



**DETERMINATION OF AFLATOXIN B1 IN FEEDS AND ITS METABOLITES M1 IN  
EGGS FROM SELECTED FARMS IN SERERE DISTRICT**

**By**

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## **ABSTRACT**

The study was conducted in Olio Sub-County and Serere town council Serere district. The study determined aflatoxin B1 in feeds and its metabolites M1 in eggs from selected farms. Objectives of the study were to evaluate storage and management of poultry feeds in selected farms. Secondly, to determine the quantity of aflatoxin B1 in poultry feeds and lastly, to determine the quantity of aflatoxin M1 in eggs. The study employed purposive research design on thirty established poultry farms of Olio Sub-County and Serere town council in Serere District. Data collection methods were using questionnaires and conducting interviews. The raw data obtained after analytical determination of aflatoxin B1 in feeds and its metabolites m1 in eggs was statistically analyzed using statistical package for social sciences (SPSS) software. Processed data is presented in frequency tables, graphs, and pie-charts. Data collected from the participants was kept safely and confidentially. Findings of this study showed that majority - beyond half (67%) of the respondents kept poultry feeds within their poultry farms for a month whereas 33% of the respondents kept their feeds for 2 weeks. In addition, the study showed that, (22) of the farmers' sampled population for the study used sacks for storage of their poultry feeds for two weeks. Further studies should focus on the partial effective measure farers should adopt to control the toxins in poultry feeds.

**DECLARATION**

I, Olila Francis declare that the information in this research dissertation is my own work and has never been submitted to any higher institution of learning for any academic ward.

Signature.......... Date..........

**Olila Francis**

**APPROVAL**

This research report was done by Mr. Olila John Francis that has been submitted for examination with the approval of the University supervisor.

Signature..... *Muyinda* ..... Date..... *7/06/2023* .....

**Mr. Muyinda Robert**

## **DEDICATION**

I dedicate this research dissertation to my family members ANYAIT CHRISTINE, OSEKENY JOHN and my classmates of Animal Production and Management at the Faculty of Agriculture and Animal Sciences, Busitema University and to my brothers ARIONG GODFREY, ADOKO JACOB and AISU TOM that let this research guide us to fight aflatoxin contamination in feeds in order to minimize health threats to humans

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## **LIST OF ABBREVIATIONS**

AFs:	Aflatoxins
AFB1:	Aflatoxin B 1
AFM1:	Aflatoxin M1
FAO:	Food and agricultural organization
WHO:	World health organization
HPLC:	High Performance Liquid Chromatography
MAAIF:	Ministry of Agriculture, Animal Industry and Fisheries
IARC:	International Agency for Research for Cancer
ANOVA:	Analysis of Variance
ELISA:	Enzyme-Linked Immunosorbent Assay

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background

Globally, 25% of the world's food crops and a high proportion of animal feedstuffs are contaminated by mycotoxins (Streit et al., 2013). Animal feeds are majorly composed of cereal-based raw materials as the main sources of energy for poultry which are prone to contamination by mycotoxin-producing fungi (Moretti et al., 2017). Mould growth on living plants and stored crop produce often lead to the contamination of animal feeds with mycotoxins which present a global health challenge to farmers. Raw materials for compound food and feeds are good substrates for mould growth (Udomkun et al., 2017). Aflatoxins, Ochratoxin A, trichothecenes, zearalenone, and fumonisins are the most common mycotoxins (Moretti et al., 2017)

Aflatoxin contamination of poultry feeds normally starts from the farm, during the different stages of crop growth (pre-harvest), continues during harvest time and intensifies during post-harvest as the produce moves along the value chain as a result of inappropriate post-harvest handling.

Poultry products normally get contaminated through feeds which are stored in metallic containers for a long period of time, poor drying systems, poor packaging and processing of feeds when they are still raw and not fully dry which exposes them to mycotoxins (especially *Aspergillus* fungi).

Aflatoxin contamination in the animal feed chain contributes to exposure of the human consumers to contaminated products. The presence of mycotoxin in poultry feed could result from the feed ingredients and raw materials used in their production (Lozada, 1995). Several mycotoxin binders have been developed that prevent harmful effects of mycotoxins on animals consuming contaminated feed. In a study conducted by Kolosova & Stroka (2012), commercial aflatoxin binders containing hydrated sodium calcium aluminosilicate was used as the main component in animal feed and showed a significant effect of 41% reduction on the amount of aflatoxin analysed. Seventy percent of the poultry feed obtained from farmers in the present study included fungal binders to their feed. The low levels of aflatoxin recorded in the present study could be due to the addition of fungal binders to poultry feed.

Aflatoxin B1 contamination in poultry feeds is associated with economic impacts like increased mortality of birds, lowered productivity and high susceptibility to diseases as well as increased

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