

INFECTION PATTERN OF HELMINTHS IN GOATS AROUND MUBI METROPOLIS, ADAMAWA STATE NIGERIA

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Abstract - The study was carried out to determine the prevalence and seasonal abundance of gastrointestinal tract (GIT) helminth infection in goats in Mubi Metropolitan Area of Adamawa State, Nigeria, between January and December 2006. Data was collected from daily records of diagnosed and treated cases of helminthes in the Livestock Unit of the Ministry of Livestock and Normadic Settlement Division. The monthly records revealed that January has the highest infection rate of (701), followed by the Month of December (311), May (257), September (214), August (171), October (146), February (132), November (128), March (125), April (93), June (83) and July (80). It was concluded from the result that January has the highest infection rate and the lowest in the month of July.

Key words - Helminthes, Infection rate, goats, Mubi.

1. INTRODUCTION

In Nigeria, the population of goats is about 53.8 million (FAO STAT, 2009). According to FAO (1982), goats contribute 16.0% of the total domestically produced meat in Nigeria, which has been estimated at 813,000 tonnes annually. Furthermore, these small ruminants produce skins that can feed the local leather industry. Goat skins have been estimated at 20,400 tonnes annually (FAO, 1982). The Maradi known for its good skin, the most widely used and distributed breed in the country is accounting for about 70% of Nigeria's goat Population which has been estimated at 34.45 million Osuhor *et al.*, (2002), and the ability of Red Sokoto goat to provide milk and meat serve as a good economic return for subsistence farmers. **This** breed is common in the savannah zone of Nigeria that is 8° N- 11° N where it constitute more than 90% of the goat population especially in Sokoto State. The goats have a red glossy coat colour and kept mainly for their skin. The skins have been used for years to produce 'Morocco leather', one of

the finest leathers in the world (Osuhor *et al.*, 2002, and Olatoye, 2010). Goats are good producers of meat for human consumption. The animals are excellent meat producers in view of its short generation intervals and the absence of religious taboos associated with their meat. Goat meat is called chevon and a rich source of protein and can help bridge the gap of protein malnutrition among consumers (Ozung *et al.*, 2011). It has been documented that goats are the principal domesticated small ruminants in terms of total numbers and production of food and fibre products (Winrock, 1983). This attribute may partly be due to the lower feed requirements compared to cattle, because of their body size (Okunlola *et al.*, 2010). This however, allows for easy integration of small ruminants into different farming systems (Hirpa and Abebe, 2008).

The epidemiology of gastrointestinal nematode infections is influenced by climatic factors (particularly rainfall and temperature), management systems used for the animals, host factors and parasite factors. Goats, although representing an important source of animal protein in third world countries including Nigeria, seem to have benefited little from veterinary care and production improvement. Animals of these species are often the main source of daily meat and are used in ceremonial festivities throughout the country. They also produce a considerable amount of manure, which is of special importance in those areas where cattle are of lesser importance (Nawathe *et al.*, 1985). Parasites are a major cause of health problems in ruminants. They cause the animals to be unthrifty which may include the loss of weight, low birth weights, and high mortality rate in younger animals. Due to parasitism, the animals become susceptible to other health problems which can lead to death. Goats harbour a variety of gastrointestinal parasites, many of which affects all the available breeds of goats in the area. Among these, helminths are the most important gastrointestinal tract parasites that affect the growth as

well as productivity of the animals, causing significant morbidity and loss of production (Pawel *et al.*, 2004). Goats acquire a lower level of immunity to gastrointestinal parasites.

In the study area little information is available about the infection rate, diversity and intensity of helminths and of cause lost incurred by farmers during production, little or no information is also known about the seasonal effect on the rate of infection. This will help the farmers in their health management practices and plans which will burst productivity and income from their animals. Hence, the present study was intended to find out the seasonal infection rate of gastrointestinal helminthes in goats in Mubi metropolis.

2. MATERIALS AND METHODS

3. Location of the Study: Mubi area lie within Northern Guinea Savannah zone of Nigeria and located at latitude $10^{\circ} 00'$ north, longitude $13^{\circ} 30'$ east and about 305 meters above sea level, with an area of 961.39 km². The dry season in this area commences early October and last up to April. The wet season begins from May and attains its peak between July and August, and declines in September; the mean annual rainfall is 1050 mm. The relative humidity is extremely low 20-30% between January and March and start increasing as from April and reaches a peak of about 80% in August and September, the relative humidity starts to decline from October following the cessation of rains. The maximum temperature can reach 40°C particularly in April while minimum temperature is about 18°C between December and January.

4. Data collection

The data was obtained through daily records of Diagnosed helminth cases in goats in the Livestock Unit of the Ministry of Livestock and Normadic Settlement Division in the Mubi South Local Government Area.

5. Statistical analysis

The data thus obtained were analyzed by frequency of occurrences of Helminthes cases treated in the Animal health care centre.

6. RESULT AND DICUSSION

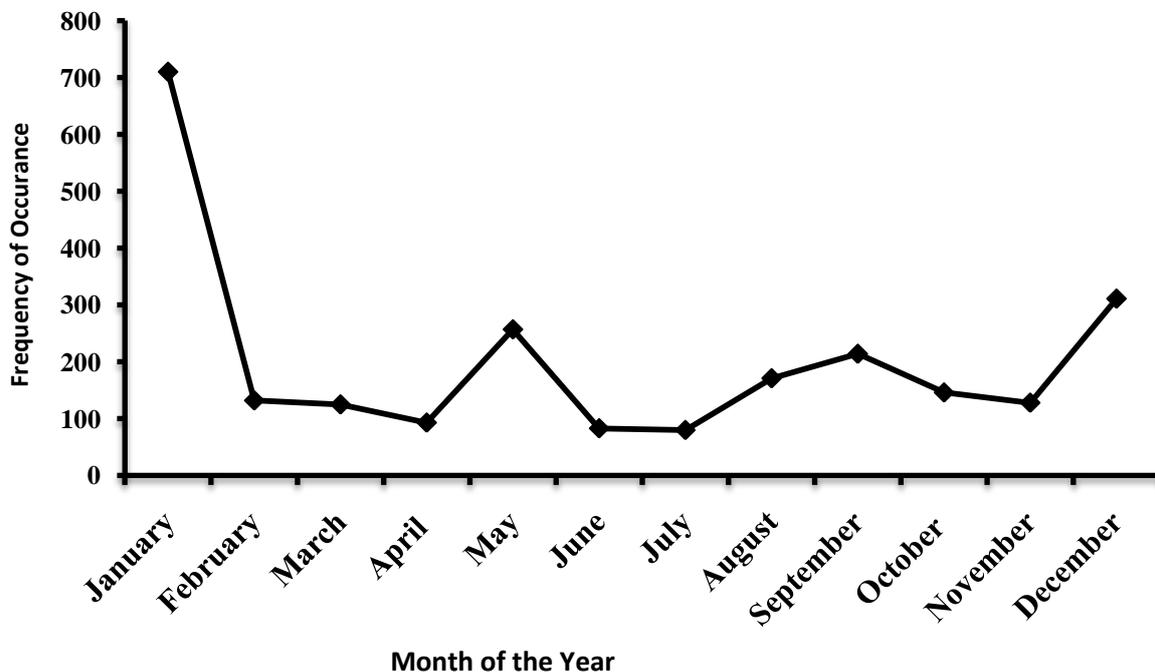
The result in table 1 revealed that January has the highest infection rate of (701), followed by the Month of December (311), May (257), September (214), August (171), October (146), February (132), November (128), March (125), April (93), June (83) and July (80). Higher worm burdens and outbreaks of parasitic gastro-enteritis in goats in this study was recorded higher after the end of the rainy season the months of December and January, which was earlier opined by Allonby (1980) that higher rate of infection in this months also indicates an optimal temperature of 22-30°C also influences the development of nematode larvae. Average infestation was shown in the months of May, June, July and August, the findings is in agreement with the statement of Allonby (1980) Rainfall or moisture is the most important factor which influences

the survival, development, dissemination and availability of free living stages of helminths. Moisture facilitates horizontal and vertical migration of nematode larvae on the environment Wamae *et al.* (1991) have demonstrated that dung beetles may also transport larvae up and down the herbage. The rate of infection recorded in the months of March and April shows that higher temperature do not favour the development of larvae, which agrees with the statement of Van Veen *et al.* (1975) that no development of larvae occurs while temperatures above 40°C are lethal, though some trichostrongylid larvae such as *T. Colubriformis* and *O. Columbianum* are known to be resistant to desiccation and this ability enables them to survive under extremely low or high temperatures. Gastrointestinal nematodes can survive harsh conditions by hypobiosis or arrested development of larvae (usually L3 or early L4) within the host. In the absence of hypobiosis nematodes survive in hosts during the hot and dry season as adults. Other indication obtained in the result shows that management systems for the animals have a strong influence the epidemiology of gastrointestinal nematodes as earlier reported by (Reinecke, 1984). Most of the animals in this study are kept under the extensive management systems in the traditional husbandry systems where no health management structure are usually absent agreed with (Shah-Fisher and Raph Say 1981). The concentration of animals at watering points particularly during the dry season at these month of December and January may also result in massive contamination of pastures with eggs or larvae which lead to the higher records of parasitic gastro-enteritis in these months as earlier reported in the work of (Connor *et al.*, 1990). Poor nutrition during the dry seasons is also a strong indication in this study which lowers the resistance of the animal thus enhancing the establishment of worm burdens and increasing the pathogenicity of the parasites. Consequently, worm burdens tend to be higher in poorly-fed than in well-fed animals. Malnutrition during the dry season has been found to lower the resistance of goats to *H. Contortus* infection in Nigeria and Kenya resulting in heavy mortalities (Fitzsimmons, 1971). The result of this study also indicates during the rainy season May to September has been associated with high nematode burdens which is in agreement with the study of (Allonby 1980).

Table 1. Infection rate of Goats in 2006

MONTHS		Infection Rate
1	January	701
2	February	132
3	March	125
4	April	93
5	May	257
6	June	83
7	July	80
8	August	171
9	September	214
10	October	146
11	November	128
12	December	311

Fig 1. Graphical Presentation of Infection rate of helminthes



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