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**SURVEY OF ECTOPARASITE AND THEIR PREDILICTION SITES ON CATTLE IN BUKURU MARKET**

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**ABSTRACT**

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Survey of ectoparasites and their predilection sites was conducted to determine their occurrence and economic impact on cattle brought for sales in Bukuru livestock market. A total of 120 cattle were examined for these ectoparasites in January-February, 2010 in Bukuru livestock market. Out of this figure, 12.5% were infested with ectoparasites of which, 7.5% were positive for *Amblyomma spp*, 1.3%, were positive for *Boophilus spp* and *Hyalomma spp* respectively, while *Haematopinus spp* had 0.83% occurrence. Oral interview with the marketer revealed that ectoparasite infested cattle are usually identified, and parasites especially Ticks are handpicked in the early hours of the business-day. They also acknowledged the fact that such parasites could transmit diseases to healthy stock causing reduction in market value. Strategic and tactical control of ectoparasites in cattle herds and markets is therefore recommended.

**INTRODUCTION**

Cattle are the most important species of ruminants in Nigeria (Mbap and Bawa, 2001). There exist several breeds which include White Fulani, Kuri, Shuwa, Sokoto Gudali, Adamawa Gudali, Red Bororo, Biu, Borgu, and Muturu (Williamson and Payne, 1989). *Bos indicus* (Zebu) cattle are the main source of both meat and milk production in Nigeria (Butswat *et al*, 2000). These cattle are also a ready source of draught (Mbap and Bawa, 2001). However, annual losses in livestock production due to ectoparasite infestations are very alarming with over 50 documented species of ectoparasites infesting cattle worldwide (Byford *et al*, 1992).

In Africa, one of the most important limiting factors in attaining maximum benefits from the livestock industry is the incidence of ticks and tick-borne diseases (Kocan, 1995). The blood sucking activity of ticks (*ixodidae*), irritation and destruction to hides and skins of infested animals, in addition to their role as vectors and intermediate hosts to a number of important protozoal, rickettsial, bacterial and viral diseases are well documented (Authur, 1970), with resultant negative implications on the total energy balance thereby resulting in decreased productivity (Byford *et al.*, 1992). These ectoparasites have also been reported as vectors of infectious agents and zoonotic diseases in humans (Petney *et al*, 2007).

The reported negative impacts of ectoparasites on husbandry, productivity and welfare of domestic animals (Colebrook and Wall, 2004) necessitated this study. Similar works have been conducted by Agbede, (1981); George, *et al.*, (1992); Raji, *et al.*, (1997) and Olabode *et al* (2010) in different parts of the country, however, there is exist limited information on ectoparasitism in cattle within the study area.

Therefore, this survey was aimed at establishing the occurrence and types of ectoparasites, their predilection sites and economic importance on cattle sold in Bukuru livestock market popularly known as 'Kara' in plateau state.

**Key words:** Cattle, Ectoparasites, Ectoparasitic conditions, Market, Bukuru, Plateau state.

## **MATERIALS AND METHODS**

**Sample collection:-** All ectoparasites found on the cattle at the time of sampling were collected into specimen bottles containing 70% Alcohol, labeled, stored and transported to the laboratory in the department of Veterinary Parasitology and Entomology.

Skin scrapings were also collected from suspicious skin lesions, using scalpel blade with a drop of oil and tied in polythene for transported to the laboratory.

**Methodology:-** The parasites were examined sequentially under the microscope. They were identified as described by Soulsby, (1982).

Skin scrapping (crusty materials) was digested with 10% KOH by boiling over the Bunsen burner for 5minutes. The digested material was transferred into Petri dish after rinsing and filtrating with distilled water. The material was examined under the microscope (Nikon).

Oral interview with the cattle dealers was also conducted and their responses documented. The number of specific species of parasites was expressed in percentage.

## **RESULTS**

A total number of 120 cattle were examined, out of which 15 (12.5%) had ectoparasites, 9 (7.5%) were identified to have *Ambloyomma spp*, 2 (1.3%) *Boophilus spp*, 2 (1.3%) *Hyalomma spp*, and 1 (0.83%) *Haematopinus spp*. Adult fleas and lice were not encountered during this survey. However, some of the cattle were noticed with considerable amounts of nits. Suspicious crusty materials revealed no evidence of mites and mange infections. The oral interview with marketers' revealed that cattle were brought from neighboring local governments areas within the state. On arrival of cattle, dealers inspect their body surface for the ecto-parasites which are immediately removed by hand before the start of the business day. Further discussion, revealed that cattle were brought from other neighboring states like Bauchi, Kaduna and Nassarawa states and countries like Cameroun, Chad and Niger republics.

**Table I: Showing the ectoparasites infestation and their predilection sites on cattle obtained at Bukuru cattle market.**

Identified ecto-parasites	Number of cattle infested	Ectoparasites collected (%)	Location of parasites on cattle
<i>Ambloyomma spp</i>	9	7.5	All over the body
<i>Boophilus spp</i>	2	1.3	Neck, scrotal area
<i>Hyalomma spp</i>	2	1.3	Abdomen, limbs
<i>Haematopinus spp</i>	1	0.83	All over the body
<i>Rhipicephalus spp</i>	-	-	-

## DISCUSSION

This survey indicates (Table I) that 12.5% ectoparasites were ticks with *Amblyomma variegatum* (7.5%) occurring most in cattle. This connotes with reports of Ilemobade, (1977) which states that *Amblyomma variegatum* is a ubiquitous tick species infesting a wide range of domestic and wild animals in West, East and South Africa while serving as vector of *Cowdria ruminantium*, the causative agent of heart water disease of ruminants in Nigeria. Other tick species such as *Boophilus spp*, *Hyalomma spp* and *Haematopinus spp* was also observed in the cattle, which is in line with the findings of Agbede, (1981).

Suspicious crusty materials revealed no evidence of mites and mange infections. This is contrary to the reports of George *et al*, (1992) which documented mite infestations in domestic animals including cattle in Northern Nigeria. However, other causes could be responsible for such skin lesions as *Amblyomma variegatum* have been incriminated with the aetiology of dermatophilosis in cattle (Mohammed and Agbede, 1980), resulting in irreversible damage to hides due to large scar skin tissues and perforations which make the leather less attractive with poor marketability of hides and skins, especially in mite infested cattle (George *et al*, 1999). Further analysis of this crusty material is hereby necessary but was not in the scope of this study.

Although, adult lice were not noticed during the sampling periods, but the presence of nits indicates adult female lice deposited those eggs on the cattle body surface probably during their nocturnal feeding activities and migrating off the body surface in early hours of the day to hide in some cracks and crevices in the pens and cattle sheds. They may not return before the cattle are loaded to the markets, thus substantiating their absence during sampling. This correlates with the response of marketers that these cattle are brought into the market early in morning.

The overall low occurrence of these ectoparasites could be attributed to the dry season when this survey was conducted which is usually associated with reduced occurrence and spread of ectoparasites as earlier suggested by Olabode *et al*, (2010). Oral interview with the cattle dealers also reveals that ectoparasites especially ticks were often handpicked to improve market value. Further discussion with cattle dealers confirms the Trans human nature of Fulani nomads with cattle movement from different neighboring states and countries which could be associated with transfer of these vectors and vector borne diseases across these trans-animal boundaries.

In conclusion, this survey provides preliminary information on the occurrence and dynamics of ectoparasites species and their predilection sites on cattle brought to Bukuru market. It also confirms the endemicity of Ticks and by implication their associated diseases with their negative impact on cattle and cattle product trade.

Therefore, the control of these ectoparasites and other tick species is paramount if productivity of livestock is to be enhanced (George *et al*, 1999). Thus, the need for a more integrated, trans-disciplinary, systems-based approach to understanding the biology of

vectors and disease transmission control is increasingly obvious due to the wide range of social and biophysical factors involved. This will provides a base for developing and implementing sustainable disease control strategies (Levin, 2005). Hence, strategic and tactical control of ectoparasites in cattle herds and markets is therefore recommended.

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