
**DETERMINANTS OF MAIZE PRODUCTION IN NAMASAGALI SUB COUNTY,
KAMULI DISTRICT**

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**A RESEARCH REPORT SUBMITTED TO THE FACULTY OF NATURAL
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THE REQUIREMENTS FOR THE AWARD OF A DEGREE OF BACHELOR OF
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DECLARATION

I **TWINAMATSIKO JASTUS** affirm that this research report presented to the Faculty of Natural Resource and Environmental Sciences is entirely my own work, and has not been previously submitted by any other individual for academic or professional purposes. Any information derived from external sources has been appropriately referenced and cited.

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ABBREVIATIONS

FAO	Food and Agriculture Organization.
Fig.	Figure
IPM	Integrated Pest Management.
NAADS	National Agricultural Advisory Services.
NGOs	Non-Government Organizations.

ABSTRACT

This study aimed at investigating the factors influencing maize production in Namasagali sub-county. The study targeted maize farmers, agricultural extension workers, local agricultural organizations, local government representatives, and researchers. Primary and secondary data were collected and analyzed using excel, SPSS, and STATA. Descriptive statistics were used to summarize data and the chi-square test was used to determine the relationship between maize production and seasons, and agriculture practices, respectively.

Majority of respondents (40-60 age range) were male farmers, with farming as the primary occupation, followed by fishing. Basoga was the predominant tribe. The most commonly grown maize variety was Longe10H. The chi-square test found no significant association between agricultural practice and maize production while choice of season has a significant impact on maize production. Suggestions to enhance maize productivity included afforestation, early planting, planting resistant seeds, and other measures like wetland restoration, irrigation, and pest control. These measures aimed to address challenges faced by maize farmers and improve productivity. Limitations hindering successful implementation of measures included lack of funds, unspecified limitations, poor infrastructure, and lack of community support. Overcoming these limitations is crucial for achieving higher maize productivity.

In conclusion, the study provided valuable insights into the determinants of maize production in Namasagali sub-county. It emphasized seasonal variations' influence and suggested strategies to enhance maize productivity. Addressing identified limitations is vital for sustainable and resilient maize farming in the region.

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Agriculture plays a vital role in the socio-economic development of many countries, particularly in sub-Saharan Africa where it serves as a primary livelihood for a significant portion of the population. In Uganda, maize is one of the most important staple crops, providing food security and income for millions of people. However, the increasing variability in rainfall patterns in different regions due to climate change poses a significant challenge to agricultural productivity, making it crucial to assess the determinants of maize production. Understanding the vulnerability of agricultural systems to climate change is of paramount importance for sustainable agricultural development and food security. Rainfall is a critical factor that directly influences crop growth, development, and yield. Changes in rainfall patterns, such as prolonged dry spells or excessive rainfall, can have detrimental effects on crop production (FAO, 2022). Kamuli District, located in the eastern region of Uganda, heavily relies on maize cultivation for both subsistence and commercial purposes.

Several studies have emphasized the adverse impacts of rainfall variability on agricultural production, particularly in sub-Saharan Africa. For instance, according to (Wetterhall, 2015), a study made in neighboring Kenya highlighted that erratic rainfall patterns negatively affected maize yields, leading to reduced food availability and increased vulnerability among smallholder farmers. Similarly, a study by “Mubaya,2012” in Uganda demonstrated that irregular rainfall significantly contributed to declining maize yields, threatening food security and exacerbating poverty levels (Mubaya, 2012).

REFERENCES

- Bonaan. (2008). *Forests and Climate Change*. doi:10.1126/science.1155121
- Chipo Plaxedes Mubaya a, *. J. (2012, june 2nd). Climate variability and change or multiple stressors? Farmer perceptions. *Journal of Environmental Management*. Retrieved october thursday, 2023, from https://oar.icrisat.org/8084/1/Journal%20of%20Environmental%20Management_102_9-17_2012.pdf
- F. Wetterhall, H. C. (2015, june). Seasonal predictions of agro-meteorological drought indicators for the Limpopo basin. *19*. doi:10.5194/hess-19-2577-2015
- Fonta, W. M. (2011, december). Climate Change, Food Security and Agricultural Productivity in Africa. *International Journal of Humanities and Social Science*. Retrieved 11 13, 2023, from https://www.researchgate.net/profile/Greg-Edame-2/publication/256401074_Climate_Change_Food_Security_and_Agricultural_Productivity_in_Africa_Issues_and_Policy_Directions/links/0c9605227320e534cc000000/Climate-Change-Food-Security-and-Agricultural-Producti
- Hurrell, J. W. (2014). *Decadal Trends in the North Atlantic Oscillation*. Retrieved 10 29, 2023, from <https://sedarweb.org/documents/pw06-rd39-decadal-trends-in-the-north-atlantic-oscillation-regional-temperatures-and-precipitation>

- Hurrell, J. W. (2014). *Decadal Trends in the North Atlantic Oscillation*. Retrieved 10 29, 2023, from <https://sedarweb.org/documents/pw06-rd39-decadal-trends-in-the-north-atlantic-oscillation-regional-temperatures-and-precipitation/>
- IPCC. (2014). *AR5 Climate change 2014*. Retrieved from <https://www.ipcc.ch/report/ar5/wg2/>
- justus ocheng, L. k. (2016). effects of climate variability on agricultural production. *wegeningen journal of life sciences*. doi: 10.1016/j.njas.2016.03.005
- (2020). *Kamuli district report*.
- NAADS. (2018). Retrieved 10 29, 2023, from <https://naads.or.ug/maize-varieties/#>
- NAADS. (2018). Recommended maize varieties and their characteristics. Retrieved 10 25, 2023, from <https://naads.or.ug/maize-varieties/#>
- NOAA. (2023). *El Niño & La Niña (El Niño-Southern Oscillation)*. NOAA Climate. gov. Retrieved 10 29, 2023, from <https://www.climate.gov/enso>
- Pereira, L. (2017). Climate Change Impacts on Agriculture across Africa. *City Research Online*. doi: 10.1093/acrefore/9780199389414.013.292
- Peter Ranum, 1 Juan Pablo Pena-Rosas, ~ 2 and Maria Nieves Garcia-Casal3. (2014). Global maize production, utilization, and consumption. *ANNALS OF THE NEW YORK ACADEMY OF SCIENCES*, 112. Retrieved October 24, 2023, from <https://nyaspubs.onlinelibrary.wiley.com/doi/pdfdirect/10.1111/nyas.12396>
- Peter Ranum, J. P.-R.-C. (2014). Global maize production, utilization, and consumption. *ANNALS OF THE NEW YORK ACADEMY OF SCIENCES*, 112. doi:10.1111/nyas.12396
- Research gate. (n.d.).
- Smith, B. K. (2015). *Orographic precipitation*. University of Bergen .
- Solvin. (1960).