



**BUSITEMA
UNIVERSITY**
Pursuing Excellence

FACULTY OF ENGINEERING

**DEPARTMENT OF AGRICULTURAL MECHANIZATION AND IRRIGATION
ENGINEERING**

FINAL YEAR PROJECT REPORT

**DESIGN AND CONSTRUCTION OF A 2-MANUAL PADDY RICE
TRANSPLANTER**

By

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*A final year project report submitted in partial fulfillment of the requirement for the
award of a Bachelor in Agricultural mechanization and irrigation Engineering of*

Busitema University

December 2020

ABSTRACT

The purpose of this project is to develop a prototype of a 2-row manual rice transplanting machine, this study is to integrate the existing transplanting methods which are tedious, time consuming and laborious hence a challenge to small scale farmers. The reason for this prototype is to design and construct a 2-row manual rice transplanting machine that will be used to improve on rice production since transplanting costs and back pain will be reduced. since it's easier to operate and affordable to farmers. The design will be based on the methods of designing the different components of a rice transplanting machine, the seedlings will be first raised in a nursery bed, and later transferred to the main garden with a machine fitted with a trans planter mechanism (usually having some form of reciprocating motion) driven by the power of hand peddling, in order to the transplant rice seedlings onto paddy field

DECLARATION

I, NAMAKHONJE SUSAN, hereby declare that this report is my original work compiled to the best of my knowledge, it has never been published and submitted for the award of any academic qualification in any institution of higher learning/University before.

Signature.....

NAMAKHONJE SUSAN



APPROVAL

This project report has been submitted to the Department of Agricultural Mechanization and irrigation Engineering for examination with approval from my supervisor:

Mr. Eriau Emmanuel

Signature.....

Date.....

DEDICATION

I dedicate this report to the Almighty God plus my parents Mr. Wekoye Peter and Mrs. Fatima for their tireless support towards my studies and supporting me financially, emotionally, psychologically and spiritually during the course my studies.

May the almighty God bless you.

ACKNOWLEDGEMENT

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

Thanks goes to my dear supervisor; Mr. Eriau Emmanuel for his selfless guidance, knowledge and encouragement given to me throughout the writing of this report.

Finally, I thank all my friends and fellow Agricultural Engineers for their support and advice they gave me during my project report writing.

May the Almighty God reward you abundantly.

Table of Contents

| | |
|--------------------------------------------------------------------------------------|------|
| ABSTRACT | i |
| DECLARATION | ii |
| APPROVAL | iii |
| DEDICATION | iv |
| ACKNOWLEDGEMENT | v |
| LIST OF FIGURES | viii |
| LIST OF TABLES | ix |
| 1.1 Introduction | 1 |
| 1.2 Background | 1 |
| 1.3 Problem Statement | 2 |
| 1.4 Justification | 3 |
| 1.5 Objectives | 3 |
| 1.5.1 Main objective | 3 |
| 1.5.2 Specific objectives | 3 |
| 1.6 Scope of Study | 3 |
| 1.7 Purpose of the study | 3 |
| 2 CHAPTER TWO: | 4 |
| 2.1 LITERATURE REVIEW | 4 |
| 2.2 Rice Transplanting | 4 |
| 2.3 Categories of Rice Transplanting | 5 |
| 2.3.1 Transplanting by Hand | 5 |
| 2.3.2 Manually Operated Transplanter | 5 |
| 2.3.3 Engine Operated Transplanter | 6 |
| 2.3.4 Materials and Method to Manufacture Rice Transplanting Mechanism. | 9 |
| 2.4 Method of Design | 10 |
| 2.5 Nursery Bed Systems. | 13 |
| 2.5.1 Wet-bed method | 13 |
| 2.5.2 Dry-bed method | 14 |
| 2.5.3 Dapog method | 14 |
| 2.5.4 Bubble tray nursery | 15 |
| 2.5.5 Seedling boxes for mechanical transplanting | 15 |
| 3.0.CHAPTER THREE: METHODOLOGY | 16 |

| | | |
|--------|---------------------------------------------------------------------|----|
| 3.1. | Introduction..... | 16 |
| 3.2. | Design Considerations and material selection..... | 16 |
| 3.3 | Machine description and working principle..... | 18 |
| 3.3.1 | Machine description..... | 18 |
| 3.3.2. | Working mechanism..... | 18 |
| 3.3. | Specific objective one: Design of the Transplanter components. | 18 |
| 3.3.3. | Design of the tray..... | 20 |
| 3.3.4. | Design of the forks..... | 20 |
| 3.3.5. | Design of the cam disk..... | 20 |
| 3.3.6. | Design of the Shaft..... | 21 |
| 3.3.7. | Drive mechanism used..... | 23 |
| 3.3.8. | The frame..... | 27 |
| 3.3.9. | Designing of the four-bar linkage mechanism..... | 29 |
| 3.4. | Specific Objective 2: Fabrication of machine components..... | 31 |
| 3.4.1. | Material selection..... | 31 |
| 3.4.2. | Fabrication of the designed components..... | 31 |
| 3.5. | Specific objective 3. Performance evaluation of the machine..... | 34 |
| 3.5.1. | Procedures followed during the testing of the prototype..... | 34 |
| 3.5.2. | Field efficiency..... | 34 |
| 3.5.3. | Machine Efficiency..... | 35 |
| 3.6. | Specific Objective 4. Economic Analysis of The Prototype..... | 35 |
| 3.6.1. | Profitability index..... | 37 |
| 4.0 | CHAPTER FOUR: RESULTS AND DICUSSIONS..... | 38 |
| 4.1 | Field results and design..... | 38 |
| 5.0 | CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS..... | 40 |
| 5 1 | Conclusion..... | 40 |
| 3.4 | Recommendations for further improvements..... | 41 |
| | References..... | 42 |
| | APPENDIX..... | 45 |

LIST OF FIGURES

| | |
|-------------------------------------------------------------------------|----|
| Figure 1. showing rice transplanting by hands | 5 |
| Figure 2: showing a manually operated Transplanter..... | 6 |
| Figure 3: showing walking behind type mechanical rice Transplanter..... | 7 |
| Figure 4: showing Self-propelled riding type rice transplanter | 8 |
| Figure 5: showing the floater and planting arm at lowest position..... | 11 |
| Figure 6: showing the tray | 12 |
| Figure 7: showing an Isometric view of rice transplanter..... | 13 |
| Figure 8. showing a cam and roller follower | 21 |
| Figure 9. showing a four-bar linkage mechanism..... | 29 |

LIST OF TABLES

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Table 3-2. showing a tray..... | 20 |
| Table 3-3. showing recommended upper force limits for horizontal pushing. According to (Canadian center for occupational health and safety, 3 April 2017) | 22 |
| Table 3-4. showing combined shock and fatigue loads | 23 |
| Table 3-5. Showing typical sizes of standard shafts | 23 |
| Table 3-6. showing characteristics of roller chains according to IS:2403-1991..... | 25 |
| Table 3-7. showing power rating of a simple roller chain | 26 |
| Table 3-8. showing design and fabrication of different machine components..... | 31 |
| Table 3-9. shows the budget for the total investment for the construction of the manual two rice transplanter machine | 35 |
| Table 3-10. Results for economic analysis of the 2-row manual rice transplanting machine. | 37 |
| Table 4-1. showing field evaluation results | 38 |

CHAPTER ONE

1.1 Introduction

This chapter presents the general information about the research design giving its background, problem statement, significances, objectives, justification and the scope of study.

1.2 Background

Rice locally known as “Omuchele” is one cereal crop that has become popular in Uganda over the past years. Its production begun in 1942 according to (MAAIF 2009) Majorly to feed the World War II soldiers, however due to a number of constraints, production remained minimal until 1974 when farmers appealed to the then government for assistance. In response, government identified the Doho swamps and constructed the Doho Rice Irrigation Scheme (DRS) with the help of Chinese experts. Today rice is grown mainly by small scale farmers almost throughout the country, but also with large scale farmers in few places. Total production is estimated at 165,000metric tones. Total rice consumption is estimated at 225,000metric tones. Population growth rate is 3.2% thus the demand for rice is expected to rise according to (MAAIF 2009), , The demand for rice is at 300,000 metric tons monthly but the current supply of hulled rice is 280,000 metric tons reflecting a supply gap of 20,000 metric tons.(NARO, 2018) About 80% of rice farmers in Uganda are small scale farmers with acreage of less than 2 hectares using simple technologicis including use of rudimentary tools, little or no fertilizer use, poor quality seed, with little or no irrigation and poor water management practices among others according to (MAAIF 2009) ,) . About 5% rice farmers are large scale with land under over six ha. Among cultivation the large scale farmers are rice schemes with acreage of over 1 000 ha these methods are tedious, time consuming (up to 30 to 40 peoples days per hectare), laborers suffer from back problems due to bending of longer hours, difficult to maintain optimum spacing and uniform plant density with random planting.(Yaswanth et al. 2017a), the leading rice producers in Uganda are Eastern and Western regions, in eastern Uganda it is done in the districts of Iganga, Bugiri, Butaleja, Tororo and Pallisa due presence of vast wet lands with sufficient moisture for rice growth. Most rice farmers here are small scale farmers although there are few large-scale rice farms such as Doho, kimbimba, and Olweny in Lira. The most common varieties grown include; Supa, Kaiso, Basmati, Pakistan, Vietnam, IRRI rice, komboka, wita 9, agoro and okile according to the report by (Oonyu 2011)

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