

## Survey study on the tick fauna of small ruminants on the University of Maiduguri Research Farm (UMRF), Nigeria.

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**ABSTRACT:** A survey of the tick species infesting sheep and goats on the University of Maiduguri Research farm was conducted. An overall prevalence of 64(64.0%) with 39 (78.0%) for sheep and 25 (50.1%) for goats was determined. Stereoscopic identification of the 401 ticks collected indicated *Boophilus* species to be most predominant with a prevalence of 225 (56.1%) while *Hyalomma* species had 176 (43.9%) ( $p < 0.05$ ) with most of the ticks found to infest the ears 145 (36.2%) compared to the abdomen 112 (27.9%), tail 85 (21.2%) and the legs 59 (14.7%) ( $p < 0.05$ ).

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### INTRODUCTION

Ticks as obligate ectoparasites of vertebrates are known vectors of infectious diseases causing significant losses to the livestock industry (Jongejan and Uilenberg 2004).

The University of Maiduguri research farm contains livestock species kept for fattening, breeding and scientific investigations. This paper reports the prevalence of tick species infesting sheep and goats on the farm relating to their predilection sites with a view towards effective control.

### MATERIALS and METHODS

Ticks were collected using hand forceps from sheep and goats randomly sampled on the University of Maiduguri, Research farm, and put into 2% formalin as preservative. In the parasitology laboratory, University of Maiduguri, the ticks were then mounted onto clean glass slides using Canada balsam and identified under the light microscope (x 10) using the keys described by Soulsby (1982) to

include the shape of mouthparts, presence of festoons, scutum, oration and leg bands. Tick numbers based on species were compared statistically using the student "t" test at  $p = 0.05$  to predict predominance (Dibal, 1991)

### RESULTS

The results of this study on prevalence of ticks of small ruminants as shown in Table 1 indicates an overall prevalence of 64(64.0%) with 39 (78.0%) for sheep and 25 (50.1%) for goats ( $p < 0.05$ ). A tick burden of 135 (60.0%) *Boophilus* spp. and 70 (39.8%) *Hyalomma* spp. was found on sheep while 90 (40.0%) *Boophilus* spp. and 106 (60.2%) *Hyalomma* spp. was found on goats. There was more of *Boophilus* spp. on sheep and more of *Hyalomma* spp. on goats. Table 2 shows the prevalence of ticks on sheep and goats based on predilection site. In both sheep and goats more ticks were harvested from the ears while the least numbers was from the legs ( $p < 0.05$ ).

**Table 1: Prevalence of ticks on sheep and goats examined on the University of Maiduguri Research FARM (UMRF).**

Host Species	No. Examined	No(%) Infested	Tick burden (n =401)	
			<i>Boophilus</i>	<i>Hyalomma</i>
Sheep	50	39(78.0)	135(60.0)	70(39.8)
Goats	50	25(50.1)	90(40.0)	106 (60.2)
Total	100	64 (64.0)	225(56.1)	176(43.9)

**Table 2: Prevalence of ticks on sheep and goats based on predilection site.**

Predilection Site	Tick burden (%) n = 401		Total
	Sheep	Goats	
Ear	97 (35.3)	48(38.1)	145(36.2)
Abdomen	78(28.4)	34(26.9)	112(27.9)
Perineum	60 (21.8)	25 (19.8)	85(21.2)
Legs	40 (14.6)	19 (15.1)	59(14.7)

## DISCUSSION

The predominance of *Boophilus* over *Hyalomma* species of ticks on sheep and goats in this study though agreeing with the report by Bui and Nwosu (1998), James- Rugu (2004) on cattle in Maiduguri disagrees with the observations from Southwestern Nigeria where *Amblyomma variegatum* was most prevalent (Dipeolu 1975). In this study the tick species were found to Prefer the ears as attachment sites compared to the abdomen, tail and the legs ( $p < 0.05$ ). Basu, (1993) and Opara *et al.*, (2005) attributed tick attachment to host temperature variation, ease of penetration by the hypostome, accessibility of blood vessels in different parts of the body describing these factors as important determinants.

In general ticks have been reported as having tremendous economic importance as disease vectors (Mbah 1982, Macoluso, 2003., Kim *et al.*, 2005) as such serious efforts should be made towards their control on the University Research Farm for an efficient productivity.

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