BUSITEMA UNIVERSITY

FACULTY OF AGRICULTURE AND ANIMAL SCIENCES

DEPARTMENT OF ANIMAL PRODUCTION AND MANAGEMENT

FINAL YEAR PROJECT REPORT

EFFECT OF REPLACING SOYBEAN MEAL WITH MILLET BREWERS WASTE AS A FEED INGREDIENT ON FEED INTAKE AND WEIGHT GAIN IN BROILER CHICKEN

By

ETUDAT DAVID NATHAN

This study report is submitted to the Faculty of Agriculture and Animal Sciences in Partial Fulfillment of Requirements for the Award of the Degree of Bachelor of Animal Production and Management of Busitema University

JANUARY 2023

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(BU/UP/2017/185)

SUPERVISOR

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ABSTRACT

An analytical, experimental and quantitative study was conducted with the aim of determining the effect of replacing soybean meal with millet brewers waste on the feed intake and weight gain in broiler chicken in Pamba ward Soroti city west in Soroti city. A total of 90 broiler chicks were used in the study.

The experiment, involved a control diet (T I) and four other experimental treatment groups of chicks. The control group (T I) was raised on feed without brewers waste while the experimental groups (T II, T III, T IV and T V) were subjected to the feeds containing millet brewers' waste at the inclusion rates of 10%, 20%, 30% and 40% respectively for a period of twenty eight days.

In this experiment it was observed that the feed intake in birds in the treatment groups (T II, T III, T IV and T V) were comparable to those of the control group(T I) although it was slightly higher in the control treatment (T I) . Average feed intake and Average weight gains in the treatment groups were assessed regularly. It was found out that the Average feed intake and average weight gain in the control group was higher than in other experimental groups although all the birds continued to feed normally. Least significant difference were seen in all production parameters between the control and 10%, 20%, and 30% millet brewer's inclusion treatments.

This study therefore demonstrated that including up to 30 % level of millet brewers waste did not adversely affect feed intake and body weight gain in broiler chickens. Hence, it can be recommended that farmers and feed millers use millet brewers waste up to 30% as a replacement for soybean meal in broiler chicken diets.

DECLARATION

This dissertation is my own work and has never been submitted to any institution for assistance or award of any academic qualification or academic credit.

NAME: ETUDAT DAVID NATHAN REG No: BU/UP/2017/185

Signature:……..Date……

This dissertation is submitted for defense with the approval of the Supervisor.

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Signature……Date……...

DEDICATION

I dedicate this report to my beloved wife Apeduno Sarah and my children; Amoding Felister, Akong Jane, Tino Juliet and my brother; Onyabuko Lawrence Willy.

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LIST OF ABBREVIATIONS

MAAIF	Ministry of Agriculture Animal Resources and Fisheries
NAGRC	National Animal Genetic Resource Centre and Data Bank
GDP	Gross Domestic Product
F.A. O	Food and Agricultural Organization
BSG	Brewers Spent Grain
CP	Crude Protein
ME	Metabolizable Energy
EE	Ether Extract
CF	Crude Fibre
USAID	United State Agency for International Development
SAS	Statistical Analysis
NRC	National Resources Council
A.O.A.C	Association of Official Analytical Chemists
SDBG	Sorghum Dried Spent Grain

CHAPTER ONE

INTRODUCTION

1.1. Background

The most recent estimate of the national chicken flock of Uganda put the population at 47.6 million. Commercial poultry production with exotic breeds is also increasing as seen from 1,536000 in 2008 to 5,852000 in 2017 (MAAIF and UBoS, 2009). Out of 47.7 million chickens, 37.4 million are for the source of meat. Among the exotic/crossbred chicken are broiler chickens, one of the exotic chickens introduced in to Uganda (Harth, 2011).

The poultry industry in Uganda is challenged by lack of data on the genetic makeup of the local breeds and thus, local poultry breeders do not have an appropriate breeding program, lack a structured selection process on improving traits of economic importance and hindered by diseases (FAO, 2009). Although broiler chicken is gaining popularity in Uganda, due to the high cost of feed of between 65% and 70% (Al-Sagheer et al., 2019) and 70% and 75% (Abd El-Hack et al., 2015) of total production cost of poultry, poultry has not been rated highly in the mainstream national economies because of lack of measurable indicators of its contribution to macroeconomic indices as Gross Domestic Product (GDP) (MAAIF, 2010).

According to (El Boushy *et al*., 2000), reducing the cost of production is a relevant strategy in the poultry industry and has led to the alternative use of plant proteins in poultry feed. This has therefore created the attention in the use of unconventional feedstuffs, such as agro-industrial by-products such as brewers spent grain in the formulation of poultry diets, with the intention of achieving suitable utilization and economic efficiency of poultry production Abd El-Hack *et al*., 2017a).

Brewers' spent grain is a brewery by-product and the residue is obtained from barley, wheat, maize, rice and oats, it contains insoluble materials that remain after the process of soaking, mashing and boiling in water, and contains crude fibre (CF) fractions, ether extract (EE), crude protein (CP) and starch (Areghore & Abdulrazak, 2005). Spent grains can be fed to livestock in wet form or after drying. Because wet grains deteriorate easily, the product is usually dried (Ashour *et al*., 2019).Brewers' spent grain has high crude protein and metabolizable energy, and could be used to reduce the quantity of soybean meal in broiler chicken diets.

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