

**BUSITEMA UNIVERSITY
FACULTY OF NATURAL RESOURCE AND
ENVIRONMENTAL SCIENCES**

**RESOURCE USE EFFICIENCY IN RICE BASED FARMING
SYSTEMS**

A case Upland and Paddy Rice in Namasagali Sub-county

**BY
MABIRIIZI JULIUS**

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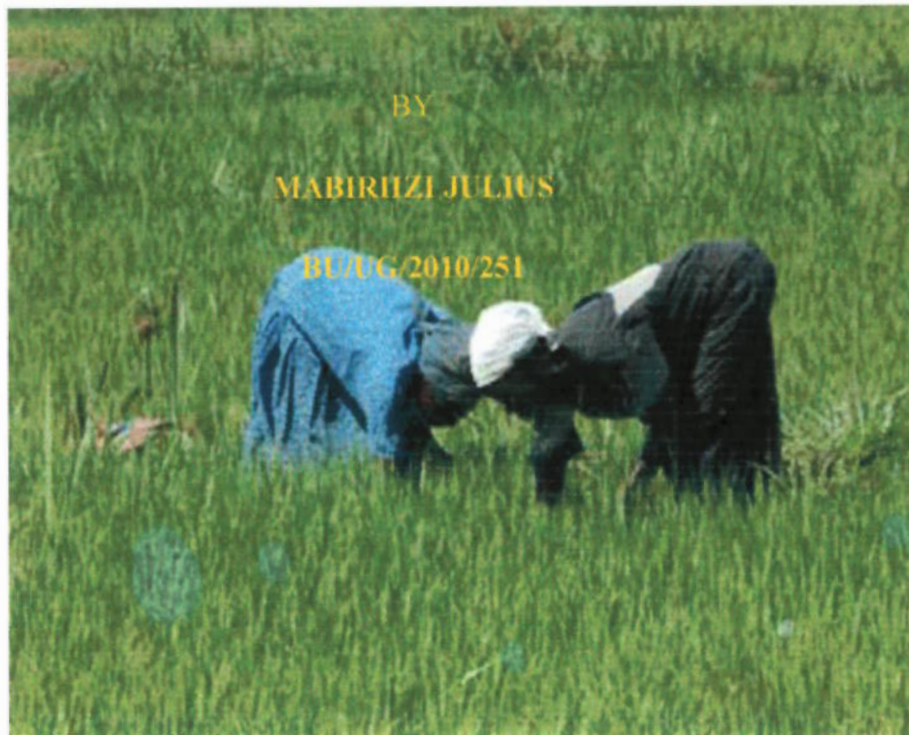


JUNE, 2013

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Supervisor: Assoc. Prof. Isabirye Moses

**A RESEARCH REPORT SUBMITTED TO THE FACULTY OF NATURAL RESOURCE
AND ENVIRONMENTAL SCIENCE IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF DEGREE BACHELOR OF SCIENCE IN
NATURAL RESOURCE ECONOMICS**

June, 2013

DECLARATION

I, Mabiriizi Julius, declare that the dissertation hereby submitted to Busitema University for the award of a degree of Bachelor of Science in Natural Resource Economics has not been previously submitted to this University or any other Higher Institution of Learning for this Degree award.

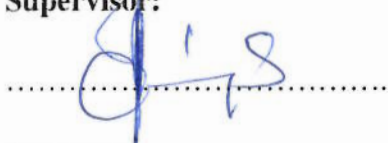


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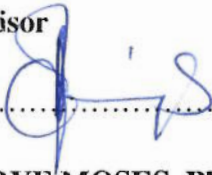
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APPROVAL

This serves to exhibit that this work has been truly through the efforts of Mabiriizi Julius towards the partial fulfillment of the requirements for the award of a bachelor of science in natural resource economics of Busitema University under my guidance and supervision.

Supervisor

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DEDICATION

I would like to dedicate this work to the Almighty God for his divine guidance, and to my beloved family members, Justine Nambwere, John Male, Immaculate Nantumbwe, Peter Kakinda, Rose Akwaro and beloved daughter Shammer and Mr. Masembe Kabala E for the endless advice and guidance through my studies

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LIST OF ACCRONYMS

ADC	Agribusiness Development Centre
CBO's	Community Based Organizations
DoA	Department of Agriculture
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MAFAP	Monitoring Africa's Food and Agricultural Program
MoFPED	Ministry of Finance, Planning and Economic Development
MoNR	Ministry of Natural Resource
MOTI	Ministry of Trade and Industry
NaCRRI	National Crop Resource Research Institute
NEMA	National environmental management authority
NERICA	New Rice for Africa
NGO's	Non- Governmental Organization
NRD	Natural Resource Department
OLS	Ordinary Least Squares
TE	Technical Efficiency
WID	Wetland Inspection Department
VEC's	Village Environmental Committees

ABSTRACT

Rice is one of the most important cereal crop grown in Uganda particularly in the eastern region. This crop is produced throughout the country under diverse environments that include both uplands and wetland areas. Therefore the study focuses on the efficiency of rice growing with concerns on wetlands conservation, ensuring of food security in addition to identifying the factors that determine efficiency of rice production in Namasagali sub-county. Primary data was collected from three parishes in this sub-county; yield surveys were also collected from rice farmers as well as from experiments ran. Secondary data was collected from internet and research centers. Cost benefit analyses were made to estimate the potential of upland rice conserving wetlands. For food security a comparison was made between upland rice yields and the quantity of maize consumed in a year depending on the findings of Isabirye (2005).

The study also employed a logistic regression to find the factors determining the technical efficiency of rice growing and the Cobb-Douglas production function model was used to determine the level of technical efficiency of the rice farmers in Namasagali sub-county and it was revealed that out of the 11 factors assessed, 7 of them were found to crucial as regards technical efficiency of rice production and these include; education level, farmers' experience, motive of the farmer, family size, labour, use of ox-plough, land size devoted to rice cultivation were found to be significant at 5% level of significance. However, factors like rice type, fertilizers application, gender, land ownership were discovered to be insignificant in determining technical efficiency in the area. In addition it was found that land size devoted to rice cultivation was the most significant factor determining technical efficiency of rice cultivation in the area.

The Cobb-Douglas results exhibit that the farmers in Namasagali sub-county are generally technically inefficient due to decreasing returns to scale of production, implying that key factors of production are over-utilized. It is therefore recommended that farmers should shift to upland rice cultivation especially NERICA 4 the high yielding one so as to ensure wetlands conservation and food security, in addition to sensitization of farmers about the wetlands values. In addition farmers were called upon to adopt modern farming practices, in addition to intensification of agricultural extension services so as to improve on technical efficiency.

CHAPTER ONE: INTRODUCTION

1.1 Background

Rice has been gathered, consumed, and cultivated by women and men worldwide for more than 10,000 years (Kenmore, 2003), longer than any other crop. Except of course for Antarctica, every continent of the planet produces rice, with over 122 countries currently growing the crop. Rice grows from the equator to latitudes of 53°N (in China) and 35° - 40° and to elevations (in tropical regions) as high as 2400 meters above sea level (Kenmore, 2003). The total area under rice cultivation is globally estimated to be 150,000,000 ha with annual production averaging 500,000,000 metric tons (Tsuboi 2004). This represents 29 % of the total output of grain crops worldwide, (Xu et al., 2003). By 2004, more than half of the world's population depended on rice as its major daily source of calories and protein, each consuming from 100 to 200 kg of rice per year. On the other hand, the Green Revolution of the 1960/70s, saved the world from a catastrophe of eminent food shortage, it was the drastic increase in rice production that answered the then desperate food demands of the world's growing populations.

Today, more than two billion people in Asia alone derive 80% of their calorie intake from rice. According to projected population growth (Jian Song, 2003), the number of people living on rice worldwide is expected to reach 3.5 billion in 2025. The importance of the crop in food security and socioeconomic stability is therefore self-evident. In high-income countries in the Near East, Europe, and North America, rice is considered to be a healthy and tasty food and its consumption is growing.

Rice is becoming increasingly important and popular in the diet and farming systems in Africa. Madagascar is the leading producer of rice in eastern and southern Africa region (ADC, 2001; Luzi-Kihupi, 1998). It is estimated that by 2001, east African countries were producing 503,137 metric tons annually, which was below their estimated demand of 625,795 metric tons primarily due low crop yields. Tanzania which is the largest producer of rice in east Africa is estimated to produce slightly over 500,000 metric tons annually.

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