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Seasonal Changes in Faecal Worm Count in Cattle Slaughtered at Yola Modern Abbattoir

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Abstract: Among the 960 faecal samples examined during the same period (April 2008 to March 2009) the worm eggs encountered were those of *Trichostrongylus* sp. (6.28%), *Cooperia* sp. (13.13%), *Strongyloides* sp. (5.55%), *Oesuphagostomum* sp. (19.24%), *Bunostomum* sp. (4.79%), *Oestertagia* sp. (0.63%), *Syngamus* sp. (0.42%) and *Toxoplasma* sp. (1.04%), respectively. Mean Stronglye egg count for the study period was 540 (range between 50 and 2,400) eggs/g of faeces with peak counts being recorded in August and September on the other hand, the mean Strongyloides egg count was 340 (range between 50 and 1200) eggs/g with peak counts being recorded in May to June and September to October, respectively. Based on the results of this investigation, bovine PGE in Yola area could be effectively controlled by strategic and Anthelmintic medication during February, May, July and November.

Key words: Faecal samples, *Trichostrongylus* sp., *Cooperia* sp., investigation, medication

INTRODUCTION

Nigeria has a large population of domestic ruminants, goats 34.5 million, sheep 22 million and cattle 13.1 million, respectively. Cattle dominate the livestock industry because it supplies the bulk of meat, milk and hides in Nigeria. Cattle constitute 56.6% of the Nigerian livestock population in Tropical Livestock Unit (TLU) terms (FAO, 1986; Jahnke, 1982). Adamawa State has a cattle population of 2.8 million (Anonymous, 1994) made up of Bunaji, Rahaji, Bokoloji and Adamawa Gudali breeds which together constitutes 88% of cattle breeds in Nigeria (Ngere, 1983).

These animals constitute the major source of animal protein in the country. However, in spite of the large population of domestic ruminants, animal protein consumption is far below the national requirements. This shortfall in animal protein availability has been linked to the low productivity of Nigerian domestic livestock. Schillhorn van Veen (1973, 1974). Akerejola *et al.* (1979) Pullan and Sewell (1980), Pullan (1980) and ILCA have identified various diseases as the major limiting factors on the productivity of domestic ruminants in Nigeria.

Nematode infections are a worldwide problem for both large and small-scale farmers. Economic losses are caused by nematodes in a variety of ways. Parasitism causes a reduction in feed intake and lower weight gains. Milk production can also be affected and mortality can occur in heavily parasitized animals. De Haan and Burke estimated that in Sub-Saharan African, endoparasites cause annual mortality and production losses in the order of US $2 billion. About >80% of the cattle in Nigeria are owned by predominantly pastoralists and are frequently involved in the nomadic system of management which probably influence the epizootiology of the gastrointestinal parasites (Nwosu *et al*., 1996).

There are >800 species of gastrointestinal parasites in Nigeria (Ogunrinade, 1982; Guobadia, 1991). The prevalence of bovine helminthiasis have been studied and reported (Alonge and Fasanmi, 1979; Ogunrinade and Bamgboye, 1980; Aliyara and Ayanwale, 1999; Mshelia *et al*., 1999) with *Haemonchus* sp. *Oesuphagostomum* sp. and *Bunostomum* sp. being reported as the most important helminthes of cattle in Nigeria. However, no clear picture of the national prevalence has emerged from these reports which are

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usually restricted to specific parasites. Gastrointestinal parasites constitute the greatest threat to the health of animals and socio-economic status of the livestock owner (Mitchell, 1977; Ukoli, 1984). It is evident from the distribution and prevalence of gastrointestinal parasites that the planning of an effective control strategy requires an understanding of the ecology of the parasites and their geographic and seasonal distribution and prevalence. This study was therefore designed with the following objectives:

- To determine the prevalence and seasonal occurrence of naturally acquired gastrointestinal nematode species
- To determine the sex and age of cattle most commonly infected by gastrointestinal nematodes in Yola and Adamawa State

MATERIALS AND METHODS

The study area: The study area is greater Yola, Adamawa State located on latitude 09.14°N and longitude 12.8°E, the city has a tropical climate, marked with two distinct seasons to wet season (April to October) and dry seasons to wet season (November to March). It has an average annual rainfall of 759 mm with the wettest months of the year are January and February when relative humidity drops to 13% Yola provides a good arable land for agricultural production and animal pasture. The river Benue to the North and Lake Njuwa provide good fishing and irrigation opportunities (Anonymous, 1994).

Abattoir survey

Faecal examination: Faecal samples were collected from 960 cattle (20 week) slaughtered at the Yola modern abattoir between September 2008 and August 2009. The age, breed, sex and health status of each animal was recorded. Faecal egg count (total and deferential) was done using standard parasitological techniques (Soulsby, 1982; Hansen and Perry, 1994; Shah-Fischer and Ray, 1994).

RESULTS AND DISCUSSION

Prevalence of faecal worm count: Among the 960 faecal samples examined during the period April 2008 to March 2009 the worm eggs encountered were of those of *Trichostrongylus*, *Cooperia*, *Stronglye*, *Oesuphagostomum*, *Bunostomum*, *Oestertagia*, *Syngamus* and *Toxoplasma* sp. which occurred in 6.28, 13.13, 5.55 19.24, 4.79, 0.63, 0.42 and 1.04% of the cattle, respectively (Table 1). Mean Stronglye egg counts for the study period was 540 (range 50-2,400) eggs/g of faeces (epg) with peak counts being recorded in August and September on the other hand, the mean Strongyloides egg count was 340 (950-1200) with peak counts being recorded in May to June and September to October, respectively.

Seasonal changes in faecal worm egg counts: As shown in Table 1 the prevalence of Stronglye egg output in faeces was high throughout the study period with no definite seasonal pattern. On the other hand, Strongyloides egg output was high (1000) throughout the rainy season (May to September) with heavy reduction during the succeeding dry season of the year significantly influenced the prevalence of Strongyloides eggs output as prevalence was higher during the rainy season than in the dry season. The season changes in the mean monthly faecal egg counts of the various parasite groups are shown in Table 1 Strongyloides egg counts were low

Table 1: Prevalence of faecal worm count in cattle slaughtered at Yola between April 2008 and September 2009

Years	Months	NOGITFX	TRL	COOP	STR	DES	BUN	OST	FAS	SYN	TUX
2008	April	80	-(0.00)	5 (6.25)	17 (21.23)	-	-	-	-	-	-
	May	80	3 (3.75)	6 (7.50)	21 (26.25)	-	-	-	-	-	-
	June	80	5 (6.25)	17 (12.25)	15 (18.75)	-	-	-	-	-	-
	July	80	3 (3.75)	14 (17.50)	16 (20.00)	-	-	-	-	-	-
	August	80	2 (2.50)	18 (22.50)	7 (8.75)	-	-	-	-	-	-
	September	80	9 (11.25)	10 (12.30)	23 (28.78)	-	-	-	-	-	-
	October	80	7 (8.75)	7 (11.25)	18 (22.50)	-	-	-	-	-	-
	November	80	10 (12.50)	8 (10.00)	15 (18.75)	-	-	-	-	-	-
	December	80	10 (12.50)	6 (7.50)	9 (11.50)	-	-	-	-	-	-
2009	January	80	11 (13.75)	5 (6.25)	7 (8.75)	-	-	-	-	-	-
	February	80	9 (11.25)	4 (5.00)	8 (10.00)	-	-	-	-	-	-
	March	80	-(0.00)	-(0.00)	9 (8.75)	-	-	-	-	-	-
	April	80	-(0.00)	1 (1.25)	18 (22.50)	-	-	-	-	-	-
	May	80	2 (2.50)	9 (11.25)	23 (28.25)	-	-	-	-	-	-
	June	80	5 (6.25)	9 (11.25)	17 (21.25)	-	-	-	-	-	-
	July	80	4 (5.00)	-(0.00)	14 (17.50)	-	-	-	-	-	-
	August	80	6 (7.50)	-(0.00)	19 (23.75)	-	-	-	-	-	-
	September	80	8 (10.00)	6 (7.60)	21 (26.25)	-	-	-	-	-	-

through the dry season from October to April but rose shortly with rains in June to attain peak levels in July to September.

Thereafter, counts were sharply reduced to lower levels maintained during the rainy season (May to October) with peak counts occurring in August and September counts were however, low during the succeeding dry season.

CONCLUSION

Based on the results of this investigation, bovine PGE in Yola area could be effectively controlled by strategic Anthelmintic medication of animals during February, May, July and November. Treatment of the animals at the end of the dry season in February reduces pasture contamination at the beginning of the next rainy season and thus would control the high worm burden recorded in April. Similarly, dosing the animals in May and July ensures control of high worm counts recorded in June and August, respectively.

On the other hand, treatment of animals at the beginning of the dry season in November reduces the worm population capable of causing clinical disease at this period of optimal susceptibility. These treatments will also reduction of pasture contamination with nematode eggs and prevent a carryover of infection to the next rainy season. Effective against both adult and developing and inhibited larval stages of the common gastrointestinal nematodes during dosing will ensure adequate control of parasite species encountered during this survey. Similarly, good management practices such as improved general hygiene and supplementary feeding of animals during periods of low grazing will complement the control of PGE by this programme of anthelmintic medication. The problem of anthelmintic resistance by nematodes and increasing concern over the administered has led to a resurgence of interest in the use of phytomedicines in form of extracts containing a mixture of compounds (Athanasiadou *et al*., 2001).

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