The prevalence of bovine gastrointestinal parasites in college of agriculture farm and surrounding farms of Yobe state, Nigeria

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Abstract: This study was conducted between the months of June/July and September/October 2012 in Yobe State College of Agriculture livestock Farm and some farms around the college to determine the prevalence of gastro-intestinal parasites of cattle and the intensity of the parasites' infection. One hundred and twenty (120) cattle were randomly selected for the study on the college farm and among the pastoralist cattle that rear around the college were a standard laboratory procedure was followed for determination of gastro-intestinal parasites. The study reveals the overall prevalence of gastro-intestinal parasite of cattle to be 32.61%, 32.61%, 21.74%, 4.34%, 5.43% and 3.26% for Strongyles, Moneizia, Fasciola, Amphistome, strongly/Monezia and strongly/Fasciola infections respectively. Regardless of age, sex and breed, the cattle were infected by these varieties of parasites. The high prevalence rate of gastro-intestinal parasites infection revealed by this study indicate a neglect of simple management practices aimed at controlling gastro-intestinal parasites infections, practice such as use of antihelminthes, de-worming from time to time etc. Based on the findings of this research study, recommendations are made.

Keywords: Cattle, Bovine, Gastrointestinal, Livestock, Prevalence, Nigeria

INTRODUCTION

In Nigeria, the livestock industry is a very important component of the agricultural sector contributing substantially to the gross domestic product amounting to billions of Naira [1]. However, the quantity of meat and revenue obtained from domestic livestock is far below the national demand, due mainly to low productivity. This low productivity is brought about by numerous factors of which a major one is disease. Among the disease responsible for the low productivity in livestock are gastro-intestinal infections [2, 3]. The gastrointestinal tract (GIT) of animals harbor a variety of parasites particularly helminthes, which causes clinical and sub clinical parasitism. These parasites adversely affect the health status of animals and cause enormous economic losses to the livestock industry.

Gastrointestinal parasites not only affect the health but also affect the productive and reproductive performance of the cattle. Gastrointestinal worms are recognized as by for the most significant part of diseases in livestock sector [2] and [3]. It has been established that parasitic infestation results in considerable losses in milk production in cattle [4]. Among the predisposing factors of internal parasites infection are climates, nutritional deficiency, grazing habits, immunological status, pasture management, presence of intermediate host and vector and the number of infective larvae and eggs in the environment [5]. [6], reported that gastrointestinal parasite infections are a worldwide problem for both small and large scale farmers, but their impact is greater in sub-sahara Africa in general due to the availability of a wide range of agro-ecological factor suitable for diversified host and parasites in a variety of ways.

In Nigeria, helminthes constitute a major impediment to efficient and profitable livestock production [7]. The effect of helminthes on their host are generally insidious, undeserving host health and increasing susceptible to secondary infection with ensuring mortality, particularly where compounded by additional stress such as overcrowding and malnutrition. The extensive system being the main management practice is based mainly on extensive grazing by mostly smallholder herders. The commercial and state institution (college of agriculture) farms practice varying levels of management systems that are higher than the extensive system [8]. In this higher level of practice, cattle may graze on sown pastures as well as natural pastures. All these systems however expose the animals to several diseases including parasitic infections. This study sought to establish the prevalence of gastro-intestinal parasites of cattle and the intensity of the parasites' infection in the study area and create

awareness to the farmers about parasitism and its impact on the health and production of cattle. Furthermore to suggest proper treatment, control and preventive measures to the farmers regarding the GIT parasites.

CASE REPORT
Study area
This study was conducted between the months of June/July and September/October 2012 in the Yobe State College of Agriculture livestock Farm and some farms around the college, which are nomadic Fulani settlements that settle around the college to graze their cattle during this period. Gujba located in the southern part of the state represent Sudan savanna agro-ecological zone laying between latitude 11^0 15^1 N longitudes 9^0 15^1 E and 10^0 15^1 E. The climate regime in of the state is characterized by single long dry season followed by a shorter wet season that ranges from 800 to 1000 mm. Mean annual temperature is 36 ^{0}C increasing toward the Sahel zone to about 38 ^{0}C. Humidity is low throughout the dry season [9].

Study population
The study population was made up of 120 cattle. Out of this total, 70 were female (58.33%), 50 males, (41.66%), 80 were adults (66.67%), 40 young cattle (33.35%). The herd consisted of two main breeds; 82 red Bororo breeds (68.33%) and 38 White Fulani (31.6%). The animals were categorised into two age groups: 0-12 months (young) and 13-24 months (adult). The animals grazed on natural pastures supplemented with cultivated pastures during the day.

Sample collection and analysis
In this study, about 120 cattle were randomly selected for the study on the college farm and among the pastoralist cattle that rear around the college. Each cattle was carefully monitored and its faecal sample (about 10g) was collected with a clean stainless teaspoon into a specimen bottle and a solution of 10% formalin added to it for fixation. Each of the bottles was clearly labeled. For each labeled bottle, the sex, age and breed of the cattle from which the sample was collected were practically observed and recorded.

All samples collected were transported to the parasitology laboratory of the Department of Veterinary Microbiology and Parasitology, University of Maiduguri for examination. The fecal samples collected were analyzed and microscopically examined using the sedimentation and floatation methods of faecal analysis as described by [10].

DISCUSSION
Summary of case
Fecal samples from the 120 cattle examined for gastro-intestinal parasites during the periods of research study i.e. June/July and September/October 2012

During the first phase of this study i.e. June/July, a total of 60 cattle were examined while the remaining 60 cattle were examined during the second phase of the study (August/September). A total of 92 cattle (76.67%) out of 120 cattle were found to be infected by one or mixed species of gastro-intestinal parasites from four different genera of helminthes. These include 30 (32.61%) infected by Strongyles, 30 (32.61%) infected with Moneizia, 20 (21.74%) by Fasciola species, 4 (4.34%) by Amphistome parasites and 5 (5.43%) cattle had mixed infections by Strongyles and Moneizia while the remaining 3 (3.26%) had mixed infectious by Strongyles and Faciolaparasites.

RESULT
The tables below shows the overall prevalence of the gastro-intestinal parasites as well as the prevalence in association to sex, age, breed and season.

Table-1: Overall Prevalence Rate of Gastrointestinal Parasites.

PARASITES	NUMBER INFECTED	PERCENTAGE
Strongyles	30	32.61%
Moneizia	30	32.61%
Fasciola	20	21.74%
Amphistome	4	4.34%
Strongly/Moneizia	5	5.43%
Strongly/Fesciola	3	3.26%
Total	92	100%

Table-2: Prevalence Rate of G.I.T Parasites based on Sex of Cattle examined

PARASITES	Male	Female
Strongyles	19 (20.65%)	11 (11.96%)
Moneizia	16 (17.39%)	14 (15.22%)
Fasciola	9 (9.78%)	11 (11.96%)
Amphistome	2 (2.17%)	2 (2.17%)
Strongly/Moneizia	2 (2.17%)	3 (3.26%)
Strongly/Fesciola	1 (1.09%)	2 (2.17%)
Total	49 (53.26%)	43 (46.74%)

Table-3: Prevalence Rate of G.I.T Parasites based on Age of Cattle examined

PARASITES	Adults	Young
Strongyles	13 (14.13%)	17 (18.48%)
Moneizia	12 (13.04%)	18 (19.57%)
Fasciola	11 (11.96)	9 (9.87%)
Amphistome	1 (1.09%)	3 (3.26%)
Strongly/Moneizia	2 (2.17%)	3 (3.26%)
Strongly/Fesciola	0 (0.0%)	3 (3.26%)
Total	39 (42.39%)	53 (57.61%)

Table 4: Prevalence Rate of G.I.T Parasites based on Breed of Cattle examined

PARASITES	RED BORORO	WHITE FULANI
Strongyles	18 (19.57%)	12 (13.4%)
Moneizia	20 (21.74%)	10 (10.87%)
Fasciola	11 (11.96)	9 (9.87%)
Amphistome	3 (3.26%)	1 (1.09%)
Strongly/Moneizia	2 (2.17%)	3 (3.26%)
Strongly/Fesciola	3 (3.26%)	0 (0.0%)
Total	57 (61.96%)	35 (30.04%)

Table 5: Prevalence Rate of G.I.T Parasites based on Month of collection

MONTHS	TOTAL EXAMINED	NUMBER INFECTED
June/July	60 (50%)	26 (28.26%)
September/October	60 (50%)	66 (71.74%)
Total	120	92

INTERPRETATION

This study reveal the overall prevalence of gastro-intestinal parasite of cattle to be 32.61%, 32.61%, 21.74%, 4.34%, 5.43% and 3.26% for Strongyles, Moneizia, Fasciola, Amphistome, strongly/Monezia and strongly/Fasciola infections respectively. It also discovered that regadless of age, sex and breed, the cattle were infected by these varieties of parasites.

The study was as well able to come up with some important findings such as;

a. Prevalence of gastro-intestinal parasites of the genera Strongyles, Moneizia, Fasciola and Amphistome among the cattle in the area with Strongyles and Moneizia being the most prevalent (32.61%) each.

b. A relatively higher prevalence of gastrointestinal parasites was recorded during the second phase of the study that is August/September. This could be attributed to the claim by many researchers that the rainy season favors the proliferation of gastrointestinal parasites more than the dry season.

c. A considerable association was discovered between infections by gastro-intestinal parasite and age. Despite the fact that the total number of young cattle involved in the study was only 33.35%, 57.61% of the total prevalence rate was recorded among the young cattle.

CONCLUSION

In conclusion the high prevalence rate of gastro-intestinal parasites infection revealed by this study indicate a neglect of simple management practices aimed at controlling gastro-intestinal parasites infections, practice such as use of antihelminthes, de-worming from time to time etc.

Based on the findings of this research study, the following recommendations are made.

1. There is an urgent need to educate and encourage livestock farmers in this area on the use of antihelminthes when necessary.

2. Farmers should be enlightened on the need to report to the appropriate authorities the break out of any disease conditions in their herds.

3. Government should embark on constant surveillance of areas with large livestock population to ascertain the health condition of the animals.

4. Veterinary clinic should be established in various places with large livestock population in order to bring animal health facilities closer to the nomads.

5. It is also recommended that the economic impact of these parasites on livestock production in Nigeria should be established. In addition, it is necessary to assess the current control strategies to improve production.

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