



**BUSITEMA  
UNIVERSITY**  
*Pursuing Excellence*

P.O. Box 236, Tororo, Uganda  
Gen: +256 - 45 444 8838  
Fax: +256 - 45 4436517  
Email: info@adm.busitema.ac.ug

www.busitema.ac.ug

---

**PREVALENCE OF *CYSTITERCUS TENUICOLLIS* (BLADDER WORM) IN SHEEP  
AND GOATS SLAUGHTERED IN SOROTI MUNICIPAL ABATTOIR, SOROTI  
MUNICIPALITY**

**BY**

**LOGOSE DIANA FLAVIA**

**BU/UG/2010/170**

[dianalogose@gmail.com](mailto:dianalogose@gmail.com)



**A RESEARCH DISSERTATION SUBMITTED TO THE FACULTY OF  
AGRICULTURE AND ANIMAL SCIENCES IN PARTIAL FULFILMENT OF THE  
REQUIREMENT FOR THE AWARD OF THE DEGREE OF BACHELOR OF ANIMAL  
PRODUCTION AND MANAGEMENT OF BUSITEMA UNIVERSITY**

**SEPTEMBER 2013**

**DECLARATION**

I, Logose Diana Flavia, declare that this dissertation has never been submitted before to any university or any other institution of higher learning for any academic award.

Name. LOGOSE DIANA Signature..... [Signature] Date. 04<sup>th</sup>/09/2013

This dissertation has been submitted with the approval of the following supervisor.

**APPROVAL**

**SUPERVISOR**

Dr. Mawadri Patrick

Teaching assistant

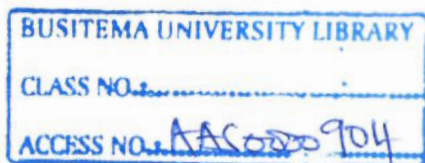
Department of Animal production and Management

Faculty of Agriculture and Animal Sciences

Busitema University

Signature..... [Signature]

Date..... 04/09/2013



## **DEDICATION**

This dissertation is dedicated to my parents Mr. Musoke Andrew and Miss Nassaazi Theopista for their moral, financial and spiritual support and above all the sacrifices they made towards my education

I also dedicate this dissertation to my brothers, relatives and friends

## **ACKNOWLEDGEMENT**

My sincere thanks go to the management of Soroti municipal abattoir for giving me the opportunity to carry out my research from the abattoir.

I also thank my supervisor, Dr. Mawadri Patrick for the advice, encouragement and guidance he has given me towards the achievement of this goal.

I cannot forget all the people who have been my source of inspiration especially my parent, and friends but above all the almighty God who has enabled me complete this research successfully, glory be to God.

## TABLE OF CONTENT

DECLARATION.....	II
APPROVAL.....	II
DEDICATION.....	III
ACKNOWLEDGEMENT.....	IV
TABLE OF CONTENT.....	V
LIST OF ABBREVIATIONS.....	IX
ABSTRACT.....	X
CHAPTER ONE: INTRODUCTION.....	2
1.1 Background.....	2
1.2 Problem statement.....	2
1.3.0 Overall objective.....	3
1.3.1 Specific objectives.....	3
1.3.2 Research questions.....	3
1.4 Significance.....	3
1.5 Justification.....	4
CHAPTER TWO: LITERATURE REVIEW.....	5
2.1 <i>Cysticercus tenuicollis</i> (bladder worm) in goats and sheep.....	5

2.2 Life cycle of *Cysticercus tenuicollis*.....5

2.3 Effects of *cysticercus tenuicollis* in sheep and goats .....5

2.4 Diagnosis and Treatment of *tenuicollosis*.....6

2.5 Organ Distribution of *Cysticercus tenuicollis* in Infested Sheep and Goats .....6

2.6 Seasonal variations .....7

2.7. Prevalence of *Cysticercus tenuicollis* .....7

2.8 Body condition scoring of sheep and goats .....8

2.9 Small ruminant production in Uganda.....8

CHAPTER THREE: MATERIALS AND METHODS .....10

3.1 Study area .....10

3.2 Study Population and Sampling Technique:.....10

3.3 Sampling design: .....11

3.4 Data collection.....11

3.5 Data Analysis:.....12

CHAPTER FOUR: PRESENTATION AND INTERPRETATION OF RESULTS .....13

4.1.0 Distribution of samples according to Demographic Factors .....13

4.1.1 Distribution of samples according to the place of origin of the small ruminant .....13

Table 1: Distribution of samples according to origin of the small ruminant.....13

4.1.2 Variation of samples with body condition score .....13

Table 2: Distribution of samples according to origin and body condition score of the sheep.....14

4.1.3 Distribution according to sex and age of small ruminants .....	14
4.2. Prevalence of <i>cysticercus tenuicollis</i> .....	15
4.2.1 Association between prevalence and origin of small ruminants.....	15
4.2.2 The relationship between the prevalence of <i>cysticercus tenuicollis</i> and the age of the small ruminants.....	16
4.2.3 The relationship between the prevalence of <i>Cysticercus tenuicollis</i> and sex of small ruminant.....	17
4.2.4 The relationship between the prevalence of <i>Cysticercus tenuicollis</i> and body condition score of small ruminant.....	18
4.2.5 Relationship between prevalence of <i>Cysticercus tenuicollis</i> and species of small.....	19
CHAPTER FIVE: DISCUSSION.....	20
CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS .....	23
6.1 CONCLUSION.....	23
6.2 RECOMMENDATIONS.....	23
REFERENCES .....	24
APPENDICES.....	29

## LIST OF TABLES

Table 1: Distribution of samples according to origin of the small ruminant.....	13
Table 2: Distribution of samples according to origin and body condition score of the sheep.....	14
Table 3: Distribution of samples according to age and sex of small ruminants.....	15
Table 4: The frequency and prevalence of <i>Cysticercus tenuicollis</i> with regard to place of origin of the small ruminants.....	16
Table 5: The relationship between the prevalence of <i>cysticercus tenuicollis</i> and the age of small ruminants.....	17

## LIST OF FIGURES

Figure 1: Map of uganda showing the location of soroti district.....	29
Figure 2: Hhowing the <i>C.tenuicollis</i> on the intestines of the sheep.....	31



## LIST OF ABBREVIATIONS

Cm	Centimeter
Mr.	Mister
E	East
N	North
P-value	Probability value
CL	Confidence level
<	Less than
>	Greater than
C.I	Confidence interval
UBOS	Uganda Bureau Of Standards
df	degrees of freedom

## ABSTRACT

This study was conducted in Soroti municipal abattoir, Soroti District from January to May 2013 to assess the prevalence of prevalence of *Cysticercus tenuicollis* (bladder worm) in slaughtered sheep and goats.

The data was collected from the Soroti municipal abattoir examining the visceral organs of every animal visually, palpated and incised for the detection of cysts on post-mortem inspection of the 120 slaughtered goats and sheep.

The date of collection, the number and total of infected animals, age, origin, body condition score and sex of animals were recorded on the data collection sheet.

The data was analyzed and presented using frequency tables and percentages. At a confidence interval of 95%, the overall prevalence of the parasite was 20.8%.

It can be concluded that there is no significance between the prevalence of *Cysticercus tenuicollis* in goats and sheep with the place of origin, age, sex and body condition score ( $p>0.005$ ). It was observed that sheep were more infested with *Cysticercus tenuicollis* than goats (34.8% and 12.2%) respectively.

## CHAPTER ONE: INTRODUCTION

### 1.1 Background

*Cysticercus tenuicollis* is a metacestode of canine tapeworm *Taenia hydatigena* which is the largest cestodes of the dogs. *Cysticercus tenuicollis* is a cyst loosely filled with transparent fluid, along necks which is usually found in the abdominal viscera attaching to their cavities and livers of infected animals (Ghaffar, 2011). Sheep, goats, horses, pigs and dears are the intermediate hosts of *Cysticercus tenuicollis* while dogs, foxes, weasles, polecats, stoats, coyotes and wolves are the definitive hosts (DNR, 2013).

In slaughter animals, tenuicollosis has an important economic loss due to condemnation of offal's containing these. The metacestode may serve as a predisposing cause to black disease or may lead to acute traumatic hepatitis as well as a contributory agent of peritonitis (Ghaffar, 2011).

These small ruminants produce meat, milk, wool, skin and manure, amongst others. They are kept as savings, which can easily be converted to cash if needed (Woldemariam, 2005). Meat production from small ruminants is very important in Uganda. This is so because these animals are more suitable for family consumption of 5-10 people, than cattle owing to their comparatively small carcasses (10-15kg) (Nsubuga).

The rearing of small ruminants is traditionally undertaken in an extensive management system with absolute grazing. As a result, they are often faced with the burden of parasites infestations which are responsible for morbidity, mortality and suboptimal production, according to several researchers (Barger, 1999; Larson, 1999). The parasites also lead to a reduction in meat and wool production, significant effect on weight loss of the animals.

### 1.2 Problem statement

In Soroti district the prevalence of *Cysticercus tenuicollis* in the goats and sheep slaughtered is not known yet infections with these cysts are of great economic importance because they cause economic losses to farmers due to condemnation of infected offal or meat.

## REFERENCES

Abidi S. M. A., Nazami W. A., Khan P., Ahmad M and Irshadullah M (1989): Biochemical characterization of *Taenia hydatigena* cysticerci from goats and pigs. J. Helminthol: 63, 333-337.

Agricultural module(2009)

Attindehou S and Salifou S. (2012): Epidemiology of cestodes infections in sheep and goats in Benin. Veterinary research 5(3):59-62, medwell journals, Department of animal production, Faculty of agronomic sciences. ISSN:1993-5412

Balungi F. (2010): Using GIS to create an agro- climatic zone map for Soroti district. Makerere University Uganda, Department of Surveying, Faculty of surveying.

Barger I.A. (1999): The role of epidemiological knowledge and grazing management for helminth control in small ruminants. International journal of parasitology,24:41-47

Bayu Y., Asmelash A., Zerom K and Ayalew T. (2002): Prevalence and economic importance of liver parasites: Hydatid Cyst, Fasciola species and Cysticercus tenuicollis in sheep and goats slaughtered at Addis Ababa abattoir enterprise in Ethiopia. Journal of Veterinary Medicine and Animal Health, Faculty of Veterinary Medicine, Haramaya University

Eckert J.M., Gemmell A., Soulsby E. J. L., Matyas Z. (1984): Guidelines for surveillance prevention and control of *Echinococcosis/Hydatidosis*. 2nd edition, World Health Organization, Geneva.

Egeru A and Majaliwa M.G.J. (2009): Land use/Cover Change Trend in Soroti District Eastern Uganda, Journal of Applied Sciences and Environmental Management, Vol. 13(4) 77 – 79. Institute Of Environment And Natural Resources, Makerere University. JASEM ISSN: 1119-8362

Flisser A., Williams K., Laclette J.P., Larralde C., Ridaura C and Bettran F. (1982): Cysticercosis: Present state of knowledge and perspective. Academic press, New York.

Ghaffar N.M. (2011): Tenuicollosis in slaughtered sheep at Duhok abattoir- Kurdistan region of Iraq. Bas.J.Vet.Res.Vol: 10,No:1, Department of Veterinary Public Health, College of Veterinary Medicine, University of Duhok, Kurdistan Region, Iraq

Guadu T., Akalu A., Fentahun T and Chanie M. (2012): Cysticercus Tenuicollis: Occurrence at Hashim Nur's Meat Export Abattoir, Debre - Zeit, Ethiopia. Advances in Biological Research 6 (6): 221-225. 1University of Gondar, Faculty of Veterinary Medicine, Unit of Veterinary Epidemiology and Public Health, Gondar, Ethiopia, ISSN 1992-0067: IDOSI Publications

Hanaa A., El-Hallawany and Abdel-Aziz M.Z. (2012): Clinico-histopathological studies on the correlation between some parasitic infestation on liver and ovarian efficiency in small ruminants. Journal of Reproduction and Infertility 3 (3): 67-76, 2012

Kaufmann J. (1996): Parasitic infection of Domestic Animals. A diagnostic manual. Birkhauser Verlag, Basel, Schweiz. Page 423.

Larson M. (1999): Biological control of helminths, international journal of parasitology, 29:139-146.

Mireri C., Atekyereza P., Kyessi A and Mushi N. (2007): Environmental risks of urban agriculture in the Lake Victoria drainage basin: A case of Kisumu municipality, Kenya. Habitat International 31: 375-386

Nath S., Pal S., Sanju., Parveen and Kaiser. (2010): Prevalence of caprine Taenia hydatigena cysticercosis(Cysticereus tenuicollis) in Durg, Chhattisgarh, India, Indian Journal of Field Veterinarians. Vol.5, Issue 4 Pg:64

Nimbalkar R.K., Shinde S.S., Kamtikar V.N and Muley S.P. (2011): Study on *Taenia hydatigena* in the slaughtered sheep (*Ovis bharal*) and goats (*Capra hircus*) in Maharashtra, India. *Global Veterinaria* 6 (4):374-377, ISSN:1992-6197.

Pathak K.M and Guar S.N. (1982): The incidence of adult and larval stage *Taenia hydatigena* in Uttar Pradesh (India) *Veterinary parasitology*; 10:91-95

Pugh D.G. (2012): *Sheep and goat medicine*, second edition.

Radfar M.H., Tajalli., Jalalzadeh S.M.(2005): Prevalence and morphological characterization of *Cysticercus tenuicollis* (*Taenia hydatigena* cysticerci) from sheep and goats in Iran. *Vet. arhiv* 75, 469-476, Department of Parasitology, Faculty of Veterinary Medicine, Shahid Bahonar University of Kerman, Iran

Reinecke R.K. (1983): Classification of the subphylum cestoda. In: *Veterinary Helminthological*, Pretoria, pp. 282-283

Saulawa M.A., Magaji A.A., Faleke O.O., Mohammed A.A., Kudi A.C., Musawa A., Sada A., Ugboma A.N., Akawu B Sidi S., Lawal N and Ambursa A.U. (2011): Prevalence of *Cysticercus tenuicollis* cysts in sheep slaughtered at Sokoto abattoir, Sokoto state, Nigeria. *Sokoto Journal of Veterinary science*; 9(2):23-27

Senlik B. (2008): Influence of host breed, sex and age on the prevalence and intensity of *Cysticercus tenuicollis* in sheep. *Journal of Animal and Veterinary Advances* 7(5):5480-551.

Sharma H.K., Vohra S., Yadav A., Sood S and Kumar J. (2008): Prevalence of *Cysticercus tenuicollis* in sheep of Jammu region. *Journal of Veterinary Practitioners*. Vol: 9, No.1,pp. 67-68. ISSN: 0972-4036

Singh B. B., Sharma R., Gill J. P. S., Sharma J.K. (2013): Prevalence and morphological characterization of *Cysticercus tenuicollis* (*Taenia hydatigena* cysts) in sheep and goat from north India. *Journal of Parasitic Diseases, Indian society of parasitology*

Sintayehu M and Mekonnen A. (2012): Prevalence and Intensity of Paramphistomum in Ruminants Slaughtered at Debre Zeit Industrial Abattoir, Ethiopia, Global Veterinaria 8 (3): 315-319, ISSN 1992-6197. Sissay M.M., Uggla A and Waller J.P. (2007): Prevalence and seasonal incidence of larval and adult cestode infections of sheep and goats in eastern Ethiopia. Tropical Animal Health and Production 40:387-394.

Solayamani-Mohammadi., Mobedi S., Rezaiaani I., Massoud M., Mohabali J., Hooshyar M., Ashrafi H.K., Rokini M. (2003): Helminthes parasite of wild boar, sus scrofa. in Luristan province, western Iran and their public. Helmintol. J., 77: 263-267.

Soulsby E. J. L. (1982): Helminths, Arthropods and Protozoa of Domesticated Animals, 7th ed., Ballière Tindall, London: 809

Soulsby E.J. (1986): Helminthes, arthropods and protozoa of domesticated animals, Bailliere Tindall, London, 7: 370-400

Sultan K., Desoukey A.Y., Elsiefy M. A and Elbahy N.M. (2010): An abattoir study on the prevalence of some gastrointestinal helminths of sheep in Gharbia Governorate, Egypt. Global Veterinaria 5(2): 84-87

Thompson J and Meyer H. (1994): Body condition scoring of sheep. Oregon state university extension service

UBOS report (2009)

Urquhart G. M., Armour J., Duncan J. L., Dunn A. M and Jennings F. W. (1996) :Veterinary Parasitology, 2nd ed. Blackwell Science, United Kingdom: 307.

Woinshet S and G Gimma. (2010): Prevalence, risk factors and distribution of *Cysticercus tenuicollis* visceral organs of slaughtered sheep and goats in central Ethiopia.

Wondimu A.D., Abera and Hailu (2011): A study on the prevalence, distribution, and economic importance of *Cysticercus tenuicollis* in visceral organs of small ruminants slaughtered at an abattoir in Ethiopia. *J. Vet. Med. Anim. Health* 3:67-74.