

## Research Paper

# Prevalence of *Haemonchus contortus* in sheep slaughtered at the Sokoto metropolitan abattoir

\*<sup>1</sup>Mohammed, A. A., <sup>2</sup>Bolajoko, M. B., and <sup>2</sup>Gambari-Bolajoko, K. O.

<sup>1</sup>Department of Parasitology and Entomology, Usmanu Danfodiyo University, Sokoto, Nigeria.

<sup>2</sup>Diagnostic Division, National Veterinary Research Institute, Vom, Nigeria.

Corresponding Author E-mail: [aminu280@yahoo.co.uk](mailto:aminu280@yahoo.co.uk).

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A total of two hundred abomasums were randomly obtained from the Sokoto metropolitan abattoir, during the rainy and dry seasons to determine the prevalence of *Haemonchus contortus* in sheep. The abomasums were opened and thoroughly examined for *Haemonchus contortus*, which were recovered, counted and recorded. The breed, sex, age of sheep slaughtered were determined and recorded. The breeds were mainly Yankassa, Balami and Oudah. Results on analysis showed that there is high prevalence of *Haemonchus contortus* during the rainy season, but very low in the dry season. It was established that only the

climatic and weather conditions play major influence on the prevalence. In recognition of the deleterious effects of Haemonchosis on sheep production; recommendation was made on need to educate the farmers on the importance of adopting economically viable local husbandry method together with adequate and timely routine deworming.

**Keywords:** Prevalence, *haemonchus contortus*, Balami, Oudah, Yankassa, Sokoto abattoir

## INTRODUCTION

*Haemonchus* spp are blood sucking nematodes of the sheep, goats and cattle. Their predilection site for both larvae and adult is the abomasum. Grossly, the adults are easily identified. This is because of their specific location in the abomasum and also because they are the largest nematodes found in the abomasum of sheep (10-30 mm) (Waller, 1993). They are reddish when fresh because they are blood suckers. They achieve this by using a tiny lancet in their small buccal capsule. The female has striking appearance, looking like a barber's pole because the white ovaries wound around the red blood filled intestine (Corwin, 1997). It was also found out that, *Haemonchus contortus* could be 1-2 DCM long and are relatively thick (Griffin, 1984). The disease produced is called Haemonchosis (Blood et al., 1983). Similar to other livestock, the sheep are also infested by various parasites. From a wide variety of parasites that infest sheep, the gastrointestinal helminth of the genus *Haemonchus* is of great importance. This is because *Haemonchus* spp causes great economic loss in sheep

production as a result of death losses and poor growth, particularly in temperate and tropical countries (Smyth, 1996). In sheep, losses occur mostly in lambs, especially those recently weaned. Poor growth in lambs results when their ewes' milk production is restricted by heavy infestation (Griffin, 1984). Haemonchosis is characterized by haemorrhagic anaemia and poor growth (emaciation) as a result of the interference and subsequent reduction of absorption by the abomasum. Inappetance could also be seen (Urquhart et al., 1987). A chronic wasting disease can also be seen (Smyth, 1996). The sheep belong to the genus *Ovis*. They are widely distributed throughout the world and are particularly concentrated in the temperate latitudes of the Northern and Southern hemispheres. Archeological evidences have shown that sheep were one of the first animal species domesticated by mankind, probably 11, 000 to 12, 000 years ago. There are now over 2, 000 breeds throughout the world. Here in Sokoto, Oudah, Yankassa and Balami are the commonest breeds. Objective of this study was to inves-

tigate the prevalence of *Haemonchosis* in sheep slaughtered in the Sokoto State central abattoir.

## MATERIALS AND METHODS

Sokoto State in its present form possess a land of 2, 664, 848 square kilometer. It is located between longitude 11°30", 13°50" east and latitude 4° to 60" north. In terms of vegetation, the state falls within the savannah zone. This is an area of grassland suitable for cultivation of grain crops and animal husbandry. Rainfall starts late and ends early with mean annual falls ranging between 500 to 1,300 mm. There are two major seasons in the state, namely wet and dry. The former starts from October and lasts up to April in some parts and may extend to May or June in other parts, where as the latter begins in most part of the state in May and lasts up to October.

Open-ended interview was employed in sourcing information deemed necessary. An average of 10-18 sheep is slaughtered in the abattoir daily. 200 abomasums were randomly obtained from the Sokoto abattoir, with 100 each during the dry and rainy season. Depending on the number and breeds of sheep presented for slaughtering, abomasums were collected from a total of 60 Oudah, 75 Balami and 65 Yankassa breeds for this study. Samples were collected during the dry and wet seasons; the period of collection in the dry season spanned from February to mid-April, while that of the rainy season was from mid-July to mid-August in which there was peak rainfall. The age, sex and breed of sheep slaughtered were determined and recorded. The abomasums were tied at the cut ends to prevent outflow of ingesta and any abomasal worm. The obtained samples were then taken to the laboratory Department of Parasitology and Entomology, Usmanu Danfodiyo University, Sokoto for analysis.

In the laboratory, the obtained abomasal samples were cut open, using a scissors, with the abomasal content emptied into sieve. The sieve has an aperture of about 0.075 mm. The abomasums were rinsed properly with water to clean up the abomasal mucosa for detection of any embedded abomasal worm. The recovered worms were identified grossly and counted. Gross observation and identification of the *Haemonchus contortus* were confirmed with the aid of a microscope (Hindson and Winter, 1990). The presence and quantity of *Haemonchus* worm in the ingesta were determined and recorded.

## RESULTS AND DISCUSSION

It was observed that sheep slaughtered in the Sokoto State abattoir were from within the state and surrounding villages in neighboring states. The major management practice adopted by the sheep owners in Sokoto and

environs is the extensive system. Only very few practice the semi-intensive system.

Out of the 100 abomasal samples collected in the dry season, only the first four (4) collected contained *Haemonchus contortus*. They were of the Oudah breed and 2, 2.5, 3 and 2 years old respectively. For the rainy season, *Haemonchus contortus* was not found in 12 of the 100 abomasums (Tables 1-4).

It was observed that only the Yankassa, Balami and Oudah breed were slaughtered in the Sokoto abattoir for human consumption. With this study, it can be deduced that prevalence is highest in the Oudah breed, considering the ratio of *Haemonchus contortus* recovered to the number of abomasums obtained from the Oudah breed for this study. It is also evident that the climatic and weather conditions prevailing in Sokoto and environs play a major influence on the timing and prevalence of *Haemonchosis*.

The results show that the climatic conditions in dry season in Sokoto State (North-Western part of Nigeria) do not favor development of *Haemonchus contortus*. However, the rainy season is very conducive for *Haemonchosis*. This is so, because of the presence of good rainfall and wet flourishing vegetation to provide conducive environment for the expelled eggs to develop to larva form for effective pasture contamination and during the rainy season, it is the practice to confine sheep (small ruminants) almost permanently in shade to avoid damage to farm crops.

At such periods, there is accumulation of faeces, urine and other waste, which often leads to heavy contamination of the environment and pasture with *Haemonchus contortus*. This is further aggravated by higher stocking rates with consequent pasture contamination and lambing in such situation which exposes to the lambs infection. Table 2 shows that the sex of sheep has very little influence on the prevalence of *Haemonchosis* in Sokoto State and its environs. There is no any confirmed work so far on effects of sex distribution on *Haemonchosis*.

However, Colin, (1998) suggested that there is high tendency that pregnant ewe develops low resistance to *Haemonchosis* particularly if untreated. Table 3 shows that the prevalence of *Haemonchosis* is more in adults. This is in accordance with the work by Urquhart et al. (1987). However, this is not in support of the study by Sykes and Coop, (1992), which revealed that prevalence is higher in the young than the adult sheep because of the unprimed state of their immunity, couple with the grazing methods that is adopted.

Conclusively, this work has been able to establish the pattern of prevalence of *Haemonchus contortus* in sheep reared in Sokoto and its environs. With the prevalence influenced primarily by both climatic and weather conditions and mildly by other factors such as breed, age and sex. However, further studies to determine the meat quality due to *Haemonchus contortus* in sheep slaughtered

**Table 1.** Distribution of the number of *Haemonchus contortus* found in abomasums sampled during rainy season.

No. of <i>Haemonchus contortus</i> Found	Frequency	Percentage (%)
0-100	60	68.18
100-200	16	18.18
200-300	12	13.64
Total	88	100.00

Number of *Haemonchus contortus* found in three classes, that is, 0-100, 100-200, 200-300 in relation to their frequency in the sheep slaughtered.

**Table 2.** Distribution of sex with the frequency of those sheep whose abomasums contained *Haemonchus contortus* during rainy season.

Sex	Frequency			Percentage		
	0-100	100-200	200-300	0-100	100-200	200-300
Female	28	8	8	46.67	50	66.67
Male	32	8	4	53.33	50	33.33
Total	60	16	12	100.00	100	100.00

Relationship between the sex distribution and frequency of those sheep whose abomasums contained *Haemonchus contortus*.

**Table 3.** Distribution of age with the frequency of those sheep whose abomasums contained *Haemonchus*.

Age (years)	Frequency			Percentage		
	0-100	100-200	200-300	0-100	100-200	200-300
1-3	16	0	0	26.67	0	0
3-6	44	16	12	73.33	100	100
Total	60	16	12	100.00	100	100

The above table describes the relationship between age and the frequency of the number of *Haemonchus*.

**Table 4.** Distribution of breed with the frequency of *Haemonchus* found.

Breed	Frequency			Percentage		
	0-100	100-200	200-300	0-100	100-200	200-300
Yankassa	24	4	4	40	25	33.33
Balami	12	8	0	20	50	0
Oudah	24	4	8	40	25	66.67
Total	60	16	12	100	100	100.00

The relationship between the breed and frequency of *Haemonchus* found.

in the Sokoto abattoir is important. There is need to educate the sheep farmers on the importance of effective practice of intensive and semi-intensive management together with routine deworming to curtail the rate and severity of *Haemonchosis* particularly during the rainy season.

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