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ASSESSMENT OF POST-HARVEST HANDLING TECHNOLOGIES USED BY GROUNDNUT FARMERS IN SERERE/OLIO SUB-COUNTY, SERERE DISTRICT

BY

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

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DECLARATION

I **Adongo Patricia**, declare that this is my original work and it has not been submitted to any other university for the award of any Bachelor.

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APPROVAL

This special project report is submitted for examination with the approval my supervisor

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Signature: ..... Date: 5th/06/2023

DEDICATION

I dedicate this report to my sponsors and mentors FAWE Uganda as well as my beloved parents Mr. Okwalinga Charles and Mrs. Ajulut Hellen who supported me financially and morally throughout my academic journey.

My research supervisor Mr. Okiror Simon Peter alongside Mr. Ochom Geoffrey who guided me and offered the necessary knowledge for the success of the study.

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LIST OF ACRONYMS AND ABBREVIATIONS

AMIC	Agricultural Market Intelligence Centre
EAC	East African Community
FAO	Food and Agriculture Organization
NAADS	National Agriculture Advisory Services
NaSARRI	National Semi Arid Resources Research Institute
PHL	Post-harvest losses
PHT	Post-harvest handling technologies
PICS bags	Purdue Improved Crop Storage bags
SDG	Sustainable Development Goals
SSA	Sub Saharan Africa
UBOS	Uganda Bureau of Statistics

ABSTRACT

Majority of the farmers used traditional post-harvest handling technologies such as uprooting, hand hoe, carrying on head, ox-cart, bare ground, cow dung smeared ground and granaries and intermediate technologies like bicycle, old sacks, tarpaulins and ordinary sacks. The adoption of improved post-harvest handling technologies such as motorcycle, vehicle, manual shellers, electric shellers and PICS bags is still low among the farmers. Therefore, the study analyzed the factors which influenced the adoption of these technologies. This is vital in promoting better methods that integrate socio-economic factors in mitigating post-harvest losses and help farmers embrace better post-harvest handling technologies. Simple random sampling technique was used to select 73 respondents from the three parishes of Akoboi, Okulonyo and Osugoro in Serere/Olio sub-county. These were interviewed with the aid of well-structured questionnaires. Stata version 15 was used to analyze data using descriptive statistics and probit regression model. A few farmers who used proper post-harvest handling technologies incurred average costs of about UGX 119,268 for tarpaulins, 58,333 for PICs bags and 6,090 for electric shellers. Most of the traditional post-harvest handling were used by farmers at a zero cost. Results from the probit model revealed that age, education level, distance from the research station (NaSARRI), experience in groundnut production, land area under groundnut production, use of multiple technologies, household monthly income, access to credit and access to extension services influenced the adoption of post-harvest handling technologies. This study recommends for recruitment of more extension workers and promotion of development programs in the rural areas which help to enhance the household income of farmers. This will improve the adoption levels of improved technologies.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Groundnut (*Arachis hypogea*) is a legume crop which is rated as the fourth important source of edible oil and third vital source of vegetable protein in the world (Agricultural Market Intelligence Centre AMIC, 2021) as it contains 35 to 56% oil, 25 to 30% protein and 9.5 to 19 % carbohydrate (Abady et al., 2019). Globally, the crop is cultivated on an area of about 31 million hectares with the total production of 53.60 million metric tons (FAOSTAT, 2022) and with an estimated productivity of 1,647 kg per hectare(AMIC, 2021). China is the leading producer of groundnuts in the world with an estimate of 17.99 million metric tons, followed by India with about 9.95 million metric tons and Nigeria with about 4.49 million metric tons (Li Xue et al., 2021).

Africa contributes about 16.80 million metric tons to the total world groundnut output (FAOSTAT, 2022). In Africa, the yields are generally low that is about 964 kg/ha especially in Sub Saharan Africa (SSA) (Abady et al., 2019) since the crop is grown mostly by smallholder farmers under rain-fed conditions with limited inputs (Usman et al., 2014).

Groundnut is thought to have been introduced into East Africa by Portuguese explorers (Li et al., 2013). The total groundnut production in East African Community (EAC) in 2018 was about 1.3 million metric tons (MT) (Imade, 2021). Tanzania is the EAC leading groundnut producer with 940,204 MT, followed by Uganda with 242,243 MT, then South Sudan with 68,678 MT, Kenya with 27,751 MT, Rwanda with 20,678 MT, and Burundi with 12,372 MT (Ankwasa et al., 2021).

Groundnut production in Uganda was introduced by early traders and travelers around 1862 (Li et al., 2013) . Due to scant knowledge on production and utilization of the new crop, its spread and adoption was slow as groundnut research in Uganda started in 1930 from Serere (Okello et al., 2010). The variety grown by then was the pale-kernelled spreading type known under various local names; Etesot/Amasoga and this landrace is still maintained by few farmers in Eastern Uganda, that is, Teso and Busoga sub-regions (Okello et al., 2010). However, due to its unappealing traits like low yields, high susceptibility to rosette, difficulty to harvest by hand and dull kernel colour which is not preferred in the market, better genotypes like Serenut 1R, 2R, 3R, 4T and Serere Red have been developed by the National Semi-Arid

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