



FACULTY OF AGRICULTURE AND ANIMAL SCIENCES

DEPARTMENT OF ANIMAL PRODUCTION

FINAL YEAR PROJECT REPORT

**ANTHELMINTHIC RESISTANCE IN COOPERIA AND TRICHOSTRONGYLUS
SPECIES TO ALBENDAZOLE 2.5% IN SELECTED CATTLE REARED IN BUGIRI
DISTRICT, EASTERN UGANDA**

BY

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BU/UP/2020/1516

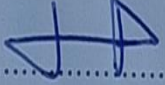
**THIS FINAL YEAR PROJECT REPORT IS SUBMITTED TO THE DEPARTMENT OF
ANIMAL PRODUCTION AND MANAGEMENT IN PARTIAL FULFILLMENT OF
THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF BACHELOR OF
ANIMAL PRODUCTION AND MANAGEMENT OF BUSITEMA UNIVERSITY**

FEBRUARY 2024

DECLARATION

I BOGERE MAUSEN hereby declare that this content was truly my original work and it had never been submitted to any institution for any academic award.

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Signature.....

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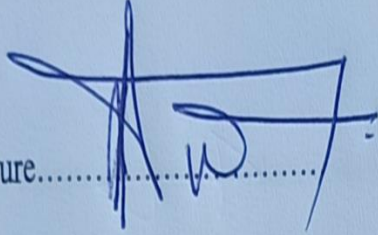
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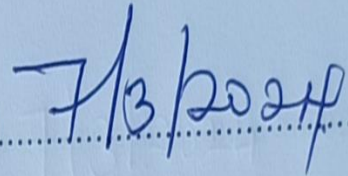
APPROVAL

The dissertation report is submitted with the approval of my academic supervisor.

Signature.....



DATE.....



Dr. AMONYA COLLINS

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DEDICATION

I dedicate this report to my beloved mother Ms. Ndifuna Salama, my father Mr. Ndifuna Karim, my wife Ms. Allowo Hairat, my brothers mr. Muhamud, Sulaiman, Yusuf, Suudi and all my friends.

Special thanks go to my academic supervisor Dr. Amonya Collins and all the lecturers in animal production and management department.

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ACRONYMS

DVO:	District Veterinary Officer
FECRT	Fecal Egg Count Reduction Test
BUAC:	Busitema University Arapai Campus
GDP	Growth Development Product
EPG	Egg Per Gram
LDTs	larval development tests
PCR	Polymerase Chain Reaction
EHEs	Egg hatch Essays
GI	Gastrointestinal
WAAVP	World Association for Advancement of Veterinary Parasitology
CET	Controlled Efficacy Test

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ABSTRACT

Anthelmintic resistance is an increasing devastating phenomenon resulting from the over 87.8% of anthelmintic drugs, A cross-sectional study was conducted to asses the existence of AR of GIT nematodes(Cooperia spp and Trichostrongylus spp) among the cattle reared in Bugiri Municipality. Risk factors associated to resistance were also evaluated. Fecal egg count reduction test (FECRT) showed 56.2% AR in Cooperia spp and trichostrongylus respectively over a 14 days period When treated with albendazole 2.5%, the mean \pm SD egg per gram(EPG) was 1063 ± 10.5 and 1316 ± 90.69 for Cooperia species and 645.0 ± 104.5 and 937.5 ± 121.1 at day 0 and day 14 after treatment. Method of helminth control, herd size, knowledge about AR and presence of helminths infestations were significantly associated to AR with P value 0.043. The existence of AR as revealed in this study needs immediate attention by the responsible parties. There is need for appropriate use of anthelmintic drugs intergrated with pasture management and educating farmers on how best they can control and prevent Anthelmintic resistance.

CHAPTER ONE: INTRODUCTION

1.1. Background of study

The livestock sector accounts for 4% to the Uganda's total GDP with 17% agricultural sector GDP contribution. The livestock population of 14.8 million cattle, 16.9 million goats and 4.7 million sheep is somewhat large and increasing over the years (Policy brief, 2021). Conversely, veterinary helminths including gastrointestinal nematodes (*Cooperia* spp and *Trichostrongylus* spp), cestodes (tapeworms) and trematodes (liver flukes e.g. *Hepatica gigantea*) in livestock are a very thoughtful and devastating challenge to the animal industry globally (Nabukenya et al., 2014) with great existence in Sub Saharan Africa given a variety of favorable agro-ecological conditions for their survival (Wondimu, 2022).

The infestation of virtually all kinds of livestock including ruminants (cattle, goats and sheep) and poultry with these parasitic helminths has a tremendous impact on the welfare and productivity of the animals in addition to increased expenditure by farmers in the bid to control these parasites (Erez & Kozan, 2018).

Generally, gravid adult female worms say *Cooperia* spp and *Trichostrongylus* spp in cattle lay eggs in the small intestines which are shed to the external environment through faeces where they hatch and develop through a series of larval stages to the infective larvae (3rd stage, L3) which attach on pasture and get ingested by grazing/browsing livestock (Hepworth, 2010). These invade the intestinal wall and develop into adults (Belina et al., 2017).

There are various strategies being used to control these gastrointestinal (GI) helminths in livestock including the use of pharmaceutical anthelmintic preparations as the most common and effective mean besides pasture management and biological control (Brick and Andresen, 2018) although in Uganda and particularly the small holder farmers in rural communities exclusively use anthelmintic drugs.

In Uganda like other countries including Ethiopia, Kenya, South Africa etc, Anthelmintic drugs used are majorly of three families including Benzimidazoles (albendazole, fenbendazole, triclabendazole etc) a whitish broad spectrum drug against most of the GI worms, Macrocylic

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