

BUSITEMA UNIVERSITY ARAPAI CAMPUS

FACULTY OF AGRICULTURE AND ANIMAL SCIENCES

EFFECT OF SORGHUM PRICE FLUCTUATIONS ON THE LIVELIHOOD OF SMALLHOLDER FARMERS IN OLIO SUB-COUNTY, SERERE DISTRICT

\mathbf{BY}

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

DECLARATION

This study is original and has not been submitted for any other degree award	to any university
before.	
Signature Date 22nd March, 2024	
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APPROVAL

This special project report has been submitted to the Department of Agribusiness and Extension
with approval of the University supervisor.
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DEDICATION

I dedicate this work to the Almighty God who gave me the knowledge, wisdom and understanding in my studies. I also dedicate this work to my parents, daddy Daudi Ariapa and mummy Martha, in-laws daddy Joseph and mummy Betty Akurut plus my husband Johnson Otinga who supported me financially, socially and spiritually in completion of my studies.

Not forgetting my friends, Okello Solomon, Acio Dorothy and other fellow course mates who stood with me in my Bachelor of Agribusiness academic journey from 2020 to 2024. May God bless you all for your hard work.

ACKNOWLEDGEMENTS

There is no any other way this report could have been written and completed on time without the support of my parents and in-laws. Thank you so much my beloved parents' in-law, daddy and mummy for the financial sacrifices you made in contribution towards accomplishment of this report.

I acknowledge the contributions of my course mates, Mr. Mirro, Julius, Dorothy and others for their advice and encouragement that helped me to complete this report successfully. I also thank my supervisor, Mr. IISA Augustine for his criticism and hard training that helped me too to achieve my goal.

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LIST OF ACRONYMS

USAUnited States of America
SSASub Saharan Africa
SPSSStatistical Package for Social Scientists
UBOSUganda Bureau Of Statistics
T/CTown Council
EACEast African Community
USAID
FAOFood and Agricultural Organization

ABSTRACT

This research study was about the Effects of Sorghum price fluctuations on the livelihood of smallholder farmers in Olio Sub-County, Serere District. Small scale farmers in this district have been cultivating sorghum over years for both household consumption and sale. Sorghum (sorghum bicolor) is a cereal of Poaceae grass family native to Northeastern Africa and was first cultivated from 3700 to 4000 years ago. Sorghum had high yields in recent years within the study area but prices for sorghum were fluctuating so much that the farmers were unable to achieve their investment decisions. Farmers in Olio sub-county Serere district, who grow sorghum are faced with a similar challenge of price fluctuation which has a negative effect on their incomes and livelihoods. Sorghum is regarded as a food security crop given its ability to withstand dry weather conditions. The main objective of the study was to determine the effect of Sorghum price fluctuations on the livelihood of smallholder farmers in Olio Sub-County, Serere District. It was aimed at generating recommendations to boost sorghum prices among smallholder farmers. The specific objectives were as follows; To determine the economic importance of sorghum in Olio Sub-County; To investigate the causes of sorghum price fluctuations in Olio Sub-County; To find out the influence of sorghum price fluctuations on farmers' investment decisions in Olio Sub-County, Serere District. Aqualitative cross-sectional survey was used to gather data from 80 respondents. A random sampling technique was used where 80 respondents were selected to participate in the study within five parishes in Olio Sub-County, Serere District. Data was analyzed using Statistical Package for Social scientists and results presented in tables, pie charts and bar graphs. The findings revealed that majority of the respondents with 32.5% approved that high supply of sorghum in the market is the main perceived cause of prices fluctuation. In addition, table 7 shows that 34.9% of the respondents got average income of between 105,000-150,000Shs per acre, per season after sale of sorghum. Basing on the findings, the study recommends that small household farmers should be educated on value addition of their produce so as to get additional income.

CHAPTER ONE

1.0 INTRODUCTION

This chapter presents the introduction, problem statement, objectives, research questions, significance, justification and scope of the study.

1.1Background

Sorghum(sorghum bicolor) is a cereal of Poaceae grass family native to Northeastern Africa and was first cultivated from 3700 to 4000 years ago(Shukla et al., 2022). Sorghum is one of the leading cereal crops worldwide and ranked the fifth highest production of the cereal crops, following maize, wheat, rice, and barley, with 57.6 million tons of annual production globally (Xiong et al., 2019). Currently, more than 90% of the total global sorghum harvested areas are found in Africa and Asia with Africa accounting for 61% of the areas where sorghum is harvested and 41% of the total sorghum production in the world (Kula et al., 2022). It is one of the most drought tolerant cereal crops that can be cultivated together with leguminous crops such as groundnut and cowpea (Onuk et al., 2020). Due to its evolutionary origin as an East African tropical cereal grass, sorghum is adapted to African climate patterns (Tonitto & Ricker-Gilbert, 2016). Uganda is the second largest producer of sorghum after Tanzania, in the EAC (Tenywa, Nyamwaro, Kalibwani, Buruchara, et al., 2018). In Uganda, sorghum is grown mainly in the southwestern highlands, especially in Ntungamo and Kabale districts, and in the lowland areas of eastern and northern regions of Uganda(Tenywa, Nyamwaro, Kalibwani, Mogabo, et al., 2018). Sorghum is mainly produced by smallholder farmers in the semi-arid regions of Eastern, Northern and South Western Uganda as a staple food. Farmers in the country commonly use farm-saved sorghum seed (Andiku et al., 2021). Sorghum is an important crop for those living in drought-prone regions of Uganda. The northern region was the highest producer of sorghum, followed by the eastern, western, and central regions(Journal, 2014). The production of sorghum in Uganda was 1,200,000tonnes in 2019 and a country had approximately 1,410,249.00 hectares under sorghum cultivation. In 2021, the area under sorghum production in Uganda was at 398,050 ha accounting for 314,553 tons total annual production(Andiku et al., 2021). The retail price range for Uganda sorghum in September 2022was between US\$ 0.5 and US\$ 1.15 per kilogram or between US\$ 0.23 and US\$ 0.52 per pound.

REFERENCES

- Andiku, C., Shimelis, H., Laing, M., Shayanowako, A. I. T., Adrogu Ugen, M., Manyasa, E., & Ojiewo, C. (2021). Assessment of sorghum production constraints and farmer preferences for sorghum variety in Uganda: implications for nutritional quality breeding. *Acta Agriculturae Scandinavica Section B: Soil and Plant Science*, 71(7), 620–632. https://doi.org/10.1080/09064710.2021.1944297
- Ariningsih, E., Saliem, H. P., Nurhasanah, A., Gunawan, E., Agustian, A., & Saptana. (2023). Challenges and alternative solutions in developing sorghum to support food diversification in Indonesia. *IOP Conference Series: Earth and Environmental Science*, 1153(1). https://doi.org/10.1088/1755-1315/1153/1/012032
- Chavula, P., & Turyasingura, B. (2023). Contribution of Sorghum Production to Smallholder Farmers 'Welfare in Rubanda District , Uganda. 8(3), 98–101. https://doi.org/10.11648/j.ijae.20230803.13
- Deribe, Y., & Kassa, E. (2020). Value creation and sorghum-based products: what synergetic actions are needed? *Cogent Food and Agriculture*, 6(1). https://doi.org/10.1080/23311932.2020.1722352
- Deutschmann, J. W., Bernard, T., & Yameogo, O. (2021). Contracting and quality upgrading: Evidence from an experiment in Senegal. *Unpublished Manuscript*.
- Gouel, C. (2012). Agricultural price instability: A survey of competing explanations and remedies. *Journal of Economic Surveys*, 26(1), 129–156. https://doi.org/10.1111/j.1467-6419.2010.00634.x
- Hossain, M. S., Islam, M. N., Rahman, M. M., Mostofa, M. G., & Khan, M. A. R. (2022). Sorghum: A prospective crop for climatic vulnerability, food and nutritional security. *Journal of Agriculture and Food Research*, 8(April), 100300. https://doi.org/10.1016/j.jafr.2022.100300
- Journal, I. (2014). 4, 1,2,4. 3(5), 707–714.
- Kula, O. O., Nyangweso, P. M., & Saina, E. (2022). Journal of Economics and Financial

- Analysis Socio-Economic Factors Affecting Profitability of Sorghum Farming in Siaya County, Kenya. 2(2), 69–83. https://doi.org/10.1991/jefa.v6i2.a55
- Lubadde, G., Ebiyau, J., Aru, J. C., Andiku, C., Wandulu, J. A., & Ugen, M. A. (2019). Sorghum production handbook for Uganda. pp 37. National Semi Arid Resources Research Institute of the National Agricultural Research Organisation (NaSARRI-NARO), Uganda. *National Semi Arid Resources Research Institute of the National Agricultural Research Organisation (NaSARRI-NARO)*, *Uganda.*, *August*, 37. http://www.naro.go.ug/files/downloads/sorghum production guide 15 10 2018 Copy.pdf
- Maize, E. S. (2022).m on thly report on food price trends. july.
- onuk, e. g., girei, a. a., & audu, s. i. (2020). production function analysis and profitability of sorghum-groundnut intercropping in doma local government area of nasarawa state, nigeria.
 *Russian Journal of Agricultural and Socio-Economic Sciences, 102(6).
 https://doi.org/10.18551/rjoas.2020-06.20
- Orr, A., Mwema, C., Gierend, A., & Nedumaran, S. (2016). Sorghum and millets in Eastern and Southern Africa: facts, trends and outlook.
- Ramona Hautala, K. (2013). A Sustainable Livelihood Analysis of Small-Scale Farmers in M'muock, Cameroon Local Realities and Structural Constraints. *Thesis*, *May*, 1–112. https://core.ac.uk/download/pdf/30892554.pdf
- Rashwan, A. K., Yones, H. A., Karim, N., Taha, E. M., & Chen, W. (2021). Potential processing technologies for developing sorghum-based food products: An update and comprehensive review. *Trends in Food Science & Technology*, *110*, 168–182.
- Serere. (2020). The republic of uganda serere district local government district development plan 2015/16 2019/20. 899.
- Shukla, S., Lohani, U. C., Shahi, N. C., & Dubey, A. (2022). Extraction of natural pigments from red sorghum (Sorghum bicolor) husk by ultrasound and microwave assisted extraction: A comparative study through response surface analysis. *Journal of Food Process Engineering*, 45(10), e14130.

- Tenywa, M. M., Nyamwaro, S. O., Kalibwani, R., Buruchara, R., & Oluwole, F. (2018). *Volume 2 No: 18 (2018) Innovation Opportunities in Sorghum Production in Uganda*. 2(April), 1–20.
- Tenywa, M. M., Nyamwaro, S. O., Kalibwani, R., Mogabo, J., Buruchara, R., & Oluwole, F. (2018). Innovation Opportunities in Sorghum Production in Uganda. FARA Research Report, 2(18), 1–20. www.faraafrica.org
- Tonitto, C., & Ricker-Gilbert, J. E. (2016). Nutrient management in African sorghum cropping systems: applying meta-analysis to assess yield and profitability. *Agronomy for Sustainable Development*, 36(1), 1–19. https://doi.org/10.1007/s13593-015-0336-8
- USAID. (2013). Livelihood Dynamics in Northern Karamoja. A participatory Baseline Study for the growth Health and Governance Program. *Agriculture*, *May*, 1–64. https://fic.tufts.edu/publication-item/livelihood-dynamics-in-northern-karamoja/%0D%0A
- Xie, H., & Wang, B. (2017). An Empirical Analysis of the Impact of Agricultural Product Price Fluctuations on China's Grain Yield. *Sustainability (Switzerland)*, *9*(6), 1–14. https://doi.org/10.3390/su9060906
- Xiong, Y., Zhang, P., Warner, R. D., & Fang, Z. (2019). Sorghum Grain: From Genotype, Nutrition, and Phenolic Profile to Its Health Benefits and Food Applications. 18, 2025–2046. https://doi.org/10.1111/1541-4337.12506