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**FACULTY OF AGRICULTURE AND ANIMAL SCIENCES  
DEPARTMENT OF CROP PRODUCTION AND MANAGEMENT**

**ASSESSMENT OF ADVANCED COWPEA CULTIVARS FOR  
AGRONOMIC AND YIELD TRAITS IN UGANDA**

**BY:**

**NANGIRO STEPHEN OMEGA**

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**SUPERVISOR: MR. PETER CHARLES APUNYO**

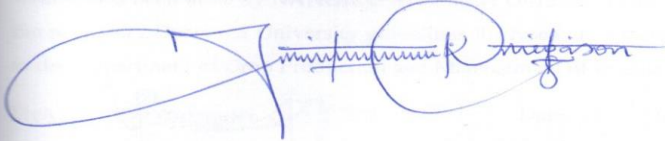
**RESEARCH REPORT SUBMITTED TO THE DEPARTMENT OF CROP  
PRODUCTION AND MANAGEMENT IN PARTIAL FULFILLMENT OF  
THE REQUIREMENTS FOR THE AWARD OF DEGREE IN BACHELOR  
OF SCIENCE IN AGRICULTURE OF BUSITEMA UNIVERSITY**

**MARCH 2024**

# DECLARATION

## DECLARATION

I **Nangiro Stephen Omega** do declare that, this piece of work is my own personal effort and other publications used have been fully acknowledged and has never been submitted to any academic institution for academic credit.



## APPROVAL

### APPROVAL

The entire work relating to this research; from proposal development, implementation to report writing has been done by NANGIRO STEPHEN OMEGA under my supervision and has met all the necessary Busitema University guidelines for research. I therefore approve it for submission to the Department of Crop Production and Management of Busitema University for examination.

Sign:



Date:

27/03/2024

Mr. PETER CHARLES APUNYO

Lecturer,

Department of Crop Production

Busitema University-Arapai Campus.

(ACADEMIC SUPERVISOR)

## **DEDICATION**

I dedicate this piece of work to God almighty, for His mercy and protection, He's granted me good health, cared and protected me through this entire period of my course. To my supportive academic supervisor and my family for teaching me commitment, positive thinking, hard work and endurance at all times and these were just needed not only in my research but they are elements I will always employ for a successful life. I pray that, the almighty God bless you with good health and sufficiency in all that you need, Amen.

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## **LISTS OF ABBREVIATIONS.**

<b>CV</b>	Coefficient of variation
<b>Lsd</b>	least significant difference
<b>MARCCI</b>	Makerere Regional Centre for Crop Improvement
<b>NGO</b>	Non- Governmental Organization
<b>Se</b>	Standard error
<b>UNDP</b>	United nation development program

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## ABSTRACT

Cowpea, *Vigna unguiculata* (L.) is the most important legume grown in the semi-arid tropics and one of the world's major legumes. It is adapted to the Sahelian climate which is characterized by low rainfall and poor soil fertility. It originated and was first domesticated in Southern Africa and was later moved to East and West Africa and Asia. It is a multi-purpose indigenous crop that grows largely in the tropics of sub-Saharan Africa (SSA). It is reported that 95.6% of the area under cultivation of cowpea leaves worldwide in 2017 was in Sub Saharan Africa. Uganda is ranked the 8<sup>th</sup> largest producer of cowpea in Africa, grown by over 2.2 million smallholder farmers with total annual production of nearly 22,000 tons. Cowpea in Uganda is grown throughout the country but Eastern and Northern region being the 1<sup>st</sup> and 2<sup>nd</sup> largest producers in the country. Although cowpea yield potential in Uganda ranges between 1500 - 3000kg $\text{ha}^{-1}$ , farmer's yields are constantly below 500kg per hectare due to pests and diseases, poor varieties, farming methods and market access causing a yield gap of about 2,500 kg $\text{ha}^{-1}$ . It is upon this background that an experiment was undertaken at BUAC farm to asses advanced cowpea cultivars for agronomic and yield traits. The experiment was set up using Alpha lattice design with three replications having 5 smaller incomplete blocks. The study objectives were to determine the growth and yield performance of different advanced cowpea cultivars and to determine the correlation between the growth and yield parameters of the advanced cowpea cultivars. Significance variations where observed in most of the parameters and the growth traits positively correlated with yield except for the plant height. Commendable yield was observed in NAROCOWPEA3, 4 and 5, MUALMP-19-119, MUAL19-25-1, MUALMP-17, FT20A132, Bruc2019B-468 Par47\*LGC074/29 and Par47\*LGC074/30 cowpea cultivars and therefore, can be further exploited for its genetic potential and distributed to farmers for production since they produce the highest yield. The significant genetic variation among genotypes suggested that the genotypes were genetically diverse and it could be a good opportunity for breeders to select genotypes for trait of interest for variety development.

## CHAPTER ONE

### INTRODUCTION

#### 1.1. Background

Cowpea, *Vigna unguiculata* (L.) is the most important legume grown in the semi-arid tropics and one of the world's major legumes (Singh, 2019). It is adapted to the Sahelian climate which is characterized by low rainfall and poor soil fertility ( Fatokun & Yuan, 2020). It originated and was first domesticated in Southern Africa and was later moved to East and West Africa and Asia (Summerfield & Roberts, 2018).

According to FAOSTAT, 2018, cowpea was grown on an estimated 11 million ha in Africa in 2017 with most of production confined to West Africa (10.6 million ha), especially in Niger, Nigeria, Burkina Faso, Mali, and Senegal. More than 7.4 million tons of cowpeas are produced worldwide, with Africa producing nearly 5.2 million tons. Over 87% of cowpeas are produced in Africa (Phalis, 2016). Nigeria is the largest producer and consumer of cowpeas and accounts for 61% of the production in Africa and 58% worldwide (Nkomo et al., 2021). Fifty-two percent of Africa's production of cowpeas is used for food, 13% as animal feed, 10% for seeds, 9% for other uses, and 16% is wasted (Kamara et al., 2017).

Cowpea (*Vigna unguiculata*) is a multi-purpose indigenous crop that grows largely in the tropics of sub-Saharan Africa (SSA) (Nkomo et al., 2021). FAOSTAT (2019) reported that 95.6% of the area under cultivation of cowpea leaves worldwide in 2017 was in Sub Saharan Africa. The crop is also known to be short-term and drought tolerant. The leaves and the grains of the crop are utilized for food in various cuisines among local communities in Kenya (Owade et al., 2020b). Additionally, the crop also has the shade tolerance property that has made it easier to intercrop it with other major crops including maize and sorghum (Omoigui et al., 2023). Uganda is ranked the 8<sup>th</sup> largest producer of cowpea in Africa, grown by over 2.2 million smallholder farmers with total annual production of nearly 22,000 tons (Ddamulira, 2017).

In Uganda, cowpea is considered as the 4th most important legume food crop after beans, groundnuts and soya beans, respectively (Ddamulira, 2017). Cowpea in Uganda is grown throughout the country but Eastern and Northern region being the 1<sup>st</sup> and 2<sup>nd</sup> largest producers in

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