



**ASSESSMENT OF MOISTURE CONTENT, PH AND TOTAL AFLATOXIN LEVELS
OF BROILER FEEDS STORED USING DIFFERENT METHODS**

BY

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DECLARATION

I Akumu Manjeri, hereby declare that this research was out of my work and has never been awarded for academic credit from any university or institution.

Signature..........

Date.....13th/03/2024.....

APPROVAL

This research has been done under my supervision as the Institutional supervisor

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DEDICATION

I declare this research work to my almighty God for the abundant health provided to me

Dedication goes to my lovely mother Mrs Bulandina Nakya Magonda, my father Wandera John Magonda, my sister Faith Barasa and all my brothers who have sacrificed a lot towards my education both financially and spiritually

I also humbly dedicate this report to my academic supervisor **DR. MUYINDA ROBERT** and my research coordinator **DR.MATOVU HENRY** not forgetting my proposal examiner **PROFESSOR OLILA DEO** for the abundant knowledge and skills provided to me during research period.

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The great acknowledgement goes to my Almighty God for the abundant health given to me making me completing my research.

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LIST OF ABBREVIATION

IARC	International agency for research on cancer
IMCF	Final moisture content
MCI	Initial moisture content
ML	Moisture loss
W2	Weight two
W3	Weight three
PPB	parts per billion

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ABSTRACT

This research study aimed at investigating the impact of using different storage methods on broiler feed quality, focusing on moisture content, pH levels, and aflatoxin levels over a four-week period. Random sampling was employed to categorize storage methods, and sample sizes were determined for each variable. Moisture content was measured using a hot air oven, pH levels using a **PHep** pH meter of **HANNA** manufacture, and aflatoxin levels through the ELISA technique. Statistical and descriptive analyses were applied to the collected data. The results revealed the mean moisture content was in the range between 0.41 to 8.44% and the mean pH levels ranged from 4.25 to 5.30, while the mean aflatoxin level was in the range 4.19 to 7.62. The findings underscore the importance of proper storage practices, including ventilation, humidity control, and regular monitoring. The study concludes that storage methods significantly influence broiler feed quality, recommending measures to control moisture and PH levels, regular aflatoxin checks, and promoting the use of raised table sacks for improved storage. There for, this study contributes valuable insights for maintaining broiler feed quality and ensuring the safety of poultry.

CHAPTER ONE: INTRODUCTION

1.1 Background

Poultry feed is the most critical element in broiler production, as the quality and quantity of feed can greatly influence the growth, health, and welfare of birds. One of the biggest challenges to poultry farmers is the quality of the feed they provide their birds (Kpomasse *et al.*, 2021). Poultry feeds are often contaminated with various types of toxins, causing significant losses to the poultry industry (Rashid *et al.*, 2017). Aflatoxins, produced by the fungus *Aspergillus*, are among the most common and harmful contaminants in poultry feed (Monson *et al.*, 2015).

Aspergillus contamination can occur at any stage of feed production and storage, but the latter is the most critical. Contaminated feed is a significant source of Aflatoxins contamination in food products (Ochieng *et al.*, 2021). Several storage methods are used by poultry farmers to keep their feed fresh. Some common storage techniques include open-air storage, storage in metal bins or silos, or storage in plastic containers. Nevertheless, feed contamination can still occur in all of these storage methods if they aren't managed or executed properly (Mwakosya *et al.*, 2022).

Farmers often make mistakes when storing feeds that expose their birds to harmful contaminants. For instance, overfilling the storage bins can result in mold growth and temperature increases that can cause grain spoilage (Yang *et al.*, 2012). Conversely, under filling the storage bins can cause insects and rodents to invade, eating or spoiling a substantial part of the feed. Another issue is the use of contaminated machinery, mixing or distributing feed without appropriate cleaning increases the risk of spreading Aflatoxins (Nakavuma *et al.*, 2020).

Since feed storage practices can significantly affect the moisture content, pH, and overall quality of broiler feed, it is important to perform regular assessments on these parameters. The moisture content of feed is a crucial parameter in reducing the growth of fungi and bacteria populations and moulds. If the moisture content of feed is too high or too low, it can increase the likelihood of mold and insect infestation (Kuisa *et al.*, 2017). The pH of the feed also affects the storage stability of the feed. If the pH is in the acidic range, the storage stability of the feed improves, and the growth of fungi and bacteria populations decreases. Aflatoxin levels in feed are directly proportional to the moisture content and pH levels of the feed, with higher levels of moisture and lower pH values leading to higher levels of Aflatoxins (Wan Syahidah *et al.*, 2017).

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