



**BUSITEMA
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Pursuing Excellence

**PREVALENCE OF BRUCELLOSIS IN GOATS AT KITGUM TOWN COUNCIL, KITGUM
DISTRICT**

BY

NYEKO FRANCIS OMONA

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DECLARATION

I, Nyeko Francis Omona declare that this research Dissertation is a work of my own and no part of it has ever been submitted to any University or institution in partial fulfillment of requirement for any academic award.

Signature..... *Francis Omona* Date..... *23/06/2015*

APPROVAL

Academic Supervisor

Mr. Mbogua Joseph, (BAPTM, Msc.FST), (MUK)

Assistant Lecturer

Department of Animal production and management

Faculty of Agriculture and Animal sciences

Busitema University

Signature..... *M. Joseph* Date..... *23/06/2015*



DEDICATION

I would like to dedicated this dissertation to my lovely mother Adong Alice and my father Mr. Oling Justine (R.I.P), my beloved Aunt Dakta Claret Filder Adyero, my brother Dr. Patrick Opoka Sendawe, Patrick Ocitti, my cousin Dakta Amos Okot and my dear friends Susan Aol, Kennedy Lutoduc, Patricia Akello, Allan Oketayot and many others who help me physically and emotionally during the research.

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LIST OF ABBREVIATION

B.	Brucella
BAT	Brucella Agglutination Test
CFT	Complement Fixation Test
C.I	Confident level
D.f	Degree of freedom
E	Exponential
ELISA	Enzyme Link Immunosorbent Assay
Ig	Immunoglobulin
F.A.O	Food and Agricultural Organization
K.T.C	Kitgum Town Council
Lab	Laboratory
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
O.I.E	Office Internationale des Epizooties
Pg	Page
SAT	Serum Agglutination Test
Spp	Species
RBTP	Rose Bengal Test Plate
R.I.P	Rest in Peace
W.H.O	World Health Organization

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ABSTRACT

Brucellosis is a worldwide zoonotic pathogen responsible for a number of economic losses as well as a considerable human morbidity in the endemic areas with a national prevalence of 10% to 15% in pastoral areas in Uganda and no information was available on the disease prevalence in Kitgum town council.

A research study was conducted in Kitgum town council in Kitgum district to determine the prevalence of brucellosis according to sex, age groups and parishes. A total of 142 goats in the study area were selected by stratified random sampling in the parishes of Pandwong, Guu and Pongdwongo to be bled and tested for *brucella* antibodies using RBPT.

The results were analyzed using cross tabs and descriptive statistics in SPSS version 16. The test results showed an overall prevalence of 53.5% (n=76). The prevalence in female (58.7%, n=64) was higher than in male (36.4%, n=12). The incidence of brucellosis in the study showed that the prevalence increases with level of maturity with 24% (n=13), 56.8% (n=25) and 80.9% (n=38) in goats of 0-1 year, 2-3 years and >3 years respectively. *Brucella* infections occur in animal of all age groups but persist commonly in sexually mature animals. The prevalence of brucellosis in the parishes were, 58.9% (n=43), 44.7% (n=21), 54.5% (n=12) in Pandwong, Pongdwongo, and Guu respectively. There was no significant difference ($P < 0.05$) in the prevalence of brucellosis in male goats in age group of 0-1 year and 2-3 years.

It was concluded that the prevalence of brucellosis was high in female goats than in male ones; the disease had a high prevalent in older stock than younger ones and the prevalence in all the parishes are higher than the national prevalence.

It was recommended that an urgent mass sensitization should be done to create awareness about the disease; similar research with indirect or competitive ELISA as diagnostic test should be conducted and further research studies should be done to ascertain the prevalence of the disease in other animal species in the district.

CHAPTER ONE: INTRODUCTION

1.1 Background

Brucellae are gram-negative, facultative, intracellular bacteria showing a wide range of species and at the present, eight species are recognised: *B. abortus* (affecting mainly cattle), *B. melitensis* (sheep and goats), *B. suis* (swine), *B. neotomae* (desert rats), *B. ovis* (sheep), *B. canis* (dog), *B. ceti* (cetaceans) and *B. pinnipedialis* (pinnipeds). (Blasco, 2010)

Brucellosis is a global zoonotic disease widely distributed in the developing world in at least 86 countries (Ahmed *et al.*, 2010). The seroprevalence of brucellosis in Uganda is 10.2% to 15.8% in pastoral areas, 5% in major urban setting for instance Gulu town 7.5% and national average of 10%. The seroprevalence in other Sub-Saharan countries follow a similar pattern as in Uganda with higher prevalence of 26.3% in pastoral system with lower prevalence of 5.5% in small holder intensive system (Mugizi *et al.*, 2015).

B. melitensis, the predominant species in goats and sheep has spread to other animals such as cattle and camels and as well a dominant type in humans. Consumption of unpasteurized milk and milk products from cows, small ruminants or camels is the main route of infection as well as an occupational hazard (Ahmed *et al.*, 2010). Brucellosis has been an emerging disease since the discovery of *B. melitensis* by Bruce in 1887. Subsequent complex pattern of strains has emerged with the identification of *B. abortus*, *B. suis*, *B. neotomae*, *B. ovis*, *B. canis*, and, more recently, types infecting marine mammals; each type has distinctive epidemiologic features and the complexity of the interaction with humans has increased ("first International conference on emerging Zoonosis", 1997). According to FAO, WHO and OIE, brucellosis is still one of the most important and widespread zoonosis in the world. However, most species of *Brucella* are able to infect other animal species as well and some of them have zoonotic potential (Lopes *et al.*, 2010)

1.2 Research Problem/ Statement of the Problem

Brucellosis is one of the wide spread zoonotic disease globally with an estimated 500,000 new human cases each year (Xavier *et al.*, 2010). The prevalence of brucellosis in Gulu and Karamoja regions 7.5% and 24.4% respectively (Mugizi *et al.*, 2015) and no information is known about it's prevalence in

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