



**FACULTY OF NATURAL RESOURCES AND ENVIRONMENTAL SCIENCES**

**DEPARTMENT OF NATURAL RESOURCES ECONOMICS**

**THE EFFECT OF TEMPERATURE VARIABILITY ON MAIZE PRODUCTION IN  
NAMALEMBA SUB COUNTY, BUGWERI DISTRICT.**

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**BU/UP/2021/0459**

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**A research report submitted to the Faculty of Natural Resources and Environmental Sciences in partial fulfillment of the requirements for the award of a degree in Bachelor of Science in Natural Resources Economics of Busitema University.**

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**Declaration**

I **Wanyama Emmanuel**, declare that this research report submitted to the Faculty of Natural Resources and Environmental Sciences is my original work achieved from my personal efforts and to the best of my knowledge, it has not been submitted by any other person to any institution for any academic qualification.

Signature .....

Date .....

**Approval**

This is to certify that the research report herein titled “The effects of temperature variability on maize production in Namalembe sub county, Bugweri district” has been done under my supervision.

Name Mr. Kakungulu Moses

Signature .....

Date .....

## **DEDICATION**

I dedicate this piece of work to my beloved Mother Ms. Namajja Grace Maria, sister Suzan K and the entire family of Rtd SSP Wakadubi Fred. Thank you for the support.

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## **LIST OF ACRONYMS/ ABBREVIATIONS**

NRE Natural Resource Economics

DAO District Agricultural Officer

FAO Food and Agriculture Organization

GDP Gross Domestic Product

UNMA Uganda National Meteorological Authority

IPCC Intergovernmental Panel On Climate Change

## **ABSTRACT**

The study analyzed the effects of temperature variability on maize production in Namalemba subcounty Bugweri district.

This study focused towards the effects of temperature variability on maize production, as the main objective of the research, the perception of farmers to temperature variability, the adaptive measures towards the mitigation of the negative effects of temperature variability and the barriers to adaptation for mitigation of the effects of temperature variability on maize production.

The research employed across sectional, descriptive research design to get data from the local farmers on the effects of temperature variability, perception towards the effects of temperature variability, adaptive measures to mitigate the effects of temperature variability and the barriers to adaptation towards the negative effects of temperature variability on maize production. Data was collected using pretested questionnaires. Data were analyzed using Microsoft Excel and SPSS version 20 software, presented using charts, graphs and tables. Findings from the study revealed that temperature variability as a serious problem with men sore (4.50), temperature variability contributes to reduced yields reflected with mean score (4.39) and also lack of extension services with mean score (3.11) show that this is a significant barrier to adaptation This study therefore identifies key adaptive strategies adopted by farmers, practicing crop rotation. planting improved varieties, mulching the soil, artificial watering or irrigation, mixed cropping, planting drought resistant maize varieties and changing planting time.

In relation to the findings, recommendations include improving access to information, implementing financial support mechanisms, strengthening extension services, promoting adoption of climate-smart agriculture practices, and reviewing government policies. These findings contribute to the understanding of temperature variability in maize farming and provide actionable insights for policymakers, researchers, and local community.

## **CHAPTER ONE**

### **GENERAL INTRODUCTON**

#### **1.1 Introduction**

This chapter presents the background of the study, problem statement, objectives, research questions, significance of the study, geographical scope, content scope, time scope, the conceptual framework, justification of the study about the effects of temperature variability on maize production and the operational definition of key terms relating to the effect of temperature variability on maize production.

#### **1.2 Background of the study**

The effect of temperature variability on maize production is really critical in a sense of high vulnerability to temperature, food security, and economic stability. Several studies have shown that variability in temperatures can have adverse effects on maize yields and thus leading to reduction maize production in areas like Mbeya, Tanzania, Uganda, Kenya, Ethiopia and South Sudan. The increased temperatures do pose a challenge to crop growth and yield reliability, therefore in the various regions where maize is a staple food understanding the impacts is really crucial. These maize producing countries have already faced a number of challenges such as low irrigation, limited access to fertilizers, pesticides, insecticides and lack of technologies which further makes those engaged in maize production prone to the impacts of climate variability.

In Uganda, over 40% of the calories consumed in rural and urban areas comes from maize and therefore plays a significant role to food security, though there have been reductions in yield mainly attributed to heavy dependence on rain amongst the farmers. Temperature variability has direct and indirect effects on maize production, in most cases, adverse influence on quality and quantity of agricultural crop outputs. The climate of an area is highly correlated to the crops cultivated and thus predictability of climate is imperative for planning of farm operations (Sowunmi, 2010).

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