RELEVANCE OF *Amblyomma variegatum* INFESTATION IN THE PREVALENCE OF BOVINE DERMATOPHILOSIS.

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ABSTRACT

Fifty (50) cattle were randomly sampled from five different herds across Zaria metropolis for ticks using standard methods, the severities of the dermatophilosis lesions were observed and the extent of infestation with *Amblyomma variegatum* compared. The mean±SD per herd of *Amblyomma variegatum* ranges from 2.2± 2.6 to 5.4 ± 3.5 in all the herds with about 20% of the cattle not having any *Amblyomma variegatum* on them. The distribution of those not infested ranges between 10 to 30% within the herds. The level of dermatophilosis lesion on the cattle per herd revealed that 34% of all the cattle sampled showed no lesions of dermatophilosis and those without lesion were spread within four out of the five herds, 16% (8) of the animal showed mild infestation, 36% (18) showed moderate infestation while the remaining 16% showed severe and very severe infestation. Of all the 50 cattle sampled in the five herds, 34 (68%) showed lesion of dermatophilosis with concurrent infestation with *Amblyomma variegatum*. The remaining fractions either showing no lesions of dermatophilosis with *Amblyomma variegatum* infestation or manifested lesions of dermatophilosis without *Amblyomma variegatum* infestation. The extent of the dermatophilosis lesion was found in most cases to correlate with the severity of *Amblyomma variegatum* infestation

Key words: *Amblyomma variegatum*, Dermatophilosis, Infestation, Cattle

INTRODUCTION

Ticks are among the most difficult ectoparasites of domestic animals to control (Walker *et al.*2007). Economic significance of ticks as ectoparasite is the transmission of diseases to the host animals and anaemia due to bloodsucking from the host. The cattle population and performance is continually threatened by the tick infestation and diseases. *Amblyomma variegatum* serves as a mechanical vector of *Dermatophilus congolensis* (Allan *et al.*1998). Dermatophilosis, a bacterial disease of cattle, sheep goats and horses caused by *Dermatophilus congolensis*. It is a major setback on the income and food security of many farmers in African countries. Dermatophilosis damages the hide, causes a decreased performance of drought animals, decrease in milk production and also a drop in spermatogenesis when lesions are found on the scrotum, resulting in a major setback in cattle production in terms of cost of production, growth rate and attainment of market weight in developing countries such as Nigeria (Koney, 1996). Moisture and high humidity are predisposing factors of dermatophilosis infection and it is usually exacerbated during the rainy season. Skin abrasion and lacerations serve as a portal of entry for the aetiologic agent. Tick bite site is also associated with the disease as it has been observed that most lesions develop along the tick bite wounds (Walker,1993; Walker and Llyoid, 1993).Chronic or treatment resistant dermatophilosis herd serve as the reservoir of the infection from one rainy season to another (Makinde,2004). Infestation of cattle with *Amblyomma variegatum* results in systemic immunosuppression which results in failure of cattle host to combat the aetiologic agent of dermatophilosis, although this response varies with the breed of cattle. Systemic immunosuppression is mostly seen in exotic breeds of cattle and less seen in breeds found in endemic areas. Systemic immunosuppression and local hypersensitivity reaction is caused only by adult stages of *Amblyomma variegatum* and not by immature stages of the tick (Morrow *et al.*, 1993)

MATERIALS AND METHOD

Study Area and Sample Size: A total of 50 cattle were sampled from 5 different herds within Zaria, Kaduna state, during the month of July to September. The farms were selected and sampled based on willingness of herd owners to participate in the study. Herds visited included: Mallam Aliyu herd at Zango area, Mallam Salisu Dan-Fulani herd in Hanwa, Veterinary Teaching Hospital herd, Samaru, Muhammed Saidu herd, Kwangila and Mallam Danladi herd, Shika.

Sample Collection and Preservation: In each herd all ticks were hand-picked from the cattle

with the help of the herd's men and kept in appropriately labeled universal bottles according to the name of the herd and individual cattle sampled. The ticks collected were preserved in 70% methanol and taken to the Entomology section of the Department of Veterinary Parasitology and Entomology, Ahmadu Bello University, Zaria for further identification.

Sample Identification and Counting: Tick samples were identified based on their morphological characteristics, *Amblyomma variegatum* was identified, counted and other tick generas were equally identified. Cattle sampled were graded based on severity of the lesions due to dermatophilosis into no lesion, mild, moderate, severe and very severe.

RESULT AND DISCUSSION

The total number of *Amblyomma variegatum* on each sampled cattle per herd and the mean ± SD per herd is presented in Table 1. The mean ranges from 2.2 ± 2.6 to 5.4 ± 3.5 in all the herds with about 20% of the cattle not having any *Amblyomma variegatum* on them. The distribution of those not infested ranges between 10 – 30% within the herds. The level of dermatophilosis lesion on the cattle per herd is also presented in Table 2, 34% (16) of all the cattle sampled showed no lesions of dermatophilosis and those without lesion were spread within four of the five herds, 16% (8) of the animal showed mild infestation, 36% (18) showed moderate infestation while the remaining 16% showed severe and very severe infestation. Of all the 50 cattle sampled in the five herds, 34 (68%) showed lesion of dermatophilosis with concurrent infestation with *Amblyomma variegatum* and this agrees with the works of (Walker *et al*,1993) which reported that the lesions of dermatophilosis correlates with the presence of *Amblyomma variegatum* infestation in the tropics. Four (8%) showed lesions of dermatophilosis without infestation with *Amblyomma variegatum*, this may be as a result of trauma by thorn bushes, lacerations by barb wires other than tick bites and also it may be attributed to herd's men hand picking the ticks. Ten (20%) of these cattle showed no lesions of dermatophilosis but had *Amblyomma variegatum* infestation which may just be that there is an ongoing subclinical infection. The remaining 6 showed no lesion of dermatophilosis with no *Amblyomma variegatum* infestation.

Conclusion

This study has been able to establish a link between the infestation of *Amblyomma variegatum* and the presence of dermatophilosis and the close relationship between the location of lesions of dermatophilosis and the predilection site of *Amblyomma variegatum.*

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Table 1: Number of *Amblyomma variegatum* on Cattle per Herd

	No of Parasites				
Cattle	HERD1	HERD2	HERD3	HERD4	HERD5
A	5	3	5	0	6
B	4	5	2	0	4
C	8	2	4	4	13
D	0	0	5	6	3
E	3	4	1	0	0
F	10	6	3	0	5
G	5	6	2	0	5
H	10	0	2	4	5
I	2	3	4	6	9
J	2	0	5	2	4
TOTAL	49	29	33	22	54
MEAN	4.9	2.9	3.3	2.2	5.4
SD	3.4	2.4	1.5	2.6	3.5

Table 2: Level of Infestation of Dermatophilosis Lesion on Cattle per Herd

HERDS	Level of Infestation of Dermatophilosis Lesion				
	No Lesion	Mild	Moderate	Severe	Very Severe
HERD1	3	2	5	0	0
HERD2	6	2	1	0	1
HERD3	0	1	7	0	2
HERD4	4	2	2	1	1
HERD5	3	1	3	1	2
TOTAL	16	8	18	2	6