

A Cross Sectional Study on the Gastrointestinal and Haemoparasites of Trade Cattle In Girei And Yola North Local Government Areas Of adamawa State, Nigeria

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Abstract: A Cross Sectional Study on Gastrointestinal and Haemoparasites of Trade cattle was carried out to determine the prevalence and types of parasites involved, which causes reduction in the productivity of animals trekked from the neighbouring countries into Adamawa state, Nigeria. One hundred of each fecal and whole blood samples were collected and parasitologically examined. Of the One hundred feces examined, 100% infection rates was recorded, Out of this 47.0% of the Class nematodes and the least was the trematodes 26.0%. There was no ($p > 0.05$) statistical significance difference. The White fulani breeds had the highest prevalence of 41.0% and the least was Sokotogudali (10.0%) and was statistically insignificant ($p > 0.05$). Age and Sex revealed a high prevalence (51.5%) among those with 3-4.5 years and males with a significant differences ($p < 0.05$). The haemoparasitic investigations revealed a high prevalence of *Babesia bigemina* (48.2%) and the least was *Anaplasma centrale* (7.1%). There was no ($p > 0.05$) significant differences. White fulani breeds had the highest prevalence of 44.6% and the least was Adamawa gudali (10.7%) and there was no statistical significant differences ($p > 0.05$). Males aged 3-4.5 years had higher prevalence 69.5% and 53.5% respectively than the females less than 3 years old and there was statistical significant differences ($p < 0.05$). This study revealed 100% morbidity rates of both GIT and Haemoparasites in the study animals which could be attributed to stress incurred due to the effect long distance trekking. Good rest while on transit so as to have enough time for feeding and watering the trade cattle could help in reducing the stress and avoiding outbreak of a disease condition. Strategic worming policy should be enforced most especially during transportation and the administration of antioxidants such as vitamin E and multivitamins.

Keywords: Cross Sectional, Gastrointestinal Parasites, Haemoparasites, Trade Cattle, Adamawa, Nigeria.

I. Introduction

It has been reported that there is a widespread occurrence of low to moderate levels of GIT parasitism [1]. Strongylosis and Coccidiosis were more prevalent among ruminants [2], which causes a high morbidity and economic burden in combination with stress caused by underfeeding and trekking a very long distance.

In Southeastern Nigeria, [3] reported a high prevalence of GIT parasitism mainly caused by Hemonchosis and Coccidiosis in cattle. Parasitic infection is a worldwide problem which brings about large economic losses in a variety of ways to both large and small scale farmers. Infection can cause reduction in food intake and lower weight gains. There could also be a reduction in milk production or even mortality in extreme cases [4]. [5], reported an overall prevalence of 53.8% of GIT parasitism in cattle. Nematodes recorded the highest 18.9% and the least of trematodes (2.0%). Females had the highest prevalence of 44.3% while the least were the males (40.6%) but there was no significant difference between the sexes. White fulani cattle breeds recorded the highest prevalence while the West African Dwarf (Ndama and Keteku) breeds had the least (9.4%). [4], revealed a prevalence of 75% and found out that there was no significant difference between the sexes and ages of the affected cattle ($p > 0.05$). [6], reported a higher prevalence of GIT parasites in females (62%) than the males (58%) in Gubi and Galambi cattle ranches in Bauchi state of Nigeria. They also reported that younger animals were more infected than older ones. [7] also reported an overall prevalence of 47% of GIT parasitism in Maiduguri University Research farm and that younger animals had higher prevalence of 50% as compared to the older ones 44%, without significant differences ($p > 0.05$) between sexes. Hemoparasitic infections constitute a major handicap to livestock production, infected animals suffer from low productivity, anemia and death if not treated, of the most economically important genera included *Babesia*, *Anaplasma*, *Trypanosoma* and to a lesser extent *Theileria* [8].

[9], reported a prevalence of 41% of cattle infected with hemoparasites, Adamawa gudali were more infected with a prevalence rate of 45% and the least was the white fulani (37%). In their study, Babesia spp. had the highest of 43.1% and the least was T.vivax (3.3%).

[10], reported an overall prevalence of 25.7% among cattle in Vom- Plateau and Babesia spp. recorded the highest prevalence (16%) while A.maginale and Micotharia the least (1.4%). [5] revealed a high prevalence of cattle hemoparasites, with the females having higher prevalence of 44.3% and the least were the males (40.6%), there was no significant differences in sexes ($p > 0.05$). They also recorded high prevalence among the white fulani breeds (24.5%) and the least were the Ndama and Muturu (9.4%), the difference was significant ($p < 0.05$). [11] found an overall prevalence of 25.2% in cattle infected with hemoparasites and reported that Babesia spp. was the highest (9.0%) and the least was Trypanosoma (0.58%). Previous studies showed there have been an increase in the prevalence of the both gastrointestinal tract and haemoparasites of cattle in the tropical continent with reduction in the livestock productivity and decreased the availability of animal protein per caput hence the needs for this study so as a solution could be proffered.

II. Materials And Methods

Study Area -Yola, the state capital of Adamawa state lies between the latitude 9°14'N and longitude 12°28'E. It is bordered in the Eastern part by Cameroon, in the North Borno state and in the West by Gombe state as described in the map of Adamawa state [12].

Sample Collection: A total 100 of each fecal and whole blood samples was randomly collected and analyzed using parasitological test. A floatation technique was used to analyze fecal samples [13]. Thin and Thick blood smears were prepared and Giemsa stained, examined at x100 magnification with oil immersion for the presence of parasites and identified with the aids of keys [14].

Statistical analysis: The results obtained were subjected to a chi square test to establish if there is any association between the variables at significant difference at $p < 0.05$

III. Results

The highest class of gastrointestinal parasites found in the study was Nematodes (47.0%) and the least trematodes (26.0%) and there was no statistical significant differences ($p > 0.05$). The white fulani cattle had the highest prevalence of GIT parasites (41.0%) and the least was the Sokoto gudali (14.0%) and there was a significant differences between the breeds prevalence ($p < 0.05$). Cattle older than 3 years had higher prevalence rate (51.5%) as compared to other group of less than 3 years of age (8.8%) and it was highly significant $p < 0.05$. Male cattle had higher sex prevalence (73.3%) than the females (26.6%) and it was statistically significant ($p < 0.05$) as shown in Table 1. The highest prevalence of hemoparasitic infections among the trade cattle was Babesia spp. (48.2%) and the least was Theileria spp. (21.4%) and the difference was not statistically significant ($p > 0.05$). Breeds prevalence revealed that the white fulani cattle (bunaji) were more infected (44.6%) than the least recorded by the Adamawa gudali (10.7%) and there was a significant difference among the breeds ($p < 0.05$). Cattle older than the 3 years of age had higher prevalence (53.6%) than those less than 3 years (14.0%) and it was statistically significant ($p < 0.05$). It was also reported that males had higher prevalence of Hemoparasitic infections (69.6%) than the females (30.4%) and there was statistical significant difference ($p < 0.05$) as shown in Table 2.

Table 1: The prevalence of GIT parasite infection based on the Classes of Worms, Breeds, Age and Sex among Trade Cattle in Girei and Yola Metropolis of Adamawa state, Nigeria

Class of Worms	Number Sampled	Number Positive(%)
Nematodes	47	47(47.0)
Cestodes	37	37(37.0)
Trematodes	26	26(26.0)
Total	100	100(100.0)
Breeds		
Adamawa Gudali	25	14(20.0)
Sokoto Gudali	20	10(14.0)
White fulani	30	28(41.0)
Red bororo	25	10(23.0)
Age (years)		
<3	6	6(8.8)
4-5	40	35(51.5)
>5	53	27(39.5)
Sex		
Males	69	50(73.3)
Females	31	18(26.2)
Total	100	68(100.0)

Table 2: Prevalence of Hemoparasite infection based on the Type of Parasites, Breeds, Age and Sex among Trade Cattle in Girei and Yola Metropolis of Adamawa state, Nigeria

Type of Haemoparasites	Number Positive (%)	
<i>Babesia spp</i>		23(48.2)
<i>A.marginale</i>		13(23.2)
<i>A.centrale</i>		4(7.1)
<i>Theileria spp</i>		12(21.4)
Total		56(100)
Breeds	Number Sampled	Number Positive (%)
Adamawa Gudali	13	6(10.7)
Sokoto Gudali	20	13(23.0)
White fulani	40	25(44.6)
Red bororo	27	12(21.4)
Age (years)		
<3	22	8(14.0)
4-5	40	30(53.6)
>5	38	18(32.0)
Sex		
Males	68	39(69.6)
Females	32	17(30.4)
Totals	56	56(100.0)

IV. Discussions

The highest prevalence of GIT parasites were nematodes this concurs with the studies carried out by various authors [2], [3], [7], [4], and [5]. Breeds prevalence recorded the highest prevalence was the white fulani cattle among the other breeds which agreed with the findings [4],[5]. Age prevalence also revealed a high infection in cattle older than 3 years this collaborates with the studies of previous authors [9],[4],[5] disagreed with the findings of [7] who reported a higher prevalence among calves the reasons for this could be due to intrauterine and transplacental transmission and possibly the dams were not regularly wormed prior to calving. Bulls (males) had higher infection in the present studies because of their most abundant during sampling; reasons adduced for this was because males are mostly sold off only few would be left for breeding hence females are kept for reproduction in the herds. The present studies disagreed with the findings of [5] who observed higher infection than the males as explained in the above.

V. Recommendations And Conclusion

- i. Mass education to cattle farmers and traders on the importance of sanitation and hygiene in trade cattle management.
- ii. Social/infrastructural facilities (such as chutes, loading ramp and holding place for resting) should be provided to reduce the rate of helminthes infection along the cattle routes and the market places
- iii. Drug and acaricides should be made available for the treatment of the infected cattle and to reduce ectoparasites burden and helminthes infection.
- iv. Cattle should be de-wormed from time to time especially at the onset of either the rainy or the dry season or before being put on transit.

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