



**BUSITEMA  
UNIVERSITY**  
*Pursuing Excellence*

**FACULTY OF AGRICULTURE AND ANIMAL SCIENCES  
DEPARTMENT OF ANIMAL PRODUCTION AND MANAGEMENT**

**FINAL YEAR PROJECT REPORT**

**REPLACEMENT OF SOYBEANS WITH COW PEAS AS AN  
ALTERNATIVE PROTEIN SOURCE FOR FEEDING BROILER  
CHICKEN IN SOROTI DISTRICT.**

**BY**

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**BU/UG/2020/2458**

**THIS FINAL YEAR PROJECT REPORT IS SUBMITTED TO THE  
DEPARTMENT OF ANIMAL PRODUCTION AND MANAGEMENT IN  
PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD  
OF THE DEGREE OF BACHELOR OF SCIENCE IN ANIMAL  
PRODUCTION AND MANAGEMENT AT BUSITEMA UNIVERSITY**


**FEBRUARY 2024**

## ABSTRACT

Cowpea is a drought- and salinity-tolerant crop and is used as a multipurpose crop, with its grains and leaves being excellent sources of nutrition for both humans and livestock. An experiment was conducted with the aim of evaluating the effect of using cowpea seeds as a protein substitute on broiler chicken. In the experiment, a total of 50 one-day-old broiler chickens were reared with the objectives of determining the feed intake, weight gain, and palatability of cowpeas as a substitute for soybeans fed to broilers. The chicks were reared for a period of 6 weeks in a partitioned house. During this period, they were fed a commercial starter broiler mash diet until they were 14 days old. The 50 chicks were divided into two samples: a soybean treatment sample of 25 chicks fed a diet containing soybeans as the main source of protein, and a cowpea treatment sample of 25 chicks fed a diet containing cowpeas as the main source of protein for the remaining 4 weeks of the experiment. The results indicated that feed intake and palatability, weight gain, and feed conversion ratio in the first two weeks of the experiment were the same since the birds were subjected to the same treatment of commercial broiler starter feed. In weeks 3 and 4, results showed that the feed intake was slightly higher in soybeans than in cowpeas, indicating that soybeans were more palatable than cowpeas. There was no significant difference in feed intake throughout the 6 weeks ( $P \geq 0.05$ ). There was also a significant difference in weight gain for the broilers in weeks 3 ( $P \leq 0.05$ ). However, there was no significant difference in weight gain for the broilers in weeks 4, 5, and 6 ( $P \geq 0.05$ ). The feed conversion ratio was 0.89–1.23 throughout the cowpea treatment period. There was no significant difference in feed conversion ratio ( $P \geq 0.05$ ) throughout the 6 weeks. These results indicate that cowpeas can replace soybeans at 100% without affecting feed intake or feed conversion ratio. However, weight gain was affected in weeks 3 of the cowpeas treatment period since the broilers were getting adapted to the formulated feed. However, more research is needed to compare the effects of cowpeas and soybeans on the broiler meat properties, including meat color, texture, and tenderness, as the study did not determine these parameters, which are of value to the final consumer.

**DECLARATION**

I MUZAHURA ACKLEO, declare that the work presented in this report is my own and has never been submitted to any higher institution of learning for any academic reward

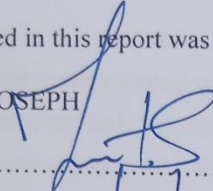
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**APPROVAL**

The work presented in this report was written under the guidance and supervision of

MR. MBOGUA JOSEPH

Signature.....

Date ..... 07.03.2024

## DEDICATION

I dedicate this work to my parents Mr. Sunday Phillip and Mrs. Sunday Maganda parents who have provided the financial support throughout the process. Special gratitude to my supervisor Mr. Mbogua Joseph who has worked tirelessly through guidance, technical support and supervision of all the processes and activities in the research to see that this research process was successfully accomplished.

## ACKNOWLEDGEMENT

I thank the Almighty God for the far He has brought me. I extend my sincere gratitude to my family, my parents, friends and classmates for the continuous support they have given me and the encouragement always that they have given me. Also, to my supervisor, am really grateful for everything he has done for me throughout the period of my research.

## TABLE OF CONTENT

### Contents

ABSTRACT.....	ii
ACKNOWLEDGEMENT .....	vi
TABLE OF CONTENT .....	vii
LIST OF TABLES.....	ix
LIST OF FIGURES .....	x
LIST OF ABBREVIATIONS.....	xi
CHAPTER ONE: INTRODUCTION .....	12
1.1 BACKGROUND .....	12
1.2 PROBLEM STATEMENT .....	13
1.3.1 GENERAL OBJECTIVE.....	13
1.3.2 SPECIFIC OBJECTIVE .....	13
1.4 HYPOTHESES .....	14
1.5: SIGNIFICANCE.....	14
1.6: JUSTIFICATION .....	14
1.7: SCOPE.....	15
Geographical scope .....	15
Time scope .....	15
CHAPTER TWO: LITERATURE REVIEW .....	16
2.1: The cowpea .....	16
2.7: Production.....	17
2.8: Methods used to reduce effect of anti-nutritional factors in the cow peas and soybeans .....	17
2.8.1: Heat treatment.....	17
CHAPTER THREE: METHODOLOGY .....	18
3.1 Treatment diets: .....	18
3.1.1 Feed formulation.....	18
3.2 Treatment design:.....	21
3.3 Measurement and observation .....	22
3.5 Statistical analysis .....	22
3.6: Data presentation .....	22
CHAPTER FOUR: RESULTS AND DISCUSSION .....	23

4.1 RESULTS.....	23
4.1.1: Feed intake and palatability.....	23
4.1.2 Body weight gain.....	28
4.1.3 Weekly feed conversion ratio (FCR).....	29
4.2: DISCUSSION.....	32
CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS .....	37
5.1: CONCLUSION.....	37
5.2: RECOMMENDATION .....	37
REFERENCES .....	38
APPINDICES .....	41
APPINDICEX 1: Tables showing t-test form weeks 3 to 6 .....	41
APPENDIX II: Pictures .....	44



## LIST OF TABLES

Table 1: A table showing soybean feed formula for broiler chicken .....	19
Table 2: A table showing cowpeas feed formula for broiler chicken .....	20
Table 3: Table 1: A table showing the feed composition in the soybean treatment diet of broilers .....	21
Table 4: Table showing feed composition in the Cowpeas treatment diet of broilers .....	21
Table 5:A table showing feed intake/bird/day (g/bird/day) .....	24
Table 6: A table showing average feed intake from week 1 to week 6.....	26
Table 7: A table showing total feed intake for 6 weeks .....	27
Table 8: A table showing average weight gain for the 6 weeks.....	28
Table 9: A table showing weekly feed conversion ratio .....	30

## LIST OF FIGURES

Figure 1: A curve showing feed intake per bird per day to the standard feed for the 6 weeks .....	25
Figure 2: A curve showing average feed intake for the 6 weeks .....	26
Figure 3: A curve showing total feed intake for a period of 6 weeks .....	27
Figure 4: A curve showing weight gain of broilers in week 3 .....	<b>Error! Bookmark not defined.</b>
Figure 5: A curve showing weight gain of broilers in week 4 .....	<b>Error! Bookmark not defined.</b>
Figure 6: A curve showing feed conversion ratio of broilers for the 6 weeks .....	31

## LIST OF ABBREVIATIONS

BWG -Body weight gain

AWG-Average weight gain

FI- Feed intake

TFI- Total feed intake

AFI-Average feed intake

FCR- Feed conversion ratio

TC- soybean treatment

TE- Cowpeas treatment

GP- Growth parameters

## CHAPTER ONE: INTRODUCTION

### 1.1 BACKGROUND

In the commercial poultry industry, production costs are high, with the cost of broiler feed accounting for 7/10 of the total cost of production. And, as global feed prices rise, it is important to explore alternative feed ingredients to achieve profitability in poultry production (Elamin et al., 2013). (Beski et al., 2015) indicate that in poultry nutrition, the most attention is paid to the protein source of the feed, which has the highest feed cost due to the importance of protein as the main compound for feed. Metabolism of the body. It also helps synthesize body tissues, for body renewal and growth. Furthermore, proteins exist as enzymes and hormones that play an important role in the physiology of any living organism. (Poel *et al.*, 2013) recommends that there are various sources of protein, including oilseeds: Defatted protein from soybeans, rapeseed and sunflower seeds, and grains: Peas, *Vicia faba*, Lupine and their concentrates, Chickpeas, forage legumes: Alfalfa (Alfalfa), Leaf Protein: Red radish leaves, hydroponic protein: Algae, macro and microalgae, duckweed Mussels, Insects: Worms, house flies, black soldier flies, microbial proteins: Bacterial protein powder. Soybean meal is the most widely used feed for broilers in Uganda as protein and other sources are still being studied. (Bumhira & Madzimure, 2023) suggests that cowpeas can replace soybean meal in broiler diets because they are inexpensive, exist in arid regions, and are grown by people in rural areas. Cowpea is also a low-input crop that is grown by the majority of farmers in the country. cowpeas has an annual production of about 3 million tons worldwide on about 12.5 million hectares but the average yield in Uganda is below 400 kg per hectare according (José-Pérez et al., 2022). (Abebe & Alemayehu, 2022) found cowpeas constitute a crude protein of proportions of 2.2/10 to 2.5/10 which is greater than other legumes. Cowpea protein digestibility is 7.1/10-7.6/10 compared to 8.11/10 to 8.3/10 soybean meal (Adigwe et al., 2023). This shows that cowpea can replace soybean meal as a protein source for broiler chickens.

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