and ground wheels. This planter is to be economical, requiring no special skill to operate and can be adopted for maize planting by small holder farmers of Nambaaale subcounty, Iganga district.

DECLARATION

I AYESIGA ROBERT hereby declare to the best of my knowledge that this is my true and original piece of work and has never been submitted to any university or institution of higher Learning by anybody for any academic award.

Signature..... Date

APPROVAL

This final year project report has been submitted to the Faculty of Engineering for examination with approval of my supervisor.

SUPERVISOR: Mr. ODONG SAMUEL ATOCHON

SIGNATURE:

DATE:/...../.....

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DEDICATION

This report is dedicated to the Most High God the Almighty Jehovah, to my Lord Jesus Christ and The Holy Spirit of God in appreciation for the endless care and provisions to me since I was born and for the mentorship of hard work and determination delivered to me, which attributes I have cherished with firmness and which have transformed me to this level

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LIST OF ABBREVIATIONS

BMAU- Budget Monitoring and Accountability Unit

MAAIF - Ministry of Agriculture Animal Industry and Fisheries

OPV- Open pollinated Variety

UBOS - Uganda Bureau of Standards

SDG - Sustainable Development Goals

GDP - Gross Domestic Product

PEAP - Poverty Eradication Action Plan

DAP - Diammonium Phosphate

MSV - Maize Streak Virus

GLS - Grey Leaf Spot

NPK – Nitrogen, Phosphorus and Potassium

NCB - Northern Corn Blight.

CHAPTER ONE: INTRODUCTION

1.1 Background

Maize (*Zea mays L*) is an important grain crop of the world and it ranks second after, wheat (177,379,567 ha) and first in total production (872066770 MT) and productivity (4.9t ha⁻¹) (FAOSTAT, 2013). Maize is recognized worldwide as a strategic food and feed crop that provides an enormous amount of protein and energy for humans and livestock. Its advantages in ethanol industry also keep maize in high demand. Although much of the world's maize production is utilized for animal feed, human consumption in many developing and developed countries is steadily increasing (Getaneh et al., 2016)

Maize occupies proximately 24% of farm land in Africa and the average yield stagnates at 2tons/ha/year. Largest African producer of maize is Nigeria (33 million tons), then South Africa, Egypt and Ethiopia (Mieke, 2017)

Uganda is a country that is blessed with fertile soils and a Fairly well distributed rainfall, which makes agriculture a reasonably secure occupation. This is coupled with the fact that most of the developing countries' economies in sub-Saharan Africa depend on mainly agriculture production. Furthermore, the agricultural sector whose activities are especially labor intensive implies less gainful employment for the less educated rural based people, who make majority of the population. There is thus need to have more investment in agricultural sector to improve production and output since it still employs Seventy two percent (72%) of the national labor force and contributes Eighty five percent (85%) of the total exports (Countries, 2010)

The Uganda economy is dominated by agricultural sector which accounts for Thirty four percent (34%) of the Gross Domestic Product (GDP).

The sector also accounts for eighty five percent (85%) of the export earnings, eighty percent (80%) of the employment, most of the materials to the Agro-based industrial sector, and ensures food security.

Being the leading sector of the Uganda economy, agriculture is the engine and the major source of the future growth.

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