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## Ectoparasitosis, a challenge in sheep and goat production in ULI, Anambra state, Nigeria.

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### Abstract

Sheep and goat farming is one of the main animal husbandry activities in Eastern and Northern Nigeria. These animals are reared for meat, milk and ritual sacrifices. This informed the research on this for ectoparasitosis which has been a challenge in their production. A total of 68 sheep and 92 goats were randomly sampled in Uli for the study between August – October 2011. The sampled animals were pre-numbered for clarity and examination for ectoparasites was done one after the other with plastic brush, forceps and hand lens. The ectoparasites recovered were ticks, lice, mites and fleas which were found to be common among the ruminants. The overall infestation was; sheep (69.8%) and goat (70.7%). The prevalence of these ectoparasites were; in sheep, ticks (17.0%), lice (25.8%), mites (15.0%) and fleas (42.2%), while in goats were; ticks (12.7%), lice (28.5%), mites (15.4%) and fleas (43.4%). The age related infestation was more among 1 – 5 years sheep and goat with percentage infestation as 58.5% and 54.0% respectively. However, ectoparasite infestation in the studied animals was observed to be age related. The predilection sites were mostly; ears (67), neck (57), back (51) and limb (48) in sheep, while in goats, they were; ears (83), neck (76), back (69), limbs (61), abdomen (56) and chest (52). Following the results obtained, regular treatment of these small ruminants is strongly advocated to increase their economic values.

**Keywords:** Ectoparasitosis, goat, infestation, prevalence, production, sheep.

### 1. Introduction

Sheep and goats maintain an available economic and ecological niche in Nigerian agriculture [6]. The owners of these animals earn their livelihood through the sales of their surplus and by products. Sheep and goat farming is one of the main animal husbandry activities in Eastern and Northern Nigeria, especially among Igbos. These animals are reared, not only for meat, but for milk and ritual sacrifice. They are also valuable assets in socio-cultural functions, such as feasts and ceremonies. In marriages, goat form part of the bride price (“Ewu Nna”). In land deeds, they are used to seal agreements and for initiating the foundation of family house.

A major challenge in the production of sheep and goats has been parasite infestation. Williamson and Payne [10], stated that West African dwarf goat (*Capra hircus*) and sheep (*Ovis jibatus*) were prone to ectoparasite such as ticks, fleas and mites. This was also observed by Van and Mohammed [9], in Northern Nigeria. In Southwestern Nigeria, Adeoye [11] recorded *Sarcoptes scabiei* among free roaming sheep and goats as a major case of mortality in goats. Feeding activity of these ectoparasites, result in significant blood loss, secondary infestation, pruritus, and excoriation and in some cases premature death [12].

In recent times, several studies have been carried out to determine the different ectoparasites of cattle and small ruminants (sheep and goats). This, however, will help in advancing their production; better management and good health. The types of ectoparasite infestations found in sheep and goats, according to Urquhart *et al.* [8], are not uniform in geographical distribution but depend on the prevailing climatic conditions in the region.

In Nigeria, though a good number of tick species have been identified to attack cattle, goats and sheep, Dipeolu and Anyichie [4] identified four common species as *Amblyoma variegatus*, *Boophilus*, *Hyalomma rufipes* and *Hyalomma truncatum*.

The common fleas on goats and sheep in Sub-Saharan were *Ctenocephalides canis*, and *C. felis* [5]. Ectoparasites infestation in goats and sheep can be age related as older ones (1-5 yrs) were found to be more susceptible to ectoparasites. They can also be site specific. Urquhart *et al* [8] described the distribution of lice infestation on goats, *Damalinea caprae* to be on trunks, hind legs, neck and pelvic, while *Linognathus stenopsis* infestation were found to be on trunk, hind legs, pelvic region, neck, ear and head. *Ctenocephalides canis* has a greater concentration on the legs and tail region [7].

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Considering the place of these animals (sheep and goats) in the socioeconomic and livelihood of some farmers, there is need for regular check on ectoparasites infestation on them, to increase their economic values and productivity. With the records available on small ruminants' ectoparasite infestation, none has been recorded in this area, this however informed the study for positive results abound and to proffer solution to avoid human infestation since they are found to be reared close to human habitations.

## 2. Materials and methods

### 2.1 Study area

The study area is Uli, a town in Ihiala Local Government Area of Anambra State, Nigeria. The town lies between latitude 5.58<sup>0</sup>- 5.60<sup>0</sup> N and longitude 6.47<sup>0</sup>- 6.57<sup>0</sup>E. It has marked dry and rainy seasons from November – March and April – October respectively. The area is traversed by a number of streams and rivers which serve as main sources of water supply to the inhabitants. The residents are mostly farmers engaged in rearing of sheep, goats cattle and pigs. Other life activities include small scale businesses and civil servants.

### 2.2 Collection of samples

The community heads were approached with letters seeking their consent on the study. This was followed by their assistance to convince the owners of the required animals to allow the work to be carried out in their farmers. Having acquired the ethical consideration, the sampling of goats and sheep was carried out between August and October 2011 among the four wards in the community. A total of 68 sheep and 92 goats were sampled randomly irrespective of their age and sex.

### 2.3 Examination of animals for ectoparasites

The examination of animals was done in the early mornings and evenings on the agreed hours with the farmers. The sampled animals were pre-numbered for clarity and examined one after the other at various body parts with plastic brush, scalpal and forceps. The visible ectoparasites; ticks were picked with forceps into vials with detailed information about the animal examined. The skin and hairs were brushed out onto white background made with white cloth. The emerging ectoparasites were isolated into their respective vials. The morphological features of each ectoparasite were used in their identifications. The results obtained were analysed using Chi-square.

## 3. Results

The survey of ectoparasites of sheep and goats in Uli gave the following results;

**Table 1a:** The prevalence of ectoparasites on the sampled sheep

Parasites identified	No of infested sheep	No of parasites	% infestation
Mites	5	58	15.0
Ticks	10	66	17.0
Lice	14	100	25.8
Fleas	15	164	42.2
Total	44	388	100.0

Overall prevalence in sheep= 69.8%

**Table 1b:** The prevalence of ectoparasites on the sampled goats

Parasites identified	No of infested goats	No of parasites	% infestation
Mites	12	84	15.4
Ticks	6	69	12.7
Lice	23	155	28.5
Fleas	24	236	43.4
Total	65	544	100.0

Overall prevalence in goats=70.7%

**Table 2:** Sex related prevalence of ectoparasites on sheep and goats

Animal type	No infested	Female	Male	% infestation
Sheep	44	28(63.6%)	16(36.4%)	64.7
Goats	65	46(70.8%)	19(29.2%)	70.7
Total	109	74(67.9%)	35(32.1%)	68.1

**Table 3a:** Age related prevalence of ectoparasites on sheep

Age (months/hrs)	No examined	No infested	No of parasites	% infestation
0 – 6 months	14	9	63	16.2
7 – 11 months	12	7	76	19.6
1 – 5 yrs	37	25	227	58.5
>5 yrs	5	3	22	5.7
Total	68	44	388	100.0

**Table 3b:** Age related prevalence of ectoparasitosis on goats

Age (months/hrs)	No examined	No infested	No of parasites	% infestation
0-6 months	19	10	114	21.0
7-11 months	16	11	82	15.1
1-5 yrs	45	35	294	54.0
5yrs	12	9	54	9.9
Total	92	65	544	100.0

## 4. Discussion

The results obtained in ectoparasitosis in goats and sheep in Uli showed that these animals were highly infested with an overall prevalence of 70.7% and 69.8% respectively. The common ectoparasites were; lice, ticks, fleas and mites. This supports the findings of Urquhart<sup>[8]</sup>, Williamson and Payne<sup>[10]</sup>, Kusilaka and Kambarage<sup>[5]</sup> in different parts of Nigeria on small ruminants.

In the sex related ectoparasite infestation, the females of both sheep and goats had the highest infestation of 63.6% and 70.8% respectively as against 36.4% and 29.2% in males. The high infestation of females of both ruminants can be attributed to their confinement either during lactation or gestation, which make them less active, low immunity and because of these are subjected to heavy loads of ectoparasite infestation<sup>[9]</sup>. The activities of the males could help in shading off some of these ectoparasites passively, and could also be source of transmission to healthy females during mating.

In specific ectoparasite infestation, fleas (*Ctenocephalides* spp) were found to be higher in both sheep and goats by 42.2% and 43.4% respectively. In comparison, there was no significant difference between the two ruminants in flea infestation.

The age related prevalence of ectoparasites in both ruminants was higher among 1 – 5 yrs aged sheep and goats with 58.5% and 54.0%. At this age, the animals are known to be very active, struggling to survive on their own and thus become exposed to more infestation. The reduced infestation among older sheep and goat(>5 yrs) can be as a result of their number, for the older ones are selectively killed for meat while the remaining few are kept as parent stock for further production. Furthermore, the high infestation of these small ruminants can be favoured by overcrowding, warm and humid environment aid the spread of fleas. The predilection sites of infestation were mostly the ears, neck and dorsal floor (black), which according to Chandler and Read <sup>[3]</sup> are areas where capillary blood can be reached easily.

It can be concluded that sheep and goats are potential hosts of the ectoparasites recovered. Moreso, since the pathogens they transmit can attack man, cohabitation is strongly discouraged among their rearers. Proper and adequate care is advocated to improve their health by prompt action of Veterinary specialists, impose good sanitation and hygiene in livestock houses. With all these in place, ectoparasites infestation can be reduced to a controllable level.

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