

Assessment of *Fasciola Gigantica* Infestation in Sheep Slaughtered in Minna Modern Abattoir

By

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Abstract

A three (3) months study was conducted on prevalence rate of *Fasciola gigantica* infestation in sheep at Minna Modern Abattoir between June to August, 2014. Data used for this study were based on daily records of sheep slaughtered in Minna Modern Abattoir which were selected at random. Intact gall bladders and livers were removed from slaughtered sheep and were carried to Bosso Veterinary Clinic for worm recovery. The prevalence rates of infestation for the three months study were 2.5, 22.5 and 15% for June, July and August, respectively. Similarly, the prevalence rates observed for male and female animals were 17.5 and 22.5% respectively. For the gall bladder and liver samples examined, the prevalence rates of *Fasciola gigantica* infestations observed were; 1.9, 9.4, 17, 5.7, 13.2 and 52.8% for gall bladders and liver samples, respectively. It is therefore, recommended that adequate preventive measures be taken to avoid grazing the animals around ponds and rivers that serves as habitat for the snail intermediate hosts.

Keywords: Prevalence rate, *Fasciola gigantica* and Infestation.

Introduction

Fasciolosis is an important helminth disease caused by two trematode; *Fasciola hepatica* and *Fasciola hepatica*. In Europe, the Americas and Oceania's only *Fasciola hepatica* is a concern, but the distribution of both species overlap in Africa and Asia (Mas-coma,; Argues & Valero, 2005). The life cycle includes fresh water snails as an intermediate host of the parasite (Togerson and Claxton, 1999). Economic losses resulting from mortality and morbidity (reduced meat, milk and wool production and reproductive inefficiency) impose serious limitations on small ruminant production (Adama,; Alemede & Amoran, 2013). Worldwide losses in animal productivity as a result of fasciolosis are estimated at over US 3.2 billion per annum (Spithill,; Smoker & Copeman, 1999). In addition, fasciolosis is now recognized as an emerging human disease, the World Health Organization (WHO) has estimated that 2.4 million people are infected with fasciola, and a further 180 million are at risk of infection (Mas-Coma *et al.*, 2005).

The direct impact of Fasciolosis are liver lesions, reduction in feed utilization efficiency, deprivation of the animal of digested nutrients, reduced feed intake through loss of appetite and discomfort feeding and reduced feeding time. The economic implications are however, best at the output and input levels; the effects include reduced growth rates and reduced reproductive interval (Ngategize,; Bekele & Tilahun, 1993). Therefore, this study is aimed at assessing the prevalence of *Fasciola gigantica* infestation in sheep slaughtered in Minna based on its zoonotic implications as animals that were examined are those slaughtered for human consumption.

Materials and Methods

Study area

The study was conducted in Minna Modern Abattoir. Minna abattoir is located in Chachanga local Government Area of Niger State in the Southern Guinea savanna zone. Minna has a land mass of 283 km and lies at latitude 9° 37' North and longitude 6° 33' on a geographical base, the town has a mean annual precipitation of 1300mm taken from an exceptionally long record of 50 years. The raining season starts in April and last between 190 – 200 days. The temperature rarely falls below 22°C. The peaks are 40°C (February – March) and 35°C (November – December) (Students Handbook, 2009).

Data Collection

The data used for this research work was based on daily slaughter samples obtained from Minna abattoir

for a three month period. The visitation to the abattoir for the collection of liver and gall bladder samples was done every week in which ten (10) samples were collected per week; this translates to 120 samples for the three (3) months study.

Animal selection and sampling

Animals were selected at random. After slaughter, intact gall bladder and livers were removed from slaughtered animals and put into properly labeled polythene bags for onward analysis at Bosso Veterinary Centre, Minna, for recovery of worms as described by Ulayi, Umar-Sule & Adamu, 2005).

Worm Recovery, Identification and Counting

Each gall bladder and liver samples were cut opened and washed with distilled water. Infected samples were cut opened and the worms were skillfully milked into a petri dish, forceps was used in counting the worms according to the procedure described by (Ulayi *et al.* 2005).

Statistical Analysis

The data collected were subjected to statistical analysis using descriptive percentages for the determination of prevalence rates in male and female sheep as well as prevalence rates of infestation in liver and gall bladders of slaughtered sheep. Graphs were plotted using "Microsoft Excel".

Results and Discussion

The prevalence rates of 2.5, 22.5 and 15% obtained for the months of June, July and August, respectively (Figure 1.) during the study period shows that *Fasciola gigantica* infestation is prevalent in the study area. This result conforms to the findings of (Okewole, Ogundipe, Adejinmi & Olaniyan, 2000; Raji, Salami, & Ameh, 2010) in which prevalence rates of 23.4 and 22% were obtained in Zango Zaria and Ibadan respectively. Highest prevalent rate of 22.5% obtained in July agrees with an earlier report (Raji *et al.*, 2010) that the rainy season is an important period for the development of the parasite as well as its intermediate hosts. Similarly Chen and Mott (1990) advanced reasons for optimal development of the parasites during the rainy season to favourable environmental conditions. The prevalence rates of 17.5 and 22.5% observed in male and female animals (Figure 2.) during the study period contrasts with the findings of (Ulayi *et al.* 2005), who obtained prevalence rates for male and female animals in Zaria to be 17 and 40% respectively.

The prevalence rates of *Fasciola gigantica* infestation in gall bladder and liver of animals examined in the study showed prevalence rates of 1.9, 9.4 17%; 5.7, 13.2 and 52. 8% for gall bladder and liver samples, respectively (Figure 3.0). The highest prevalence rates obtained from liver samples is an indication that *Fasciola gigantica* parasites resides at an early periods of infection (13-14 weeks) in the liver before they migrate to the gall bladder (Adama, Ajanusi, Chiezey & Lawal, 2010). Similarly, the liver tissues are most suitable for their development and survival in animals. In conclusion, *Fasciola gigantica* infestation is highly prevalent in sheep in Niger State, from the highest prevalence rate of 22.5% obtained in this study. The outcome of this study shows that fasciolosis could be of zoonotic importance due to increasing human population that consumes slaughtered animals around the study area. It is therefore, recommended that farmers be sensitized on the need for strategic deworming programmes so as to improve on production. Similarly, public enlightenment should be step up on the zoonotic importance of fasciolosis by way of adequate cooking of vegetables before consumption in order to avoid ingestion of infective metacarcariae. Future studies be conducted on the habitat of the intermediate hosts within the community so as to map out effective control programmes in breaking the parasitic cycle.

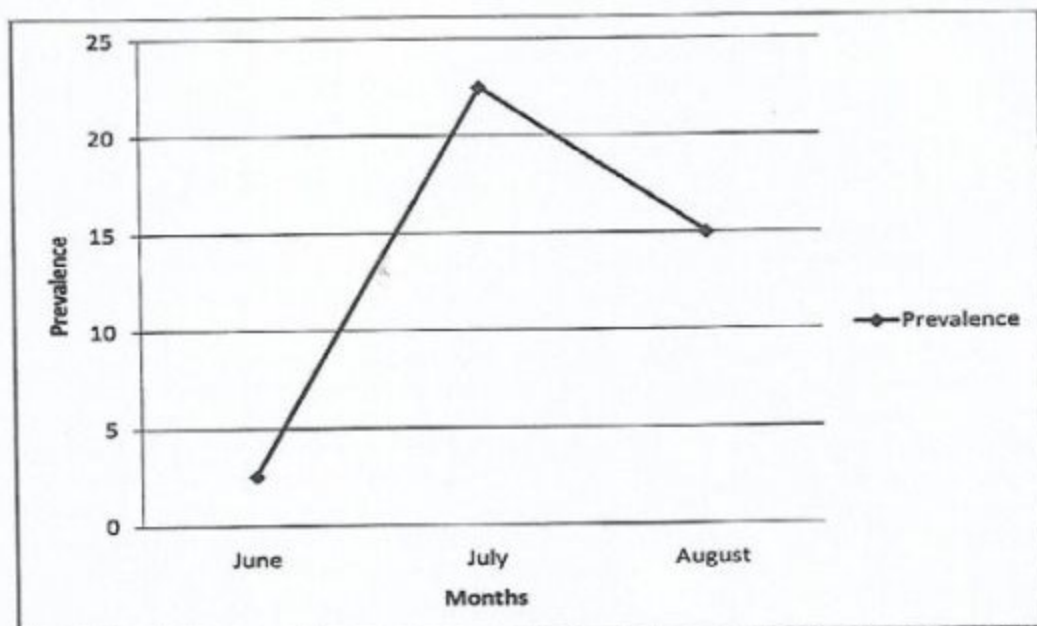


Fig. 1: Prevalence rates of *Fasciola gigantica* infestation in sheep slaughtered in Minna Modern Abattoir

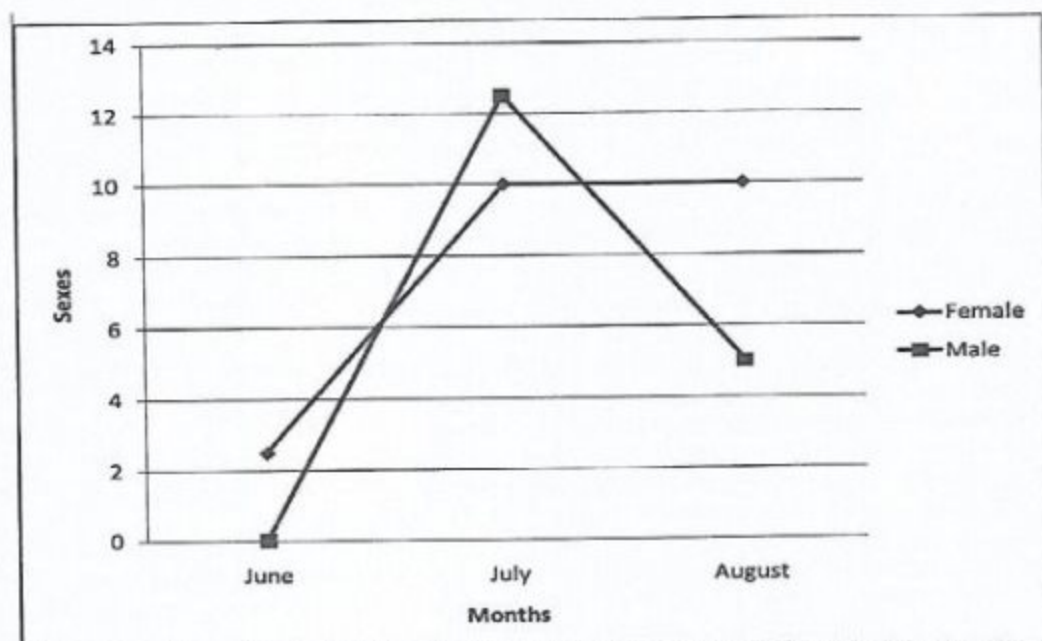


Fig. 2: Prevalence rates of *Fasciola gigantica* infestation in male and female sheep slaughtered in Minna Modern Abattoir

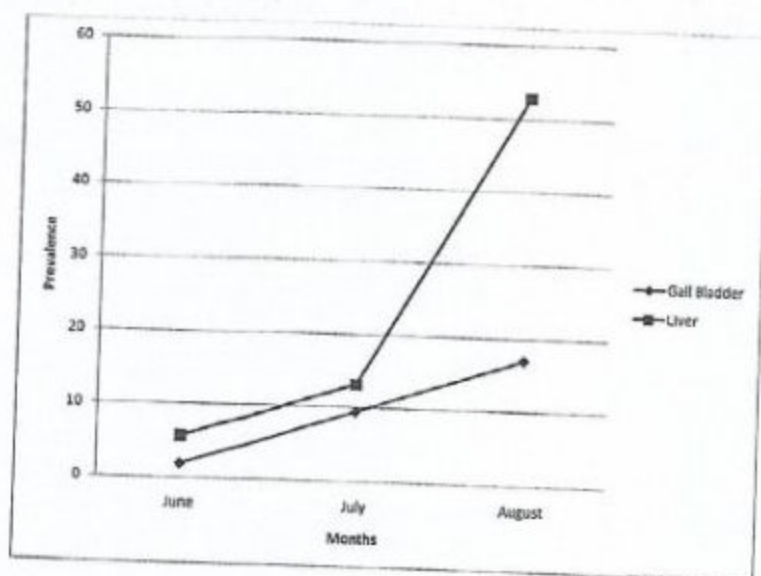


Fig. 3: Prevalence rates of *Fasciola gigantica* infestation in gall bladder and liver samples of sheep slaughtered in Minna Modern Abattoir

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