FINAL YEAR PROJECT REPORT

PREVALENCE OF OESOPHAGOSTOMUM AMONG SMALL RUMINANTS SLAUGHTERED IN LIRA CITY ABATTOIR.

By

AKAO PATRICIA MYERS

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SUPERVISOR: DR. MATOVU HENRY

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ABSTRACT

Oesophagostomum infection is one of the current constrains in animal production in Uganda. Its infestation of animal intestines significantly reduces farmers' profit through weight loss and intestine condemnation. However, the prevalence and economic burden associated with *Oesophagostomum* remains unknown. This study's goal was to examine the occurrence of *Oesophagostomum* as well as the financial losses that resulted from the condemned intestines during slaughter in the abattoir in Lira City.

This was a cross-sectional study done on 294 conveniently sampled goats and sheep slaughtered in Lira City abattoir. An observation checklist was used to gather the data, which was then input into Excel form, cleaned, and analyzed.

The study included 294 animals, of which 67 (22.8%) animals were found to be infected with the worms whereas 227 (77.2%) animals were negative for the worms. 32 (10.9%) animal intestines were rejected because of infection with nodules. The small ruminants had a significantly different infection rate, with sheep having a higher infection rate than goats. (χ^2 =3.996, p=0.046). Financial losses associated with animal intestines being condemned because they are infected by *Oesophagostomum* worms were estimated at 21.33 USD (78,045 Ugandan shillings) showing direct losses. This figure is far less than the ones obtained from similar studies conducted in other countries. However, numerous indirect losses are also caused by *Oesophagostomum* infections i.e. poor nutrient absorption and slowed growth rates in young ruminants leading to lower body weights, diminishing overall carcass weight thus affecting the economic viability of the animals. The total prevalence obtained is significantly more than that of a study carried out in Tanzania and Ethiopia; however this study found higher worm incidence in sheep in contrast to the one conducted in Ethiopia. The outcome of this study is less than one that was performed in Nigeria but agrees on sheep having higher incidence than goats. The varying prevalence rates could be attributed to the varying level of effectiveness of prevention, control mechanisms and feeding methods in the different countries.

In conclusion, this study reveals that *Oesophagostomum* infection significantly impacts livestock production in Lira city, with a prevalence of 22.8% and an estimated economic loss of 78,045 Ugandan shillings due to intestine condemnation. To mitigate these losses, it is essential to implement effective parasite control strategies and improve animal management practices.

Declaration

I, Akao Patricia Myers, attest that this final year research project is wholly original with no submissions made to academic institutions in order to receive any kind of academic reward.

Student

AKAO PATRICIA MYERS

Signature ;.....

Date ;15/11/2024.....

APPROVAL

Supervisor

DR. MATOVU HENRY

Authorize.....

Date.....15th/Nov/2024.

Dedication

This dissertation report is dedicated to Dr. Adupa Jolly Iryeah and Mrs. Grace Jolly Adupa, who have been tremendously supportive throughout my journey—physically, spiritually, intellectually, and financially. Along with my mentor Lamex, and to my siblings, Noelene and Brenda, whose unwavering support and encouragement have enabled me to get to this stage. In addition, this proposal is dedicated to my fellow students and friends, whose cooperation and encouragement have enhanced this life milestone.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS/ACRONYMS

GDP- Gross Domestic Product

$ - dollars

% - percentage

GINs- Gastrointestinal Nematodes

GI - Gastrointestinal

L3- third stage larva

N- Naira

3rd- third

5th - fifth

Kg- Kilogram

Ugshs- Uganda shillings

i.e- that is to say

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND

Worldwide, it is approximated that the goat population stands at 861.9 million, whereas the sheep population is 1078.2 million (Sunday et al., 2021). Nearly 30 -80 % of the agricultural GDP of African nations comes from the livestock industry, and the livestock industry in East Africa exports more than $1 billion worth of goods each year(Macmillan, 2020). Though they play a significant economic role in impoverished rural areas in developing nations, gastrointestinal nematodes are the main health issue affecting the digestive tract of small ruminants and hence reducing productivity and production (Tesfaye, 2021). To develop focused and long-lasting management measures, a thorough understanding of the incidence and determinants of gastrointestinal worms, particularly *Oesophagostomum*, was required. (Hoste et al., 2010)

Oesophagostomiasis, "pimply gut," is a severe long-term granulomatous intestinal inflammation in goats caused by the nematode *Oesophagostomum columbianum*, sometimes referred to as a "nodular worm"(Anisuzzaman et al., 2020) Consuming L3 in contaminated food, soil results in occurrence of Oesophagostomiasis.

Today, livestock is a significant source of revenue and helps ensure food security in developing nations, contributing as much as 10% to 20% of Africa's GDP. (Alkadir, 2023). In arid and semiarid rain-fed nations, small ruminants are essential to providing millions of rural residents with food and nutritional security, particularly for the landless, marginalized, and small farmers. These animals offer a significantly greater socioeconomic benefit to impoverished farmers than other animal husbandry forms. (Kumar & Roy, 2013)

In East Africa, 146 million goats are reared in agro-ecological zones with agricultural methods ranging from enormous pastoral systems, where numerous animals are reared on vast expanses of land, to mixed farming systems, although some animals are raised on arable land resources, making about 14% of all the animals kept. (Muigai et al., 2018)

1.2 PROBLEM STATEMENT.

Intestinal helminths pose a serious threat to the production of small ruminants in developing nations, both on a small and large scale. Small ruminant reproductive and productive potential is significantly impacted by gastrointestinal (GI) nematode infections (Asmare et al., 2016). These intestinal parasitic nematodes (GINs) result in significant financial losses for both large and smallholder farmers (Palkumbura et al., 2024).

There is also shortage of knowledge about this condition among most farmers. People are not aware about the health implications of the disease as they continue to sell the affected intestines

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