

The Prevalence of Fasciola Hepatica in Sheep and Goats (A Case Study of Damaturu Modern Abattoir Yobe State)

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ABSTRACT

An investigation was carried out between month of August, September and October 2025 to investigate the prevalence of fasciola hepatica among sheep and goats slaughtered at Damaturu abattoir. 120 Samples of sheep and goat feces and fresh liver which comprises of 60 samples from goats and 60 samples from sheep were examine for fasciola hepatica eggs and adult respectively, the result revealed that sheep and goat had 37 (31%) which indicate that sheep had 19(16%) and goats had 18(15%) respectively. The sheep breed showed the highest rate of infection by fasciola hepatica than the goats. The health implication of consumption of meat contaminated by fasciola hepatica was discussed. The result concluded that liver fluke infestation in sheep and goat had a negative effect on both the state and national economy. The finding also recommended that infected liver and condemned carcass should be properly discarded either by burning or burying, the result of the study also recommended that infected and uninfected animal should be dewormed regularly at a specific interval to prevent fasciola hepatica infestation.

Keywords; *Fasciola hepatica, Prevalence, Feces, Fresh liver, Infection*

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1. INTRODUCTION

Fasciola hepatica commonly known as the liver fluke, is a parasitic trematode that infects the hepatobiliary systems of ruminant and humans worldwide (UN, 2023). This zoonotic parasite causes fasciola, a disease recognized by WHO (World Health Organization) as a neglected tropical disease, with significant economic and public health impacts (WHO, 2023). The parasites complex life cycle involves lymnea snail intermediate host, which thrive in the seasonal wetlands and irrigation systems characteristics of Nigeria's small ruminants production contributes 30% of livestock and support over 50 million livelihood (FAO, 2022). The global economic impact of fasciola is substantial, with losses estimated at over £23 million annually in the United Kingdom alone. In Ethiopia, studies have documented annual losses of \$245 USD from goat liver in abattoir (Olie, 2023). These losses stem from reduced productivity through weight loss, decreased milk yield, impaired reproductive performance and mentality in healthy infected animals. Additionally, the contamination of infected direct livers at slaughter represent direct economic losses to livestock producers and meet

processors. Beyond economic implications, fasciola present public health challenges with human infections occurring through consumption of metacercaria contaminated water aquatic vegetation (Oluwafemi, 2020). In Nigeria, particularly in the north east region encompassing Yobe state, livestock production constitutes a crucial component of agricultural output and livelihood sustenance. The semi-arid climate of Yobe state, characterized by seasonal rainfall patterns and extensive floodplains, create ideal habitats for lymnea snail species that serve as intermediate host for *fasciola hepatica*. The aim of this research is to determine or investigate the prevalence of (*Fasciola hepatica*) in goat and sheep commonly slaughtered in Damaturu abattoir, Yobe state.

Objectives

- i. To determine prevalence rate in goat and sheep commonly slaughtered in Damaturu abattoir.
- ii. To assess the level of damage caused by *Fasciola hepatica* in goat and sheep
- iii. To find the rate of infection among goat and sheep.

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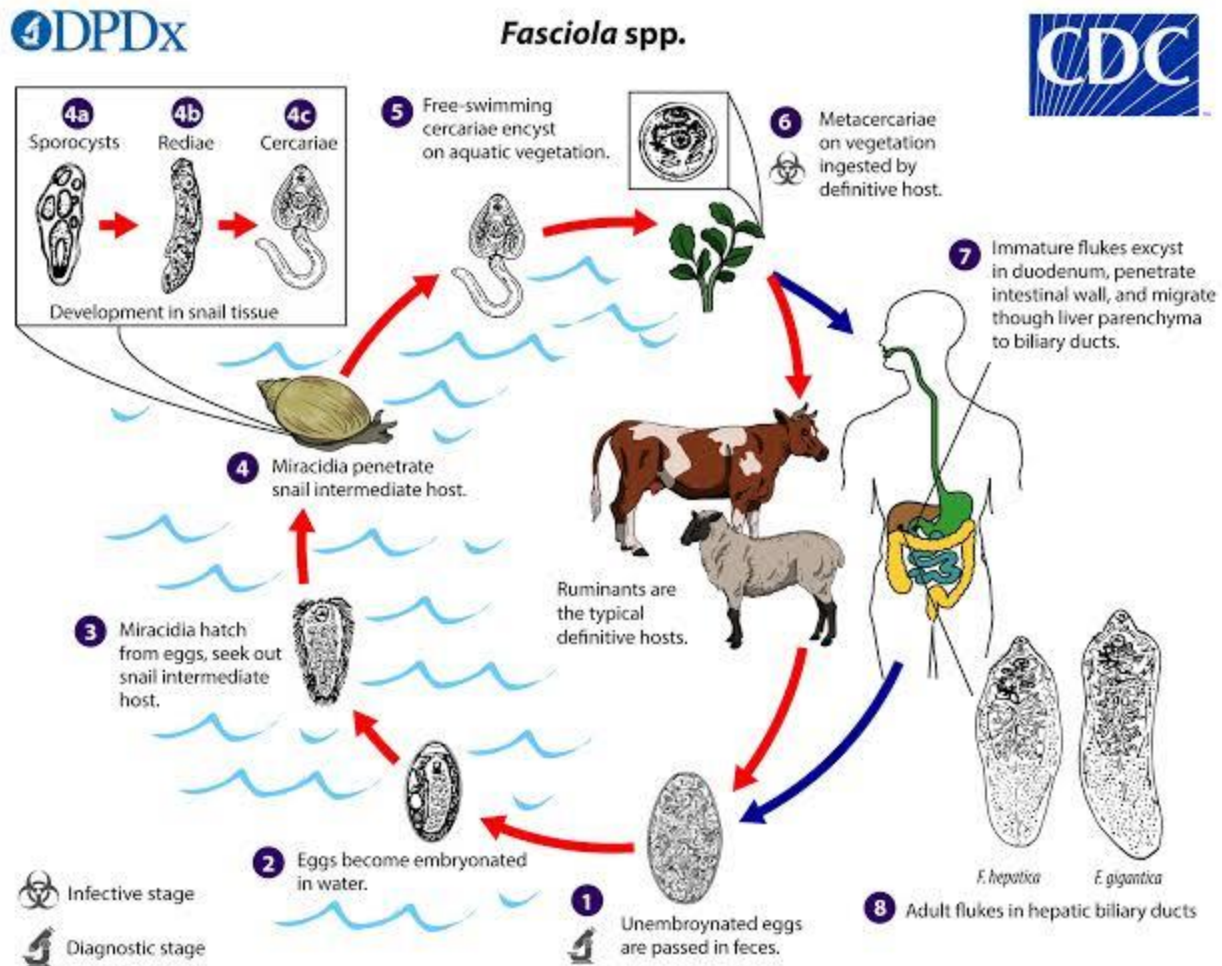


Fig. 1: Life cycle of *Fasciola hepatica*

Scientific Classification of *Fasciola hepatica*

Kingdom: Animalia
 Phylum: Platyhelminthes
 Class: Trematoda
 Order: Plagiorchiida
 Family: Fasciola,
 Genus: *Fasciola*

(CDC - Center for Disease Control, 2019)

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2. MATERIALS AND METHODS

The following materials were used

Apparatus

- i. Disposable gloves
- ii. Sterile sample container
- iii. Cover slip
- iv. Application sticks
- v. Face mask
- vi. Specimen bottles
- vii. Permanent marker
- viii. Distilled Water
- ix. Dissecting kit
- x. Refrigerator
- xi. Glass Slide
- xii. Light microscope
- xiii. Soap/ Detergent

Reagents

- i. Distilled water
- ii. Potassium hydroxide
- iii. Formalin

Biological Specimens

- i. Fresh liver samples
- ii. Fresh fecal samples

STUDY AREA

The study area is Damaturu Modern Abattoir located along Potiskum Road Damaturu, Yobe state.

Samples collection

A total of 120 samples were collected from Damaturu Modern Abattoir, the samples

comprise of 60 fresh liver samples and 60 fresh fecal samples were collected from goats and sheep commonly slaughtered in Damaturu Modern Abattoir using hand gloves

Laboratory examination

- i. Fresh liver examination
- ii. Microscopic liver examination
- iii. Fecal examination
- iv. Place liver samples in a sterilized container with normal saline to dehydrate water contents
- v. Cut and open the liver with a sharp knife to expose the flukes
- vi. Examine infected organs were observed using a hand lens for flukes identification and light microscope using x 10 x 40 and x 100 objective lens.

Microscopic Feces Examination (Direct Saline Method)

Place 2-3 drops of normal saline on a clear grease - free slide

Apply feces sample and stir thoroughly using an applicator stick

Examine under microscope using x 10 and x 100 objective for fasciola hepatica eggs

Saline Preparation

Weight 0.85g of sodium chloride (NaCl) using a weighing balance

Dissolve in 100ml clean water.

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3. RESULTS

Table 1: Incidence Fasciola Hepatica among Sheep in the Month of August, 2025.

Sampling Date	Number Observed	Numbers infected	Number uninfected	Condemned level		Percentage Infection
				Partially	Totally	
01/08/2025	05	02	03	0	0	10%
08/08/2025	05	01	04	0	0	5%
15/08/2025	05	02	03	01	0	10%
22/08/2025	05	03	02	0	0	15%
Total	20	08	12	01	0	40%

Table 2: Incidence of Fasciola Hepatica among Sheep in the Month of September, 2025

Sampling Date	Number Observed	Number infected	Number uninfected	Condemned level		Percentage Infection
				Partially	Totally	
05/09/2025	05	01	04	0	0	5%
12/09/2025	05	02	03	0	01	10%
19/09/2025	05	02	03	0	0	10%
26/09/2025	05	01	04	0	0	5%
Total	20	06	14	0	01	30%

Table 3: Incidence of Fasciola Hepatica among Sheep in the Month of October, 2025

Sampling Date	Numbers Observed	Numbers infected	Numbers uninfected	Condemned level		Percentage Infection
				Partially	Totally	
03/10/2025	05	01	04	0	0	5%
10/10/2025	05	02	03	0	01	10%
17/10/2025	05	00	05	01	0	0.0%
24/10/2025	05	02	03	0	0	10%
Total	20	05	15	01	00	25%

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Table 4: Incidence of Fasciola Hepatica among Goats in the Month of August, 2025

Sampling Date	Number Observed	Number infected	Number uninfected	Condemned level		Percentage Infection
				Partially	Totally	
01/08/2025	05	01	04	0	0	5%
08/08/2025	05	00	05	0	0	0.0%
15/08/2025	05	01	04	0	0	5%
22/08/2025	05	02	03	0	0	10%
Total	20	04	16	0	0	20%

Table 5: Incidence of Fasciola Hepatica among Goats in the Month of September, 2025

Sampling Date	Number Observed	Number infected	Number uninfected	Condemned level		Percentage Infection
				Partially	Totally	
05/09/2025	05	02	03	0	0	10%
12/09/2025	05	0	05	01	0	0.0%
19/09/2025	05	02	03	0	0	10%
26/09/2025	05	01	04	0	0	5%
Total	20	05	15	01	0	25%

Table 6: Incidence of Fasciola Hepatica among Goats in the Month of October, 2025

Sampling Date	Number Observed	Number infected	Number uninfected	Condemned level		Percentage Infection
				Partially	Totally	
05/10/2025	05	04	01	0	0	20%
10/10/2025	05	00	05	0	0	0.0%
17/10/2025	05	02	03	0	0	10%
24/10/2025	05	03	02	0	0	15%
Total	20	09	11	0	0	45%

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4. DISCUSSION

The result of the study revealed that between August, September, and October 2025, a total number of 120 animals which comprise of 60 sheep and 60 goats were sampled at Damaturu abattoir. (Table 1), which shows the incidence of fasciola hepatica among sheep, it indicated that 8 (40%) were infected with fasciola hepatica and 2 of them having their liver partially condemned. Also, in Table 2, which indicates the incidence of fasciola hepatica among sheep in the month of September 2025, shows that out of the 20 samples examined, only 6 were infected (30%). In table 3 shows the incidence of fasciola hepatica among sheep in the month of October 2025 and revealed that only 5 were infected (25%), with 2 of the livers partially condemned. Table 4 which shows the incidence of fasciola hepatica among goats in the month of August 2025 which indicate that 4 (20%) out of the samples examined were infected. Also, Table 5, which shows the incidence of fasciola hepatica among goats in the month of September 2025, shows that 5 (25%) were infected, with one of the livers partially condemned. Table 6 also shows the incidence of fasciola hepatica among goats in the month of October 2025 and revealed only 9 (45%) out of 20 samples examined. The finding is similar to the report of Pottinger *et al.* (2017), in which they reported a higher percentage incidence of fasciola hepatica in sheep than in goats. Furthermore, if condemned livers are valued at the current market price, the implication of the loss to the economy could be enormous.

5. CONCLUSION

In conclusion, the study revealed that liver fluke infestation in sheep and goats had a negative effects on both the state and national economy because of the condemnation of the liver and

carcass. It is therefore advised that a policy on grazing reserve should be beyond the currently existing. If such is done, the rate of animal consumption of infected grasses on fadama will be drastically reduce thereby reducing the incidence of disease.

6. RECOMMENDATIONS

Based on the results obtained, the following recommendations were made

1. The infection of parasites can be prevented and controlled. The snail which is the intermediate host of parasite can be controlled or eliminate using molluscide.
2. Through legislation, by fencing the habitat or water bodies harboring water snails.
3. Infected liver and condemned carcass should be properly discarded either by burning or burying.
4. Thorough meet inspection by qualified veterinary doctors to destroy infected liver unfit for human consumption.
5. Infected and uninfected animals should be dewormed regularly at a specific interval to prevent fasciola hepatica infestation.
6. There should be a regular inspection of grazing areas of these animals to ensure that the intermediate hosts are not breed.

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