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## Prevalence and Burden of Fascioliasis in Sheep: A Neglected Tropical Parasitic Disease in Maiduguri, Borno State, Nigeria

**Ali Abba Gana Benisheikh, Aisha Adamu Dzivama, Fatima Maina Muhammad, Fatima Lawan Bukar, Hajjara Ibrahim Mustapha and Alhaji Umar Awana**

### Abstract

The study aims to record the prevalence and burden of some zoonotic parasites that served as etiologic agents to some Neglected Tropical parasitic Diseases (NTs) (Fascioliasis) in Maiduguri, Borno State during the period from January, 2017 to April, 2019. A total of 100 Sheep were slaughtered in the Abattoir, and were examined for the presence of Fasciola species based on morphological and morphometric parameters. The physical inspection of the liver indicated that 46(46%) of the sheep were infected with fluke burden of 456. Among the 63 males examined 29(46.0%) had fluke burden of 305. whereas, 37 of the females examined 14(37.8%) had fluke burden of 100. Likewise, 88 Adult sheep infected 42.0% had 391 fluke burden, while 12 Young sheep were infected 50.0% had 65 fluke burden. Whereas among the breeds, 27 Uda were examined with 40.7% infected had a fluke burden of 186, while 33 Balami breeds examined with 66.7% infected had a fluke burden of 204 and 40 Yankasa examined with 25.0% infected had a fluke burden of 66 respectively. The identification of the Fasciola species was based on their morphometric sizes and predilection site revealed that *Fasciola hepatica* was identified as having a mean size of 2.0x3.0 mm with the liver as the predilection site. While *Fasciola gigantica* has 3.5x 4.0 mm after well pressed between two slides prior to measurement.

**Keywords:** Morphometric, prevalence, Abattoir, tropical diseases, Neglected, Assessment

### Introduction

Fascioliasis is a zoonotic parasitic disease that occurred in all domesticated ruminant worldwide (Reagh, et al, 2016) [1]. The aetiologic agents are *Fasciola hepatica* and *Fasciola gigantica* which are widely distributed globally particularly in Nigeria (Rokni. Et al, 2014). Fascioliasis, caused by the trematodes of the genus *Fasciola*, is a zoonotic parasitic disease belonging to the group of neglected tropical diseases (NTDs) and one of the 17 NTDs as reported by WHO, 2014. According to Mas-Coma, et al, 2015 [6] Fascioliasis infection in ruminants including small and large are the major causes of economic losses worldwide. Despite the significant similarities between *Fasciola* species, the specific Species of helminths were identified based on their morphology and morphometry characters, using a microscope, equipped with camera for measuring various location of the internal organs (El-Rahimy, et al, 2012, Mas-Coma, et al, 2009) [3, 7].

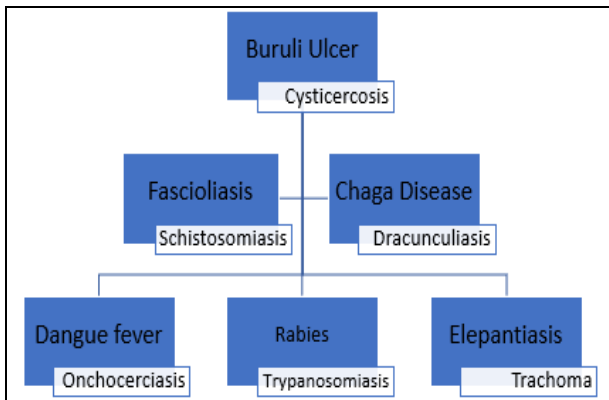
### Results and Discussion

The study aims to record the prevalence and burden of some zoonotic parasites that served as etiologic agents to some Neglected tropical diseases (NTDs) as shown in figure 1. &2 (WHO 2019) particularly Fascioliasis in Maiduguri, Borno state during the period from January, 2017 to April, 2019. A total of 100 Sheep were slaughtered in the Abattoir, and were examined for the presence of fasciola species based on morphological and morphometric parameters. A physical inspection of the liver indicated that 46 (46%) of the sheep were infected with fluke burden of 456. The result of this study is higher than the findings of Ademola (2003) [8] and Mbaya et al, (2010) [9] who reported higher prevalence during raining season and this could be

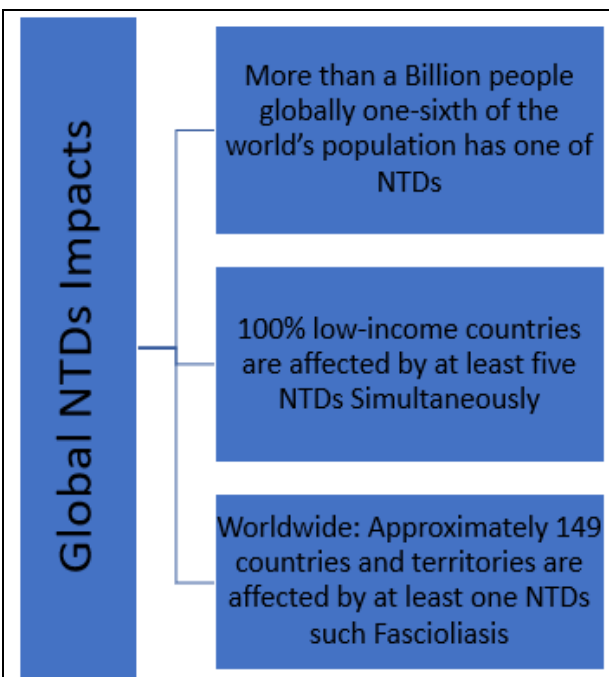
attributed to high influx sheep from the neighboring countries during festive periods. Among the 63 males examined 29 (46.0%) had fluke burden of 356. whereas, 37 of the females examined 14 (37.8%) had fluke 100. whereas among the breeds, 27 Uda were examined with 11(40.7%) infected had a fluke burden of 186, while 33 Balami breeds examined with 22(66.7%) infected had a fluke burden of 204 and 40 Yankasa examined with 10(25.0%) infected had a fluke burden 66 respectively. The identification of the Fasciola species was based on their morphometric sizes and predilection site revealed that Fasciola hepatica was identified as having a mean size of 2.0 X 3.0 mm with the liver as predilection site. While Fasciola Gigantica has 3.5 X 4.0 mm after well pressed between two slides prior to measurement.

**Recommendation**

Fascioliasis is a zoonotic disease and neglected tropical diseases that required urgent public health attention. Thus, control measure should be intensified by destruction of intermediate host (snail) and periodical administration anthelmintic to ruminants.



**Fig 1:** Some selected neglected tropical diseases (NTDs) categorized by world health organization (WHO 2017)



**Fig 2:** Epidemiological and risk factors (WHO 2017)

**Results and Discussion**

**Table 1:** prevalence of fascioliasis infection in sheep based on sex and breeds

Sex	Uda	Balami	Yankasa	SEM	SD
Male	19	20	24	1.5275	2.6458
Female	11	16	10	1.8559	3.2146
SEM: Standard error of mean SD: Standard Deviation					

**Table 2:** Infestation rate (%) in sheep across different age groups

Breeds of sheep					
Age Group	Uda	Balami	Yankasa	SEM	SD
Adult	10	25	28	5.5678	9.6437
Young	20	11	6	4.096	7.0946

**Table 3:** Infected rate (%) in sheep based on sex and breeds

Sex	No. of Animal examined	No. (%) infected	Fluke Burden
Male	63	29(46.0%)	356
Female	37	14 (37.8%)	100
Breeds of sheep			
Uda	27	11 (40.7%)	186
Balami	33	22 (66.7%)	204
Yankasa	40	10 (25%)	66

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