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**FARMERS PERCEPTION ON THE EFFECTS OF RAINFALL VARIABILITY ON MAIZE  
PRODUCTION IN SOROTI DISTRICT**

**BY**

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**A RESEARCH DISSERTATION SUBMITTED TO THE FACULTY OF AGRICULTURE  
AND ANIMAL SCIENCES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR  
THE AWARD OF THE DEGREE OF BACHELOR OF AGRIBUSINESS OF BUSITEMA  
UNIVERSITY.**

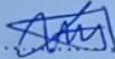
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# DECLARATION

## DECLARATION

I, **Ogenrwot Emmanuel**, hereby declare that the work presented in this research dissertation is my own and to the best of my knowledge, has never been submitted to any institution of learning for an academic award. Where the work of others has been used acknowledgements have been made.

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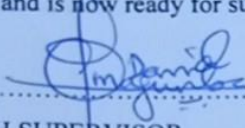
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# APPROVAL

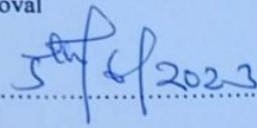
## APPROVAL

This is to certify that this research dissertation titled, "Farmers Perception on the Effects of Rainfall Variability on Maize Production in Soroti District" has been compiled under my supervision and is now ready for submission with my approval

Sign .....



Date .....



RESEARCH SUPERVISOR

DR. DAVID MAGUMBA

## **DEDICATION**

I dedicate this work to my parents Mr. Olal Macillino Subuni, Mrs. Mary Olal for their endless supports towards my academic progress and to all my friends that have given me lots of courage during my stay at Busitema University Arapai Campus

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## **DEFINITION TERMS**

**Climate change:** Refers to long-term shifts in temperatures and weather patterns.

**Climate Variability:** Refers to the climatic parameter of a region varying from its long-term mean.

**Agricultural Productivity:** Agricultural productivity is measured as the ratio of agricultural Outputs to inputs.

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## **LIST OF ACRONYMS**

CSA: Climate smart agriculture

CV: Coefficient of Variation

GCM: Global Climate Model

IPCC : Intergovernmental Panel for Climate Change

Kgs: kilograms

MPD Maize Production

RFA Rainfall

T Temperature

## **ABSTRACT**

Climate variability has a large effect on the agriculture sector and, consequently on maize production for residents of Soroti District and other regions of Uganda. For primary data a sample of 50 respondents was selected through simple random sampling techniques, For time series secondary data of temperature and rainfall of Soroti district was analysis based on a sample of 20 years (2002-2021) that was selected. Data were analyzed through descriptive and inferential statistics to determine the farmers perception on the effect of rainfall variability on maize production in Soroti District in Uganda. The study further examined the impact of future climate variability scenarios to see how maize production in the sub humid and semi-arid areas will respond to climate variability by assessing the effects of climate variability on maize production. Based on the results, it can be concluded that temperature has significantly increased over the years and that rainfall has significantly reduced. Increases in temperature could shorten the length of the growing season with temperature variation expected to have significant impacts on the agroecological zones. Rainfall variability effects on maize production resulted to severe and prolonged droughts, floods and changes to growing seasons that have significant effects for water supply, food security and in turn human welfare as well as harmful on land resources and, otherwise, can lead to irreversible impacts on biological diversity. Just as agricultural productivity gains have always been closely linked to poverty reduction, productivity decline in tropical and subtropical agriculture that will result from climate change can be expected to increase the depth and severity of poverty. To mitigate rainfall variability and provide effective adaptation measures, it is important for the government, research units, and private sectors to invest resources in training farmers and supporting them against further adverse climatic conditions.

## CHAPTER ONE:

### INTRODUCTION

#### 1.0 Background

Agriculture is one of the most important sectors in Uganda's economy. Agriculture is the 'life wire' or 'backbone' of the Ugandan economy. This assertion is true as agriculture accounts for about 20% of the country's gross domestic product (GDP) and about 48% of export earnings (Epule, Dhiba, Etongo, Peng, & Lepage, 2021)

More than 70% of the population of people in Uganda depend on agriculture and about 4 million people depend on small-scale farming for their subsistence. It has also been stated that, in Uganda, poverty reduction is contingent on developments in agriculture (Epule et al., 2021). Agriculture is the backbone of Uganda's economy. It is the major source of employment, food and export earnings to the country and considerably contributes to the GDP. (Impact et al., 2022, p. 1) Since agricultural production in Uganda depends exclusively on the quality of rainy season and specific temperature ranges, it makes the country particularly vulnerable to climate variability and change. A change in temperature and rainfall has been considered to affect agriculture production in many parts of the country.

Agriculture is reported to be one of the main economic activities, which employ the highest percentage of the working population (64.3%) and accounted for the largest share of employment (36%). The sector is currently the third most important sector after manufacturing contributing about 21.9 % to the Gross Domestic Product GDP (UBOS, 2019). Its's estimated 80% of households in the country involved in agriculture and of these about 90% were in rural. Uganda National Population and Housing Census (NPHC 2014).

Maize is Africa's most important cereal crop .it is particularly vital for more than 300 million people sub- Saharan Africa (SSA) whose livelihood are threatened by recurrent droughts responsible for crop failure (Mugish and Diiro et al., 2011).

Maize is a major crop in Uganda ranked among the top three crops cultivated and consumed after banana and cassava in Uganda. Uganda produces 2.4 million Metric tons of maize per year making it the third highest crop produced, with a per capita maize consumption of 50 g /person /day and this contributes to the livelihood of over 3.6 million households (UBOS, 2017) and estimated 70% of maize produced is consumed as food (USAID, 2017)

Production of maize has increased from 2.8 million MT (2015) to 4 million MT (2017) which is associated with increased demand and favorable climate that enables two cropping seasons in a year (MAAIF 2016)

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## APPENDICES

### APPENDIX 1: Questionnaire