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TICK BURDEN AND THE OCCURENCE OF UDDER & TEAT LESION IN SELECTED CATTLE HERDS OF ARAPAI SUB COUNTY

BY

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DECLARATION

I Tani Saviour Lemi, declare that this dissertation is original and has not been submitted to any institution for academic award

Signature..... Date.....

APPROVAL

This dissertation has been submitted for examination with approval of my supervisor

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DEDICATION

I dedicate this work with love and respect to my Parents **Mr** and **Mrs Bataringaya. E. L**, my beloved uncle **Vukoni Lupa-Lasaga**, Aunt **Lidria Mary Consulate** and to all the family members of Mzee **Daniel Oya**

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LIST OF ABBREVIATIONS

AEZ	Agro Ecological Zone
E.A	East Africa
ECF	East Coast Fever
FAO	Food and Agriculture Organisation
GDP	Gross Domestic Product
GOU	Government of Uganda
GOZ	Government of Zimbabwe
ITM	Infection Treatment Method
MAAIF	Ministry of Agriculture, Animal industry and Fisheries
NDA	National Drug Authority
Spp	Species
SPSS	Statistical package of social scientists
SSA	Sub Saharan Africa
TTBDS	Ticks and tick Borne Diseases
UBOS	Uganda Bureau of Statistics
UIA	Uganda Investments Authority
US$	US Dollar
USA	United States of America

ABSTRACT

Udder is a predilection site for tick infestation in cows and heifers, ticks infest udder and teats of cattle leaving behind lesions which predispose cattle to mastitis hence affecting milk yield and impacting negatively on the growth of calves. Therefore, the cross sectional study was conducted in four parishes of Arapai Sub County to find out the level of tick burden and its impact on cattle production with specific focus on udder and teat lesions of cows and heifers from selected smallholder cattle herds. The data was collected by counting ticks on 246 cows and heifers infested with ticks purposively sampled and inspected for udder and teat lesions. The results were analyzed using Microsoft excel 2007 and Spss. A total of two tick genera were identified by visual and manual inspection, which includes *Rhipicephalus*, and *Amblyomma* Of which, *Rhipicephalus appendiculatus* was found to be the most prevalent species with 63.8% and *Amblyomma variegatum* with 31.2% while Rhipicephalus *decoloratus* was least prevalent species with 5.0%. Of the 246 cows and heifers sampled, 83% had tick burden with higher level being recorded in those kept under communal grazing. 56% and 39% of the total cattle population sampled had some degree of udder and teat lesions respectively.

The high level of tick burden in cattle kept by smallholder farmers especially in communal herds is ideal for establishment of endemic stability to various TBDs. On the other hand high level of tick burden especially of the Amblyomma spp can result in to udder and teat lesions hence affecting cow's health and milk yield. However, limited scope of awareness regarding impact of ticks, lack of adequate functional veterinary infrastructure and absence of tick control strategy are the major factors for existence of widespread ticks in the area. For that reason, educating farmers on appropriate animal husbandry especially regarding to tick control and creating awareness on tick epidemiology would be imperative to minimize the effect of ticks and ultimately improve the productivity of cattle in the area and peoples living standard

1.0.CHAPTER ONE: INTRODUCTION

1.1.Background

Ticks are blood sucking obligatory ecto-parasites of mammals, birds, reptiles and amphibians. They cause anaemia, restlessness, loss of body condition, loss of milk production and tick paralysis in animals, along with irritation due to injuries caused by bites (Jonsson, 2006). They are also efficient pathogens of vectors (Jongejan and Uilenberg, 2004). Ticks are responsible for a variety of losses that are caused by the direct effect of attachment ("tick-worry"), injection of toxins, or through the morbidity and mortality associated with the pathogens that they transmit, together with secondary problems as the enhancement of transmission of Dermatophilosis, myiasis or udder damage by *Amblyomma* spp. (Estrada-Pena and Mo. S, 2013.)

Besides acting as a vector, the direct effects of ticks have great economic importance since tick bite diminishes up to 20-30% of the value of skins and hides; a decade ago De Castro also estimated the Global costs of ticks and tick borne diseases (TBDs) in cattle between US$ 13.9 and US$ 18.7 billion annually. In Australia alone in 1974, losses due to cattle ticks were estimated to be US$ 62million; Brazil looses around US $ 2 billion (Grisi, *et al.*, 2002).

In Africa alone, 175 million head of cattle are at risk of ticks and TBDs (Norval, et al., 1991a). In Matabeleland south province of Zimbabwe in particular, work done by VEDMA consulting group in 2005 confirmed that tick infestation and tick borne diseases are some of the most important conditions affecting livestock productivity (Ndhlovu *et al.*, 2008).

In Uganda, the Economic costs of diseases, including potential losses of income from milk and vectors per cattle head was higher in Soroti district which represented lost production potential of cattle whereby tick control costs contributed 91.1% of total disease control costs (Ocaido, M *et al.*, 2009). However, actual tick and tick-borne disease losses are caused directly by death of animals and loss of production or indirectly through the costs of control and reduced production capability. (Mukhebi, *et al.*1992).

Ticks apart from transmitting protozoal, rickettsial and viral diseases; they also downgrade hides and skins, reduce meat, milk and increase susceptibility to other diseases (De Castro, 1997). Tick infestation causes skin lesions, facilitates bacterial entry and leaves behind permanent tissue damage. The udder is a predilection site for tick infestation in cows and heifers, reports show that ticks infest udder and teats of cattle leaving behind lesions which are predisposing factor for mastitis and low milk yield which affects milk quality, quantity and may result in to higher mortality in calves (Masuku J et al., 2015). The overall effect of

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