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BUSITEMA UNIVERSITY ARAPAI CAMPUS
FACULTY OF AGRICULTURE AND ANIMAL SCIENCES
DEPARTMENT OF AGRIBUSINESS AND EXTENSION

ASSESSING THE RELATIONSHIP BETWEEN SMALL SCALE SUGARCANE GROWING AND HOUSEHOLD FOOD SECURITY.

CASE STUDY: WAIRASA SUB COUNTY MAYUGE DISTRICT.

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A SPECIAL PROJECT REPORT SUBMITTED TO THE DEPARTMENT OF AGRIBUSINESS AND EXTENSION IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF BACHELOR OF AGRIBUSINESS OF BUSITEMA UNIVERSITY

OCTOBER 2024

DECLARATION

I, Amme Francis, hereby declare that this study and work is original and has not been published or submitted for any degree award at any other university or academic institution.

Signature:……  ……Date:……5/11/2024……

Name of Student: Amme Francis.

APPROVAL

This is to confirm that this Special Project research report was completed under my supervision and is now prepared for submission to the Department of Agribusiness and Extension, with the approval of the university supervisor.

Signature: ..... Date: 6/11/2024

Dr. MAGUMBA DAVID.

DEDICATION

With deep gratitude, I would like to dedicate this research work to my wonderful and beloved parents, Mr. Gordon Mawa and Mrs. Joyce Jendia, for their unwavering support throughout my academic journey. I also want to acknowledge my research supervisor Dr. Magumba David, relatives, brothers, sisters, friends, the staff at Busitema University Arapai, and my coursemates of agribusiness academic year 2021 to 2024.

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LIST OF ACRONYMS

HH	Household
BUAC	Busitema University, Arapai Campus
GFSI	Global Food Security Index
FSI	Food security index
FAO	Food and Agriculture Organization of the United Nations
FIES	Food Insecurity Experience Scale
GHI	Global Hunger Index
HFSI	Household food security Index
CFSI	Community food security index
KM	Kilometer
U.N	United Nation
LTD	Limited
SPSS	Special Package Of Social Science
MAAIF	Ministry of Agriculture Animal Industry and Fisheries

ABSTRACT

The study was carried out in Wairasa Sub County, Mayuge District, Eastern Uganda, to examine the relationship between sugarcane cultivation and household food security among small-scale farmers. This research was prompted by the rising levels of food insecurity, even as land previously used for food crop production is increasingly converted to sugarcane cultivation. The primary objective was to assess the link between sugarcane farming and household food security among small-scale farmers in Wairasa Sub County. Additionally, the study aimed to determine the socio-economic characteristics of these farmers and evaluate their food security levels. Data was collected using a structured questionnaire administered to 120 small-scale sugarcane farmers in Mayuge District's Wairasa Sub County. Descriptive statistics, including graphs, charts, and tables, were employed to analyze the socio-economic characteristics, while tabular descriptive data and calculations were used to evaluate food security components such as food availability, food utilization, food access, and food stability among small-scale sugarcane farmers compared to those growing food crops.

The study recommended that further research be conducted to assess food security differences between households that cultivate sugarcane and those that do not in Wairasa Sub County. It also emphasized the need for educating small-scale sugarcane farmers on integrating sugarcane cultivation with food crop production to enhance food availability and access. This could be achieved through the establishment of policies governing sugarcane production and regular training sessions conducted by qualified professionals, facilitated by stakeholders such as the government or NGOs. Additionally, efforts should focus on identifying ways to improve the food security status of both sugarcane-growing and non-sugarcane-growing households in Wairasa Sub County, Mayuge District.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Sugarcane growing refers to the cultivation of sugarcane (saccharum officinarum) which is a tropical tall grass of about 2 to 6 meters, native to Southeast Asia, widely cultivated for its sweet, edible sap which is used to produce sugar *(Guloba et al., 2023).* It's a perianal crop and grown in tropical and subtropical regions with temperature range of 20 to 30^{o} c, adequate rainfall (around 1500 mm annually) and well-drained soil with a P.H between 5.5 and 6.5. It's one of the world's largest crop by production quantity, totaling 1.9 billion tonnes in 2020 and mainly grown for sugar production, ethanol and rum*(Nabalegwa et al., 2022a).*

Globally, sugarcane is one of the major crops grown worldwide with over 100 countries producing it with Brazil, India and China are the top sugarcane growing countries, accounting for over 50% of global production. Other sugarcane growing countries include Thailand, Russia, Mexico, France, Philippines, USA, Austria and Colombia*(Mwavu et al., 2018).*

In sub Saharan Africa, sugarcane is grown in over 20 African countries, with South Africa, Egypt and Mauritius being the major producers(*Thibane et al., 2023)*. The African sugarcane industry contributes over 5% of the global sugarcane production, with most countries producing sugarcane for domestic sugar consumption. Other African sugarcane producing countries include Uganda, Kenya, Zambia, Malawi, Nigeria and Morocco etc*(Nabalegwa et al., 2022c).* Uganda is one of the significant sugarcane producer in Africa with over 100,000 small scale farmers and few sugarcane estates growing sugarcane .Sugarcane is mainly grown in the Eastern Uganda, in districts like Jinja, Mayuge, Jinja, Kaliro, Luuka and Iganga(Nsimiire & Owoyesigyire, 2023). The sugarcane industry of Uganda has subsequently grown rapidly the past 20 years, as sugarcane production increased from 1.5 million MT in 2000 to 5.8 million MT in 2020 *(Guloba et al., 2023).*

Mayuge district Wairasa Sub County is a major sugarcane growing area in Uganda with very many small scale farmers growing sugarcane in small fragmented pieces of land*(Guloba et al., 2023).* Small scale farmers mainly prefer sugarcane growing to food crop production in the area because of mainly ready market for sugarcane by sugarcane processing industries like Mayuge sugars, Kakira Sugar Limited in Jinja and Kamuli sugars in Kamuli which has resulted to increased reduction of available land for food crop production to sugarcane growing leading to reduced amount of food in the sugarcane growing area hence resulting to food shortages and food insecurity*(Mwavu et al., 2018*). Food insecurity is not only a concern in Mayuge district Wairasa Sub County in Uganda but a global problem which resulted to

References

African Union. (2015). *Report of the Commission on the African Union Agenda 2063*. *5*(Xxiv), 4–6. www.au.int

Arora, N. K. (2019). Impact of climate change on agriculture production and its sustainable solutions. *Environmental Sustainability*, *2*(2), 95–96. https://doi.org/10.1007/s42398-019-00078-w

Barbara Cohen. (2002). *Community Food Security Assessment Toolkit*. http://permanent.access.gpo.gov/lps21622/efan02013.pdf

Dhillon, R., & Moncur, Q. (2023). Small-Scale Farming: A Review of Challenges and Potential Opportunities Offered by Technological Advancements. *Sustainability (Switzerland)*, *15*(21). https://doi.org/10.3390/su152115478

FSC. (2022). *Food Security Dimensions-Access*. http://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/manual/IPC_Technical_Manual_3_Final.pdf

Guloba, A. M. M., Mbowa, S., Nakazi, F., Mather, D., & Bryan, E. (2023). *Sugarcane Production and Food Security in Uganda*. *September*.

Kyalya, P. M. (n.d.). Sugarcane Cash and Food Insecurity in Busoga Region of Uganda. In *Maureen Kyalya Waluube*. https://www.academia.edu/6093457/Sugarcane_Cash_and_Food_Insecurity_in_Busoga_Region_of_Uganda

Mango, N., Zamasiya, B., Makate, C., Nyikahadzoi, K., & Siziba, S. (2014). Factors influencing household food security among smallholder farmers in the Mudzi district of Zimbabwe. *Development Southern Africa*, *31*(4). https://doi.org/10.1080/0376835X.2014.911694

Markina, I. A., Chykurkova, A. D., Shkilniak, M. M., Somych, N. I., & Taran-Lala, O. M. (2020). Assessment of Food Security in Country or Geographic Region: Management and Administration. *International Journal of Management (IJM*, *11*(6), 1729–1745. http://www.iaeme.com/IJM/index.asp1729http://www.iaeme.com/IJM/issues.asp?JType=IJM&VType=11&IType=6http://www.iaeme.com/IJM/issues.asp?JType=IJM&VType=11&IType=6

Mbua, I. A., & Atta-Aidoo, J. (2023). Acreage supply response of sugarcane out-growers in Tanzania: A vector error correction model (VECM) approach. *Cogent Food and Agriculture*, *9*(1). https://doi.org/10.1080/23311932.2023.2229575

McCauley, D. (2022). Today's Challenges to Food Security for Smallholder Farmers. *CSA News*, *67*(5). https://doi.org/10.1002/csan.20731

Methods. (2019).

Mishra, P., Alakkari, K. M., Lama, A., Ray, S., Singh, M., Shoko, C., Abotaleb, M., Al Khatib, A. M. G., & Karakaya, K. (2023). Modeling and Forecasting of Sugarcane Production in South Asian Countries. *Current Applied Science and Technology*, *23*(1). https://doi.org/10.55003/cast.2022.01.23.002

Muhammad, S., & Kabir, S. (2018). *Methods of data collection*. *July 2016*.

Mwavu, E. N., Kalema, V. K., Bateganya, F., Byakagaba, P., Waiswa, D., Enuru, T., & Mbogga, M. S. (2018). Expansion of Commercial Sugarcane Cultivation among Smallholder Farmers in Uganda: Implications for Household Food Security. *Land*, *7*(2). https://doi.org/10.3390/land7020073

Nabalegwa, M. W., Tweheyo, R., Asaba, J., & Waibi, M. (2022a). Sugarcane Growing and the Livehoods of Small-Scale Farmers in Jinja District, Uganda. *Forum Geografi*, *36*(2), 176–184. https://doi.org/10.23917/forgeo.v36i2.16279

Nabalegwa, M. W., Tweheyo, R., Asaba, J., & Waibi, M. (2022b). Sugarcane Growing and the Livehoods of Small-Scale Farmers in Jinja District, Uganda. *Forum Geografi*. https://doi.org/10.23917/forgeo.v36i2.16279

Nabalegwa, M. W., Tweheyo, R., Asaba, J., & Waibi, M. (2022c). *Sugarcane Growing and The Livelihoods of Small-Scale Farmers in Jinja*. 176–184. https://doi.org/10.23917/forgeo.v36i2.16279

Nsimiire, W., & Owoyesigyire, B. (2023). EFFECTS OF SUGARCANE GROWING ON FOOD SECURITY AMONG SMALLHOLDER FARMERS IN PROXIMITY TO KINYARA SUGAR LIMITED IN MASINDI DISTRICT, UGANDA. *International Journal of Agriculture and Environmental Research*, *09*(01). https://doi.org/10.51193/ijaer.2023.9101

OECD, & FAO. (2016). Agriculture in Sub-Saharan Africa : Prospects and challenges. *OECD-FAO Agricultural Outlook 2016-2025*, *181*(November 1947), 59–95.

Of, T. H. E. S. (2024). *Food Security and Nutrition in the World Financing To End Hunger , in All Its Forms*.

Peniel, B. B. (2016). Research design Research design. *Research in Social Science: Interdisciplinary Perspectives*, *September*, 68–84.

Profile, S. E. E. (2018). *Survey as a Quantitative Research Method*. *January 2017*.

Programm, W. F. (2021). Annual Country Report 2021. *Annual Country Report*, 5–6.

Pyzhikova, N., Goncharova, N., & Tarasova, O. (2023). World practice of statistical evaluation food security of states. *E3S Web of Conferences*, *390*. https://doi.org/10.1051/e3sconf/202339001020

Reagan, H. A. (2018). *MEASURING FOOD INSECURITY EXPERIENCE SCALE (FIES) IN INDONESIA International Workshop on Sustainable Development Goal (SDG) Indicators*. *June*, 1–18.

Shively, G., & Hao, J. (2012). A Review of Agriculture, Food Security and Human Nutrition Issues in Uganda. *... University Department of Agricultural ...*, 1–42. http://ageconsearch.umn.edu/bitstream/135134/2/12-3Shively.Hao.pdf

Silva, A. De, Sanotharan, N., Senevirathna, C. J., & Perera, S. K. (2019). Analysis of the factors affecting farmers ' perception toward the sugarcane cultivation of small scale farmers in Monaragala District of Sri Lanka. *International Journal of Advanced Scientific Research*, *4*(1).

The State of Food Security and Nutrition in the World 2020. (2020). In *The State of Food Security and Nutrition in the World 2020*. https://doi.org/10.4060/ca9692en

Thibane, Z., Soni, S., Phali, L., & Mdoda, L. (2023). Factors impacting sugarcane production by small-scale farmers in KwaZulu-Natal Province-South Africa. In *Heliyon* (Vol. 9, Issue 1). https://doi.org/10.1016/j.heliyon.2023.e13061

UBOS. (2017). Area Specific Profiles Bugiri District. *Report on National Population and Housing Census 2014 Area Specific Profiles*, *April*, 1–75.

Vhurumuku, E. (2014). Food Security Indicators Elliot Vhurumuku Senior Regional VAM Advisor WFP East and Central Africa Bureau, Nairobi For the Integrating Nutrition and Food Security Programming for Emergency response workshop. *Integrating Nutrition and Food Security Programming for Emergency Response Workshop*, *February*, 1–2. http://www.fao.org/fileadmin/user_upload/food-security-capacity-building/docs/Nutrition/NairobiWorkshop/5.WFP_IndicatorsFSandNutIntegration.pdf

Voora, V., Bermúdez, S., Le, H., Larrea, C., & Luna, E. (2023). *Sugar cane prices and sustainability*. *2022*.

Zulu, N. S., Sibanda, M., & Tlali, B. S. (2019a). Factors affecting sugarcane production by small-scale growers in ndwedwe local unicipality, South Africa. *Agriculture (Switzerland)*, *9*(8), 1–14. https://doi.org/10.3390/agriculture9080170

Zulu, N. S., Sibanda, M., & Tlali, B. S. (2019b). Factors affecting sugarcane production by small-scale growers in ndwedwe local unicipality, South Africa. *Agriculture (Switzerland)*, *9*(8). https://doi.org/10.3390/agriculture9080170

African Union. (2015). *Report of the Commission on the African Union Agenda 2063*. *5*(Xxiv), 4–6. www.au.int

Arora, N. K. (2019). Impact of climate change on agriculture production and its sustainable solutions. *Environmental Sustainability*, *2*(2), 95–96. https://doi.org/10.1007/s42398-

019-00078-w

Barbara Cohen. (2002). *Community Food Security Assessment Toolkit*. http://permanent.access.gpo.gov/lps21622/efan02013.pdf

Dhillon, R., & Moncur, Q. (2023). Small-Scale Farming: A Review of Challenges and Potential Opportunities Offered by Technological Advancements. *Sustainability (Switzerland)*, *15*(21). https://doi.org/10.3390/su152115478

FSC. (2022). *Food Security Dimensions-Access*. http://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/manual/IPC_Technical_Manual_3_Final.pdf

Guloba, A. M. M., Mbowa, S., Nakazi, F., Mather, D., & Bryan, E. (2023). *Sugarcane Production and Food Security in Uganda*. *September*.

Kyalya, P. M. (n.d.). Sugarcane Cash and Food Insecurity in Busoga Region of Uganda. In *Maureen Kyalya Waluube*. https://www.academia.edu/6093457/Sugarcane_Cash_and_Food_Insecurity_in_Busoga_Region_of_Uganda

Mango, N., Zamasiya, B., Makate, C., Nyikahadzoi, K., & Siziba, S. (2014). Factors influencing household food security among smallholder farmers in the Mudzi district of Zimbabwe. *Development Southern Africa*, *31*(4). https://doi.org/10.1080/0376835X.2014.911694

Markina, I. A., Chykurkova, A. D., Shkilniak, M. M., Somych, N. I., & Taran-Lala, O. M. (2020). Assessment of Food Security in Country or Geographic Region: Management and Administration. *International Journal of Management (IJM*, *11*(6), 1729–1745. http://www.iaeme.com/IJM/index.asp1729http://www.iaeme.com/IJM/issues.asp?JType=IJM&VType=11&IType=6http://www.iaeme.com/IJM/issues.asp?JType=IJM&VType=11&IType=6