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Lousiness in sheep and goats in Maiduguri, Nigeria

A. A. Biu, M. I. Ahmed and S. B. Funke

Department of Veterinary Microbiology and Parasitology, Faculty of Veterinary Medicine, University of Maiduguri, Maiduguri, Nigeria

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ABSTRACT: The prevalence of lousiness of sheep and goats was investigated in Maiduguri during the rainy season month of August, 2004. Of the 200 sheep and goats examined, 80(40%) were infected with *Damalina* species (57%) and *Linognathus* species (23%) (P<0.05).

Prevalence of lousiness based on the age and sex of the sheep and goats examined showed that the male sheep and goats had 18(64.3%) and 13(31.7%) prevalence rates respectively which was statistically significant (P<0.05), while the female sheep and goats had 24(33.3%) and 25(42.4%) respectively (P>0.05). Based on their age groups, the prevalence of sheep and goats in the age group 3-6 months was 28(53.9%) and 25(42.4%) respectively, while age groups > 6 months – 1 year had 12(34.3%) and 10 (30.3%) prevalence rates respectively. Ages > 1 year showed 02(15.4%) and 03(37.5%) rates for sheep and goats respectively. All ages showed a significant statistical difference (P<0.05). Prevalence of louse infestation in sheep and goats based on their breed and hair coat colour showed the *Ouda*, *Yankasa* and *Balami* breeds of sheep with 22(36.1%), 12(46.2) and 8(61.5%) prevalence rates (P>0.05) respectively with the breeds having 29(43.9%) and 13(38.2%) for white and black-white colours respectively (P>0.05). For goats, the Sokoto red, Borno white, Kano brown and spotted Bauchi type had 10(35.7%0, 18(48.7%), 6(27.3%) and 4(30.8%) rates (P>0.05). The significance of these findings is highlighted in the discussion.

Key Words: Lousiness, Sheep, Goats, Nigeria.

Introduction

Sheep and goats constitute the small ruminants population in Nigeria, majority of which are located in the northern part of the country with, the common breeds of sheep as *Yankasa, Uda, Balami* and *Koroji* with a total population of 22.1 million (Osinowo and Adu, 1985, FDLPCS, 1991) and three indigenous breeds of goats as well (Sahel red, Sokoto brown and West African Dwarf). Many other transitional types such as Borno white, Kano red, Maiduguri brown and the spotted Bauchi type are commonly encountered (Devendra and McLeroy, 1987) with a total population of 26.5 x 10^6.

*To whom correspondence should be addressed at P.O. Box 8136, University of Maiduguri, Maiduguri, Nigeria.

Sheep and goats are primarily kept for meat and milk production (Egwu, *et al*., 1995; Obudu, *et al*., 1995) as well as a means for generating income in form of small scale polder projects to uplift the socio-economic status of communities (Lamorde, *et al*., 1987 and Devendra and McLeroy, 1987) i.e. serving as a source of ready cash for small scale farmers (Opasina and Putt, 1985).

However, management factors and particularly disease have been militating against increased sheep and goat husbandry and production with some of these as low forage especially prolonged dry season (Ademosun, 1984), diseases like lousiness, helminthiasis, starvation and hepatitis (Marga, 1992 and Obudu, *et al*., 1995). Parasitic lousiness is a major disease of sheep and goats worldwide with adverse effects quantified (Fourie, *et al*., 1995), but so far information on its prevalence in Maiduguri is scanty hence the purpose of this study was to determine the species involved and proffer management practices of reducing infestation.

Materials and Methods

Study area: Maiduguri is a city in the north eastern part of Nigeria and lies within the Sahel Savanna where the rainfall is low occurring for only 3-4 months followed by a prolonged dry season for the rest of the year (Mbaya, *et al*., 1999).

Sample collection and identification: 200 sheep and goats reared around Maiduguri metropolis were sampled randomly during the rainy month of August 2004. Each of the 200 animals was physically restrained by the help of an assistant and lice collected using brush combs into universal bottles containing 2% formalin as preservative. The age, breed, sex and hair coat colour of each animal was recorded. For identification, 2 drops of glycerol was added onto individual clean glass slides to which the lice were placed, a cover slip was then used to cover each slide which was mounted onto a light microscope at x 40 magnification and lice identified using the keys described by Soulsby (1982) and Urquhart, *et al*., (1992). Data on age, sex, breed and hair coat were statistically analysed using the students t-test with "P" values equal to or less than 0.05 regarded as significant (Dibal, 1991).

Results

Table 1 shows an overall prevalence of lousiness sheep and goats as 80(40.0%), out of 200 examined with 42(52.5%) for sheep and 38(47.5%) for goats. In sheep, *Damalina*sp. had 28(66.7%) and *Linognathus* with 14(33.3%) while goats had 29(76.3%) *Damalina* sp. And 9(23.7%) *Linognathus* sp. respectively.

Table 2 shows the prevalence of lousiness based on the age and sex of sheep and goats examined. Of the 28 and 41 sheep and goats examined, prevalence rates were 18(64.35) and 13(31.7%) ($P<0.05$), while the female sheep and goats had 24(33.3%) and 25(42.4%) respectively ($P>0.05$). Sheep and goats in the age group 3-6 months showed 28(53.9%) and 25(42.4%) prevalence, while age groups > 6 months to 1 year had 12(34.3%) and 10(30.3%). Ages >1 year had 2(15.4%) and 3(37.5%) rates. All ages showed no significant statistical difference ($P>0.05$).

Prevalence of louse infestation based on the breed and hair coat colour of the sheep and goats examined is shown in Table 3. *Ouda*, *Yankasa* and *Balami* breeds of sheep had 22(36.1%), 12(46.2%) and 8(61.5%) rates ($P>0.05$) respectively with 29 (43.9%) and 13(38.2%) for white and blackwhite colors ($P>0.05$). For goats, the Sokoto red, Borno white, Kano brown and spotted Bauchi type had 10(35.7%), 18(48.7%), 6(27.3%) and 4(30.8%) prevalences respectively ($P>0.05$).

Table 1: Prevalence of lousiness in sheep and goats examined in Maiduguri

	No. (%) Infested with		Total prevalence	Relative Risk(RR)	95% Confidence Interval (C.I.)
	Damalina	***Linognathus***			
All			80(40%)		
Sheep	28(66.7)	14(33.3)	42(52.5)	1.11	0.79-1.55
Goats	29(76.3)	9(23.7)	38(47.5)	0.91	0.64-1.27

Table 2: Prevalence of lousiness based on the sex and age groups of sheep and goats examined.

	No. Examined		No. (%) Infested	
	Sheep	**Goats**	**Sheep**	**Goats**
Sex				
Male	28	41	18(64.33)	13(31.7)
Female	72	59	24(33.3)	25(42.4)
Age group				
3-6 months	52	59	28(53.9)	25(42.4)
> 6months-1 year	35	33	12(34.3)	10(30.3)
> 1 year	13	08	02(15.4)	03(37.5)

Table 3: Prevalence of louse infestation in sheep and goats based on their breed and hair coat color.

	No. examined	No. (%) infested
Sheep		
Breed:		
Ouda	61	22(36.1)
Yankasa	26	12(46.2)
Balami	13	8(61.5)
Colour:		
White	66	29(43.9)
Black and white	34	13(38.2)
Goat		
Breed:		
Sokoto red	28	10(35.7)
Borno white	37	18(48.7)
Kano brown	22	6(27.3)
Bauchi type (spotted)	13	4(30.8)

Discussion

This study revealed an overall prevalence of lousiness as 40% which is high with most infestation in young sheep and goats which agrees with the reports by Kettle (1993); Obudu, *et al*., (1995); Yanan and Mohammed, (2001) that infections are usually heavy when conditions are warm and humid and that other predisposing factors are management factors of contact, mother to young and poor nutrition and that in the process of laying eggs, lice requires an appropriate diameter of hair fibre, which is provided by young animals. Here in Maiduguri, sheep and goats are housed during the rains to avoid destruction to farmers crops.

Also in this study, *Damalina* and *Linognathus* species were responsible which agrees with the findings by Schillhorn Vanveen and Mohammed (1975); Agbede and Otoba (1988) that they are the major cause of lousiness in small ruminants in Northern Nigeria; with *Damalina* species having a higher prevalence of occurrence than *Linognathus* species in this study, which agrees with reports by Yanan and Mohammed (2001) suggesting that the biting louse *Damalina* are more active than the sucking louse *Linognathus*. Although reports by Osinowo and Adu, (1985) indicated that lousiness is more common in females than the male ruminants since farmers prefer keeping more females for breeding purposes, in this study, there appears to be no statistically significant difference between sexes.

This study also did not observe any significant difference in prevalence based on hair coat color and breed of the animals, Osinowo and Adu (1985) reported that the *Ouda* sheep adapts more to Sudan Savannah, Yankassa to Guinea and Sudan Savannah while Balami to Sudano Sahelian zone, thus proffering that changes in prevalence due to breed varies within climatic zones.

With the results of this study, there is need to enlighten communities on the effects of lousiness to enhance optimum productivity.

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