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RICE PROFITABILITY ANALYSIS OF FARMERS ALONG THE VALUE CHAIN.

A CASE STUDY OF DOHO RICE SCHEME, BUTALEJA DISTRICT

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A THESIS SUBMITTED TO THE DEPARTMENT OF AGRIBUSINESS AND EXTENSION IN PARTIAL FULFILMENT OF THE REQUIREMENTS OF THE A BACHELORS DEGREE IN AGRIBUSINESS BUSITEMA UNIVERSITY, ARAPAI CAMPUS

17TH FEBUARY 2021

DECLARATION

I declare that this dissertation is my original work and has not been submitted in this or any other university for the award of a Degree, Diploma or Certificate.

Sign: Cathy	Date: 17th 2 - 2021
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APPROVAL

This work has been submitted to Arapai campus for examination with the approval of the
university supervisor
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DEDICATION

I dedicate this dissertation to my Dad Mr. Masette Samuel, siblings Wataka Bourn and Wataka Hope; and my dear friends Ochom Geoffrey and Ayingo Sarah for their love and genuine support. God bless you.

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ABSTRACT

Rice is a cereal and cereals are important food and cash crops in Uganda and other developing countries. In a country like Uganda more than 44,000 grow rice and other related cereals like maize, wheat, sorghum, barley and millet the overall, productivity of the cereals particularly rice is very law and this has had a great impact of the profitability. The aim of this research study was to contribute towards rice improved profitability in order for farmers to generate income for their livelihood. The specific objectives were; to establish the socioeconomic characteristics of rice producers or farmers, to determine the profitability of the rice farmers and to determine the factors affecting the profitability of rice. Stratified random sampling procedure was used by divided farmers into groups and selecting them according to their characteristics of importance to the research and also purposive random sampling was employed in this study with the guide of the scheme extension worker. Primary data was collected from the field using a structured interview. Secondary data was obtained from different online published materials and published library books and journals were also used. Data was analyzed; objective one was analyzed using Descriptive analysis. Moreover, objective two was analyzed using Gross margin analysis Approach and lastly objective three was analyzed using both Descriptive and multilinear regression analysis approach. The research results showed that, at farm level, the net income for rice farmers on average was USHS 308,000 per acre. Furthermore, age of respondents; gender; income levels, education level and above all access to market information had a great effect on the net profit income of the farmers.; With the above, it's a clear indicator that this research study if positively recognized by national bodies responsible for improving rice growth would contribute as a great fountain of important rice literature.

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CHAPTER ONE: INTRODUCTION

1.0 Background PRODUCTION AND CONSUPTION TRENDS.

Rice belongs to the "Gramineae" family and the genus "Oryza" (Arshad, 2010), *Oryza sativa* L is the most widely grown rice variety in the world (Muthayya et al., 2014) and is one of the fastest growing staple foods in Africa. It is the world's most important staple food consumed by an estimated population of 3.5 billion people (Muthayya et al., 2014). Almost a billion households in Asia, Africa and the America depend on rice systems as the main source of employment and livelihood. It provides 27% of the calories in low- and middle-income countries and it is assumed to continue to be so in the coming decades, be it in terms of food security, poverty alleviation, youth employment, use of scarce resources, or impact on the climate. ((IRRI, 2016).

In sub-Saharan Africa, rice consumption among urban dwellers has steadily grown, with a per capita consumption that has doubled since 1970 (Sumithra et al., 2014). In Uganda, the amount of rice consumed was estimated to be, 299,800MT un milled rice, 188,900 MT in 2011 of milled rice(MAAIF, 2012). Rice has a nutrition composition of which contains 80% carbohydrates, 7–8% protein, 3% fat, and 3% fiber (Chaudhari et al., 2018). The rice processing industry also gives a by-product called rice Bran that is very important to the livestock farmer because it is rich in lipids (Aparecida et al., 2012). Other relevant products of rice include rice Broken used for making food item like breakfast cereals, rice flour, noodles, rice cakes, etc. and also used as a poultry feed, rice straw used as animal feed, fuel, mushroom bed, for mulching in horticultural crops and also rice husks used for fuel (Aparecida et al., 2012).

According to (MAAIF, 2015) in 2014 alone rice produced in Uganda amounted to 237,000 MT, of which 57,053 MT was exported and this generated USD28.7 million to the GDP of the country. This was an indicator that rice production was not only serving the nation in terms of food security but also economic development. The contribution of the agricultural sector to the GDP of Uganda was 24.2% in the financial year 2017/2018 (UBOS, 2018).

Rice is also the leading source of income and employment for more than 200 million households across countries in the developing world (Muthayya et al., 2014).

Rice is currently grown globally in over a hundred countries that produced about 672 million tons of rice (paddy) in 2010 and (Data, 2010) more than 715 million tons of paddy rice annually



REFERENCES

- MAAIF, (2016). The National Agricultural Extension Policy. October.
- FAO, (2011). The state of food and agriculture.
- Akinbile, christopher O, Abimbola Y, S. (2011). ASIAN JOURNAL OF CROP SCIENCE (pp. 1-11).
- Alkire, S., Meinzen-dick, R., Peterman, A., Quisumbing, A. R., Seymour, G., & Vaz, A. (2013). OPHI W ORKING P APER N O . 58 The Women 's Empowerment in Agriculture Index.
- Aparecida, S., Faria, C., & Bassinello, P. Z. (2012). Nutritional composition of rice bran submitted to different stabilization procedures. 48.
- Arshad, F. M. et al. (2010). January 2010 Haramaya University. January.
- Barungi, M., & Odokonyero, T. (2016). Understanding the Rice Value Chain in Uganda: Opprotunities and Challenges to Increased Productivity. *Economic Policy Research Centre*, 16, 1–24.
- Buyinza, J., Sekatuba, J., Agaba, H., Kinuthia, R., & Kiptot, E. (2015). Analysis of Extension Systems in Uganda for Identification of Suitable Extension Approaches for Scaling- up 'Trees for Food Security' Project in Eastern Uganda ACIAR' TREES FOR FOOD SECURITY' PROJECT.
- Bwala, M. A., & John, A. U. (2018). Profitability analysis of paddy production: A case of agricultural zone 1, Niger State Nigeria. *Journal of the Bangladesh Agricultural University*, 16(1), 88–92. https://doi.org/10.3329/jbau.v16i1.36486
- CGIAR Research Program on Rice Agri-Food Systems (RICE) 2018 Annual Report, 1 (2018).
- Chaudhari, P. R., Tamrakar, N., Singh, L., Tandon, A., & Sharma, D. (2018). Rice nutritional and medicinal properties: A review article. 7(2), 150–156.
- D. Kulyakwave, P., Xu, S., Yu, W., Sary, S., & Muyobozi, S. (2020). Profitability Analysis of Rice Production, Constraints and Consumption Shares by Small-scale Producers in

- Tanzania. Asian Journal of Agricultural Extension, Economics & Sociology, January, 1–12. https://doi.org/10.9734/ajaees/2019/v37i430280
- Dalipagic, I., & Elepu, G. (2014). Agricultural value chain analysis in Northern Uganda: Maize, Rice, Groundnut, Siunflower and Sesame. *ACF-International*, *March*, 1–74.
- Dang, N. H. (2017). Profitability and Profit Efficiency of Rice Farming in Tra Vinh Province.
 Vietnam. 6(1), 191–201.
- Data, N. (2010). → 672 million tonnes of rice (paddy) were harvested in 2010 → Rice is the principle staple in Asia, where production is rising in the South but falling in the East in many parts of sub-Saharan Africa → Rice is also a highly sought after staple. 182–197.
- Development, T., & Activities, P. (2001). Identification of potential value added for the customer how can our product add value to the customers value chain (e.g., lower costs or higher performance) where does the customer see such potential. 1985, 1–2.
- Emmanuel, M. (2010). Effect of Agricultural Inputs and Extension Services on Household Crop Production in Uganda. *Master of Statistics Thesis Paper*, *Makerere University*, *September*, P78.
- Eneyew, A., & Bekele, W. (2015). Causes of household food insecurity in Wolayta: Southern Ethiopia Determinants of livelihood strategies in Wolaita, southern Ethiopia, January 2012.
- FAOSTAT_data_5-15-2020. Yields of rice in uganda
- FAOSTAT data 5-26-2020 Area under rice cultivation
- Garnett, L., Groat, M., Officer, R. E., North, S., & Plunkett, G. (2018). Rice growing guide.

 November.
- Ghins, L., & Pauw, K. (2018). The impact of markets and policy on incentives for rice production in Rwanda. In Fao Agricultural Development Economics Working Paper (Vol. 02, Issue February).
- Gross Margin Training Notes. (2017), July.

- Hyuha, T., Bashaasha, B., & Kraybill, D. (2007). Analysis of profit inefficiency in rice production in Eastern and Northern Uganda. 15(4), 243–253.
- Igboji Chidi, * A. R. ., & * & Nneji Chinaza, P. (2015). Analysis of Socio-Economic Factors and Profitability of Rice Production among Smallscale Farmers in Ebonyi State. IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS), 8(2), 20–27. https://doi.org/10.9790/2380-08212027
- IRRI. (2016). Rice Agri-Food System CRP, RICE. Iri, 118. www.irri.org
- KARANE, S. V. (2016). A Thesis Submitted to the Graduate School in Partial Fulfilment of the Requirements of the Master of Science Degree in Agricultural Economics of Egerton University. FACTORS INFLUENCING ON-FARM COMMON BEAN PROFITABILITY: THE CAS OF SMALL HOLDER BEAN FARMERS IN BABATI DISTRICT, TANZANIA.
- Khoza, T. M., Senyolo, G. M., Mmbengwa, V. M., & Soundy, P. (2019). Socio-economic factors influencing smallholder farmers? decision to participate in agro- processing industry in Gauteng province. South Africa. Cogent Social Sciences, 5(1), 1-14. https://doi.org/10.1080/23311886.2019.1664193
- Kilimo Trust. (2012). Development of Inclusive Markets in Agriculture and Trade (DIMAT).

 **Undp, 1–48. http://www.undp.org/content/dam/uganda/docs/UNDPUg_PovRed_Value

 Chain Analysis Report Honey 2013 Report.pdf
- Kulyakwave, D., Xu, S., Yu, W., Sary, S., & Muyobozi, S. (2020). Profitability Analysis of Rice Production. Constraints and Consumption Profitability Analysis of Rice Production. Constraints and Consumption Shares by Small-scale Producers in Tanzania. January. https://doi.org/10.9734/AJAEES/2019/v37i430280.
- Kumar, D., & Pradesh, U. (2016). VALUE CHAIN: A CONCEPTUAL FRAMEWORK, 7(1), 74-77.
- Learning, A. T., In, P., & Promotion, H. (2011). Ezdesŷő Wdadzse Śŷ Eğl Gañaŷe Ezdesŷő Wdadzse Śŷ Eğl Gañaŷe. 27(2), 2008.

- Lee, Y., An, D., & Kim, T. (2017). The Effects of Agricultural Extension Service on Farm Productivity: Evidence from Mbale District in Uganda. April, 1–11. https://doi.org/10.20944/preprints201704.0162.v1
- MAAIF. (2012). Ministry of Agriculture, Animal Industry and Fisheries. *Uganda National Rice Development Strategy (NRDS)*, 2008-2018., 1–87. https://doi.org/10.1016/j.bbagen.2013.04.004
- MAAIF. (2015). Agriculture Sector Strategic Plan 2015/2016-2019/2020 (Issue April 2016).
- Mcgee, J. (2015). value cham. 12(July).
- Muthayya, S., Sugimoto, J. D., Montgomery, S., & Maberly, G. F. (2014). An overview of global rice production, supply, trade, and consumption. *Annals of the New York Academy of Sciences*, 1324(1), 7-14. https://doi.org/10.1111/nyas.12540
- E.A Somado, Ra Guei & SO Keya, 2008: the New Rice for Africa a Compendium.
- Oonyu, J. (2011). Upland rice growing: A potential solution to declining crop yields and the degradation of the doho wetlands, butaleja district-uganda. *African Journal of Agricultural Research*, 6(12), 2774–2783. https://doi.org/10.5897/AJAR10.806
- Sustainable Rice Platform, (2015): Performance Indicators for Sustainable Rice Cultivation.

 October.
- Butaleja Population, & Profiles, A. S. (2017). Area Specific Profiles Butaleja District. April.
- Butaleja District profile (2016). Hazard, risk& vulnarability
- Rawles, J., & Bignall, J. C. (1986). Regression Analysis. In *The Lancet* (Vol. 327, Issue 8481). https://doi.org/10.1016/S0140-6736(86)92832-1
- Reddy, N., & Reddy, D. N. (2013). Munich Personal RePEc Archive Declining Labour Use in Agriculture: A Case of Rice Cultivation in Andhra Pradesh Declining Labour Use in Agriculture: A Case of Rice Cultivation in Andhra Pradesh. 49204.
- UN Women annual Report 2016-2017. (2017).

- Rice (Oryza sativa). (2015). 131-153. https://doi.org/10.1787/9789264180147-10-en.
- Rugube, L. M., Nsibande, S. P., Masarirambi, M. T., & Musi, P. J. (2019). Factors Affecting Profitability of Smallholder Vegetable Farmers in the Shiselweni Region., Kingdom of Eswatini (Swaziland). 8(1). https://doi.org/10.5539/sar.v8n1p104
- Sekumade, A. B., & W Toluwase, S. (2014). Profitability and Production Efficiency of Indigenous Tomato Cultivation among Farmers in Osun State, Nigeria. IOSR Journal of Agriculture and Veterinary Science, 7(11), 13–23. https://doi.org/10.9790/2380-071111323
- Tasila Konja, D., Mabe, F. N., & Oteng-Frimpong, R. (2019). Profitability and profit efficiency of certified groundnut seed and conventional groundnut production in Northern Ghana: A comparative analysis. Cogent Economics and Finance, 7(1). https://doi.org/10.1080/23322039.2019.1631525
- Team, S., & Doss, C. (2011). The role of women in agriculture. 11.
- Thapa, S., Jamkatel, D. P., Bharati, S., & Bam, S. (2020). Survey on gender role in rice production by farmers of Nuwakot district, Nepal. Archives of Agriculture and Environmental Science, 5(2), 164–167. https://doi.org/10.26832/24566632.2020.0502012
- FAO (2014) Rice Market Monitor December 2014.
- FAO (2018). Rice Market Monitor (RMM), Volume XXI, Issue No. 1. XXI(1).
- Yam, T. B., Bossa, A. Y., Torou, B. M., Fusillier, J., Da, D. E. C., Yira, Y., Serpanti, G., Som, F., & Dama-balima, M. M. (2018). Socio-Economic Factors Influencing Small-Scale Farmers 'Market Participation: Case of Rice Producers in Dano. https://doi.org/10.3390/su10124354