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**FACULTY OF AGRICULTURE AND ANIMAL SCIENCES**

**EVALUATION OF MICROBIAL LOAD OF SELECTED BROILER FEEDS SOLD  
AMONG DIFFERENT COMPANIES IN SOROTI CITY.**

**BY**

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**DECLARATION.**

I LATABU LILLIAN OTIKA, a student of Busitema University, declare that this research report work is out of my devoted effort at Busitema university Arapai campus not from somebody else and has not yet been submitted to any university or institution for award of any academic credit.

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Approved by the Research supervisor.

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for Sign: Muyinda Robert.....

Date: 14/03/24.....

## **DEDICATION.**

I dedicate this research dissertation to my research supervisor Mr. Muyinda Robert, my husband, my children, my relatives who tirelessly supported me in all ways of live to make these studies a success.

## **ACKNOWLEDGEMENT**

I sincerely acknowledge God's favor in my life throughout my studies. In a distinguished way am grateful to all staffs of Busitema university Arapai campus. I also extend my gratitude to my family members and relatives for their support and patience during my studies. May God bless you all.

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## LIST OF ABBREVIATIONS

|                |                            |
|----------------|----------------------------|
| E.Coli         | Escherichia coli           |
| I.e.           | That is to say             |
| XLD            | Xylose Lysine Deoxycholate |
| <sup>0</sup> C | degree celcius             |
| MI             | Mill in litres             |
| FDA            | Food and Drug Authority    |
| WHO            | World Health Organization  |

## **ABSTRACT**

The study took place in Soroti city to evaluation of microbial load of selected broiler feeds sold among different companies. The general objective was to evaluate the microbial load of selected broiler feeds sold among different companies in Soroti city, while the specific objectives were to determine microbial load in starter feeds of different companies sold in Soroti City and to identification and isolation of microbial load of broiler feeds of different feed companies in Soroti city. The study employed quantitative data approach, descriptive statistics specifically to establish frequencies and percentages and ANOVA was used to determine microbial load difference among different starter feed companies in Soroti city. The study revealed that there was no significant difference in total microbial load on starter feeds for different companies within the study scope and it's an indicator that the null hypothesis is true.

The results for the study indicated that, the median of the colony formation unit was in the range of 5.5 to 6.5 with the margine of error of 0,05. Flavour animals feed company had 6.5 CFU, Jubihuli with (6.2log) Plan B poultry farm (6.0 log) and Nsava had bacterial load of (5.2 log ).

The colony forming units of salmonella was with the P=V of 0.79 (df3) and E. coli with the P=V of 0.73 (df3). The mean value of E. coli was in the range of 6.2 to 5.6 CFU Flavour feed company had the highest bacterial load for E. coli with 6.2 CFU. Jubihuli and plan B poultry farm with the bacterial load of 6.1 CFU and 6.1CFU respectively. However, Nsava had the smallest bacterial load for E. coli of 5.6 CFU.

Similarly, mean value for Salmonella was in the range of 1.3 to 3.14 CFU. Jubihuli had the highest bacterial load for salmonella with 3.14 CFU followed by favor with 3.0 CFU, Nsava with, and 2.9 CFU. Plan B poultry farm had the least bacterial load with 1.3 CFU. This indicates that microbial load affects all companies equally, this indicates that every broiler feed companies are equally affected in Soroti city.

The study recommended to establish and enforce strict quality control measures across all feed companies to minimize variations in microbial loads. Regular monitoring and testing can help identify potential contamination sources and ensure compliance with safety standards. Given the prevalence of Salmonella contamination, companies, especially Jubihuli, should focus on improving control measures throughout the production chain. This may involve reassessing raw

material handling, processing methods, and storage conditions to minimize the risk of Salmonella proliferation. More researches can be done to evaluate E-coli and salmonella on finisher broilers feeds since this research only focused on starter feeds. Other research could also broaden the scope of their studies beyond broilers feeds and also beyond Soroti City to establish E-coli and salmonella in animal's feed.

**Keywords:** Microbial load, starter feeds, broiler feed, ANOVA. Descriptive statistics

## **1.0 CHAPTER ONE: INTRODUCTION.**

### **1.1 BACKGROUND**

When it comes to broiler diets, microbial contamination has become a major global concern due to its potential impact on the health of chickens and food safety (Milanov *et al.*, 2019). Liverpool-Tasie *et al.* (2019) states that the presence of bacteria, fungi, and other microbes in broiler feeds may worsen feed quality, impair bird health, and increase consumer risk of foodborne illnesses (Liverpool-Tasie *et al.*, 2019). Broilers are one of the most popular chicken meat products consumed globally, and Africa is one of the world's leading producers of these birds (Nakavuma *et al.*, 2020). In Africa, broiler production is frequently plagued by feed contamination by microbes, which can have detrimental effects on the health and productivity of the birds as well as the safety of the final product intended for human consumption (Wati *et al.*, 2021).

Kamau emphasized that the majority of feed samples gathered from various nations in the area are tainted with a range of microorganisms, including as viruses, fungus, and bacteria (Kamau *et al.*, 2017). According to Kamau *et al.* (2017), the kind of feed, the source of the feed components, and the level of sanitation and hygiene procedures in the feed mills and farms are some of the variables that affect the prevalence of microbial contamination. Microbial contamination of broiler feeds in East Africa is a complex issue that depends on several factors, such as storage conditions, feed processing methods, feed processing environment, and biosecurity measures. The high frequency of microbiological contamination in broiler feeds indicates that strict quality control methods need to be applied at every level of the feed manufacturing and distribution chain (Meijer-Willems *et al.*, 2018). Despite the growing global demand for chicken products, small-scale poultry farmers in underdeveloped countries such as Uganda are encountering increasing difficulties in making profits from outside markets (Yussif *et al.*, 2023). The security and caliber of their eastern (Uganda-made) goods are the main worries. These challenges prevent businesses from capitalizing on the expanding demand for chicken products on the global market in addition to limiting their ability to expand and turn a profit (Wen *et al.*, 2021).

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