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PREVALENCE OF GASTROINTESTINAL HELMINTH INFECTIONS IN CATTLE SLAUGHTERED IN OYO TOWN

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ABSTRACT

A survey of the prevalence of gastrointestinal helminth infections in cattle slaughtered in Oyo town was investigated. The study was carried out in two abattoirs in Oyo town, Akunlemu and Oroki abattoirs respectively. Faecal sample of twenty-five cattle each from Akunlemu and Oroki

Introduction

Livestock production in most developing economies is at a low level and is a major source of finance and food in rural settings (Roessler, Drucker, Scarpa, Markemann, Lemke and Thuy 2008). In many parts of the world, cattle production is a profitable enterprise because of the high demand for dietary animal protein (Anaeto , Tayo , Chioma, and Afolabi ,2009). In the livestock industry, ruminants comprise the largest part of farm animals in the agricultural sector of Nigeria (Lawal-Adebowale, 2012).

Production of livestock in Nigeria, which is mostly at subsistence level in rural communities (Duguma, Mirkena, Haile, Iñiguez, Okeyo and

abattoir were collected to investigate the prevalence of helminth in these animals in August, 2021 using sedimentation method . Twenty-two cattle (88%) have ova of helminthic worms in their faeces in Akunlemu, while twenty-one (84%) cattle sampled in Oroki were positive with helminthic ova. Male cattle have infection prevalence of 87%, while the female have 85%. Heamonchus had the highest prevalence of (34%), followed by Strongyloides (24%), while Fasciola gigantica had the least prevalence of (6%). Regular control measures should be practiced and farmers educated in the proper use of antihelminthiasis on their livestocks.

Keywords: *Gastrointestinal, Helminths, Prevalence, Abattoirs, Cattle, Infection, Slaughter, Sedimentation.*

Tibbo, 2010) is being hampered by a number of factors which include nutrition management and health. The health of ruminants especially is affected by parasitic diseases (Charlier, Vercruysse, Morgan, Van dijk, Williams, 2014) which leads to lowered productivity, economic losses, mortality and morbidity (Badran, Abuamsha, Aref, Alqisi, Alumor, 2012]. Adequate attention therefore, must be paid to these factors as only healthy animals can produce to optimum level (Sanda, Uwalaka, Idika and Agbaji, 2019).

Cattle, the most prominent domesticated livestock in Nigeria, represent a valuable asset in both traditional and modern agriculture; in addition, they also provide meat, milk, skin, and draught power for farming (Tewe, 1997). In Nigeria, the livestock sector contributes 5.2% of the gross domestic products (GDP) while cattle production solely contributes 50% of the total meat (Adedipe, Bakshi, Odegbaro, and Aliyu, 1996). Meat is one of the most important livestock products, although there could be losses due to various diseases including

helminth infections. The quantity of meat and revenue obtained from domestic livestock is far below the national demand due to factors such as death and ill health with associated reduced productivity and increased cost of treatment (Bolajoko, Moses, . Gambari-Bolajoko, Ifende, Emenna, and Bala, 2011).

Helminths of livestock have a worldwide distribution and even zoonotic importance among all the gastrointestinal infestation (ASA, Khamn, and Sohil, 2009). It is considered a major constraint on productivity. It is reported that the effect of these worms on cattle are varied, the adult are relatively less troubled while calves and yearling can be adversely affected and to a very high degree in the first year of grazing, causing anemia, inflammation of the abomasum, diarrhea, unthriftiness and general debility, thus lowering productivity (Sanda, 2019).

Gastrointestinal parasitic infections are world-wide problem for both small and large-scale farmers, but their impact is greater in Sub-Saharan Africa due to the availability of a wide range of agroecological factors suitable for diversified hosts and parasite species (Nawathe, Sohael, and Umo, 1985).

Gastrointestinal parasites are known to be widespread in Nigeria (Eysker and. Ogunsusi, 1980) and limit ruminant production in many areas of the country (Chiejina, 1995). The direct losses caused by these parasites are attributed to hyper-acuteness and death, premature slaughter, and rejection of some parts at meat inspection, (Martínez, Aluja-Schunemann, and Trigo-Tavera, 2003). Whilst indirect losses include the reduction in productive potential such as decreased growth rate, weight loss, diarrhea, anorexia, and sometimes anaemia (Nahed-Toral, López-Tirado, Mendoza).

Helminths or worms cause a wide range of health problems to both man and animals (Colley, LoVerde, and Savioli, 2001). Most of the

economic losses are due to sub- clinical effects and although not immediately noticed by the owners, these can be substantial. The most complicated part of developing an efficient strategic deworming program for most dairy farmers is being able to understand the natural occurrence of these parasites in dairy animals.

Economic losses caused by gastrointestinal parasitism are in a variety of ways: they cause losses through lowered work, reduced fertility, involuntary culling, a reduction in food intake and lower weight gains, lower milk production, treatment costs, and mortality in heavily parasitized animals (Lebbie et al., 1994). The most important predisposing factors of helminth infections are grazing habits, climate, nutritional deficiency, pasture management, immunological status, vector, presence of intermediate host, and the number of infective larvae and eggs in the environment (Radostits, Blood, and Gay, 1994). The effect of helminth infections is determined by a combination of factors, of which the varying susceptibility of the host species, the pathogenicity of the parasite species, the host/parasite interaction, and the infective dose are the most important (Food and Agricultural Organisation, 2000). A review of the literature, however, indicates that only a limited number of studies have been undertaken to provide information on the prevalence and various species of parasites in cattle in Oyo town. This research focused the determination of the prevalence of gastrointestinal helminth infection in cattle slaughter at Akunlemu and Oroki Abattiors in Oyo town.

MATERIALS AND METHODS

Study Area

The study was carried out in two abattoirs in Oyo town .These are Akunlemu and Oroki abattoirs. Oyo town is onLattitude7.35°N and

Longitude 3.93°E is characterized by two major season (Dry and Wet). Vegetation is a mixture of rainforest and guinea savannah.

Sample Collection

In this present **s**tudy fresh faecal sample of twenty-five cattle each from Akunlemi and Oroki abattoir was collected to investigate the prevalence of helminth in these animals in August 2014.The faecal sample were collected directly from the rectum of individual animals, using a pair of forceps.

Concentration method

After gross examination for consistency, colour and for presence of any adult worms. Faecal sample were processed and screened by direct smear method. 3g of faeces was thoroughly mixed with normal saline with the aid of a loop until entirely broken up. This was then centrifuged at 300rmp for five minutes. The supernatant fluid was then pipetted off and the sediment at the bottom of the tube was transferred to a slide and covered with cover slip. It was then observed microscopically for the presence of eggs and worms. Eggs were identified on the basis of their morphological features as described by Soulsby, (1982).

RESULTS

Table I: *Prevalence of helminths obtained from cattle slaughtered in the two abattoirs in Oyo town*

Abattior	Number Examined	Number Positive	Number Negative
Akunlemu	25	22 (88%)	03 (12%)
Oroki	25	21 (84%)	04 (16%)

Table I shows the prevalence and quantitative estimation of eggs from faecal sample of cattle slaughtered in Akunlemu and Oroki abattoir at the time of the study. Twenty-two cattle (88%) have ova of worm in their faeces in Akunlemu and twenty-one (84%) of cattle sampled in Oroki were positive with ova.

Table II*: Prevalence of helminths based on sex and breed in the two abattoirs*

Variable	Category	% Positive	% Negative
Sex	Male	26 (87%)	04 (13%)
	Female	17 (85%)	03 (15%)
Breed	White Fulani	33 (94%)	02 (06%)
	Sokoto Gudali	10 (67%)	05 (33%)

Table II shows prevalence of helminths based on sex and breed in the two abattoir that were sampled. The male had prevalence of 87% and the White Fulani had prevalence of 94% .

Table III:*Species of helminths found in cattle in the two abattoir at the time of study*

Species	Numbered of cattle Examined	Number of Positive Sample	Number of Negative
Strongyloides	50	12 (24%)	38 (76%)
Heamonchus	50	17 (34%)	33 (66%)
Ascaris	50	05 (10%)	45 (90%)
Fasciola gigantica	50	03 (06%)	47(94%)
Dicrocoelium dentriticum	50	08 (16%)	42 (84%)

Table III shows the species of helminths found in cattle in the two abattoirs at time of the study. *Heamonchus* had the highest prevalence of 17(34%), followed by *Strongyloides* 12(24%) while *Fasciola gigantica* had the least prevalence 3(06%).

DISCUSSION

Faecal examination of 50 cattle from the two abattoirs revealed 88% and 84% prevalence for Akunlemu and Oroki abattoirs respectively. The prevalence was high in the two abattoirs. The reason for this high prevalence was because of the way these animals are reared. This is in line with the work of Sanda, Uwalaka, Idika and Agbaji, (2019) who recorded prevalence of 86.4%, 82.9%, 83.9% and 92.3% for female, male, adult and calves respectively, while this does not corroborate the work of Olubukola, Emmanuel, Victor , Oyeduntan and Simeon (2014) that recorded 41.6% in previous work on cattle in Ibadan. The differences observed could be due to the periods or seasons in which the studies were conducted as well as the sources of cattle sampled in the various regions.

This study reveals that the male have higher prevalence (87%) of helminths than the female (85%). This was so because male animals were more aggressive when feeding and thus likely to pick up more ova of helminths on the pasture.as suggested by Raza, Ayaz, Murtaza et al, (2013). which indicated that the male cattle were more likely to be infected with helminths than the female. Furthermore, male domestic ungulates are said to be more susceptible to infections with gastrointestinal tract parasites than females due to hormones debilitating immune functions, which favour the growth and spread of parasites in male guts (Hillgarth and Wingfield, 1997). The breed prevalences of 94% and 10% were obtained for white Fulani and Sokoto Gudali this negate the findings of Olubukola *et al*,(2014) who reported

46.00%, and 39.13% obtained for Bunaji (white fulani), and Sokoto Gudali breeds of cattle, respectively, and in agreement with 62% Elele, Owhoeli, and Gboeloh, (2013) who reported 62% (Bunaji) and 62.2% (Sokoto Gudali) . The difference in the prevalence obtained could be attributed to the existence of favorable environmental factors necessary for the prolonged survival and development of infective larval stage of most helminths . (Rossanigo and Gruner, 1995) Furthermore, management system of animals could also be accountable for the difference in prevalence (Regassa, Sori, Dhuguma, and Kiros,2006).

The helminths isolated consisted of six species that are parasitic (*Strongyloides, Ascaris, Fasciola gigantica, Heamonchus, Dicrocoelium dentriticum*). *Haemonchus* species have the highest prevalence in all the positive samples. This is similar to the findings of Ovutor, (2014) and Fakae (1990) who reported hight prevalence of *Haemonchus* in their different studies on ruminant animals in Nigeria. It has been suggested that Haemonchus species can acquire resistance faster than any other gastrointestinal nematodes, like Trichostrongylus, because of its high biotic potential(Fakae and Chiejina, 1993). In addition, more mixed infections were prevalent in comparison to single infections in this study. Mixed infection was characterized by the presence of two or more helminths. The phenomenon of mixed infection has been suggested to be an important cause of morbidity and reduced production in livestock (Kumsa, Tadesse, Sari, Duguma, and Hussen,2011).

Conclusion

Five gastro intestinal helminths were found in this study and the prevalence was high. This has negative implication on both animal production and public health. Regular control measures should be

practiced and farmers educated in the proper use of antihelminthiasis for their livestock.

Recommendation

1. The abattoir workers should be properly trained on meat handling and zoonotic infections.
2. Animals should be restricted to special areas of land provided by the government for grazing.
3. The public should be enlightened on proper cooking of animal parts especially the intestine.

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