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**EFFECTS OF EXTENSION SERVICES ON THE USE OF IMPROVED POST-  
HARVEST TECHNOLOGIES ON MAIZE**

**A CASE STUDY OF MUNARYA SUBCOUNTY, KAPCHORWA DISTRICT**

**BY**

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**A DESERTATION SUBMITTED TO THE DEPARTMENT OF AGRIBUSINESS AND  
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**MAY 2023**

**DECLARATION**

I hereby declare that this work titled “Effects of extension services on the use of improved post-harvest handling technologies on maize- a case study of Munarya sub county, Kapchorwa district” is truly my original work and it has never been submitted in any institution for any academic award.

Student

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Signature.....

Date.....5<sup>TH</sup> JUNE 2023.....

## **DEDICATION**

I would like to take this opportunity to dedicate this thesis to my beloved parents Mr. Mwanga Michael and Mrs. Chemutai Doreen, my beloved sisters Yeko Prossy.M, Cherop Favour .M and my siblings for their endless support, spiritually socially and financially. I also dedicate this dissertation report to my colleagues who have been the greatest pillars to the completion of this research and lastly to the most beloved supervisor Mr. Iisa Augustine for his endless effort in guiding me to complete the research study.

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**APPROVAL**

This report titled "Effects of extension services on the use of improved post-harvest handling technologies on maize- a case study of Munarya sub county, Kapchorwa district" is submitted by the approval of my supervisor

MR. IISA AUGUSTINE

Signature..... 

Date..... *05th June, 2023*

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## LIST OF ABBREVIATIONS

PHL	Post-Harvest Losses
PHHTs	Post-Harvest Handling Technologies
PHHS	Post-Harvest Handling and Storage
PHT	Post-Harvest Technologies
NAADs	National Agricultural Advisory services
APHLIS	African Post-Harvest Losses Information System
AGRA	Alliance for a Green Revolution in Africa
FOA	Food and Agriculture Organisation
MM	Millimetres
UBOS	Uganda Bureau of statistics
MT/HA	Metric tons / Hectare
ACDP	Agriculture Cluster Development Project
MAAIF	Ministry of Agriculture Animal Industry and Fisheries
SPSS	Statistical Packages for social Scientists

## ABSTRACT

High PHL have constrained maize production after Harvesting which is mainly caused by the different PHHTs used and these are either the traditional PHHTs or the improved PHHTs. This study aimed to determine the effects of extension services on the use of the improved PHHTs in Munarya subcounty, Kapchorwa district. The improved PHHTs are associated with minimized PHL. Cross-sectional data was collected from 75 randomly sampled farmers, 2 extension service providers and 3 maize buyers/ demo farmers that were selected purposively. Prepared structured questionnaires were filled by the help of selected enumerators who were trained. Tarpaulins, shelling machines, sacks, plastic silos and traditional crib were the most used improved PHHTs. Farmers gave different reasons for their choice of a given technology and some of the reasons included, ease to use, accessibility in shops and efficiency and the cost of the technology. Extension and support services contributed positively to the use of the different improved PHHTs such as tarpaulins and sacks that were received as subsidy's under ACDP and farmers had several contacts with extension staffs and these involved training on the use of the improved PHHTs. Finally the study recommended the government to increase on the extension staff at the subcounty because most farmers weren't able to receive extension due to the limited staff, access to credit facilities was also one of the main issues recommended that had an impact on the limited use of the improved PHHTs because most farmers were unable to own the improved PHHTs due to their expensive nature and in the near future this will increase the use of the improved PHHTs hence minimizing PHL, minimizing food insecurity and also improving the standards of living of the farmers

## CHAPTER ONE

### 1.0 INTRODUCTION

Maize was introduced in Uganda in 1861 and by 1900 it was an established crop (Balirwa, 1992) and has since become a major part of the farming system ranking first in importance among the main cereal crops (maize, finger millet, sorghum, rice, pearl millet and wheat) in that order as grown in the country. Maize is believed to have originated from Central America; a region which was dominated by 2 wild maize Teosinte and Zea Mexicana. An archaeological study of the bat caves in New Mexico revealed corncobs that were 5,600 years old by radiocarbon determination and most historians believe that corn was domesticated in the Tehuacana Valley of Mexico (Balungi, 2016).

The cereal is planted on about 887,000 hectares (ha), which is 13% of total area planted with crops and produces an estimated 1,272 thousand tons annually (UBOS, 2010). About 55% of the maize is produced in Eastern Uganda, with Kapchorwa District as one of the leading producers (Mwebaze et al., 2011). According to UBOS, 2020 Maize production in Uganda declined from 2,866 thousand tons in 2016 to 2,483 thousand tons in 2017 and several factors were attributed to this however such as fluctuating prices, the prevalence of pests, diseases such as the army worm and the very high post-harvest losses that are in most cases less considered as a major issue in terms of decline in maize production and this happens at farm level.

Maize production is constrained by high post-harvest losses especially at farm level, in Uganda aggregating losses across thousands of individual farmers indicates that national maize losses are about 15% of annual production (Mwebaze & Mugisha, 2011) and in general cereals post-harvest losses can reach up to 50% annually (Kiaya, 2014) to a greater extent this is attributed to the adoption rate of improved post-harvest technologies amongst farmers. The post-harvest losses on maize may affect either the quality or size of the grains and these occur along the different stages such as threshing, storage, drying, transportation, packaging and other post-harvest handling processes.

The concern for the high PHL prompted the Government of Uganda and development partners to launch intervention programs to minimize losses through improved PHT. During 1996 to 2002,

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