

Original Research Article

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Pattern of Occurrence of Gastrointestinal Strongylosis in an Organized Caprine Farm of Wayanad district, Kerala, South India

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ABSTRACT

Keywords

Egg per Gram, EPG, Gastro intestinal nematodosis, Strongylosis,

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The present study was undertaken to assess the seasonal influence on the occurrence of gastrointestinal nematode diseases in an organized farm of Wayanad district of Kerala. Strongylosis was the most predominant gastrointestinal nematode followed by trichurosis and amphistomosis. Haemonchosis was the predominant strongyle infection in the farm. The first peak of eggs (strongyle) per gram of faeces (EPG) in adult goats was observed during the month of April. In kids, the first peak of EPG was observed during the period January- February. The second peak of EPG for strongyle worms in adult goats and kids occurred during October.

Introduction

The small ruminant production is very important source of livelihood to the rural people of India. Parasitic infections of sheep and goats are factors responsible for economic losses, reduction in productivity and increased mortality (Sutar *et al.*, 2010). Variations in the incidences of gastrointestinal nematodosis in goats during different seasons were reported from different areas of India (Patnaik *et al.*, 1973; Misra *et al.*, 1974, Ahamad and Ansari, 1987; Swankar *et al.*, 1996, Makhdoomi *et al.*, 1995; Nasreen *et al.*, 2005; Yadav *et al.*, 2006). Wayanad, a region of the Western Ghats, lying at an altitude of 800-1200 feet above mean sea level, enjoys a

mild subtropical climate. Most of the farmers in this district depend on livestock farming for their livelihood. The goat population of Wayanad district is 35,150 (Livestock Census, 2012).

Based on available literature, reports on the influence of different seasons on the occurrence of gastrointestinal nematodosis in goats of Wayanad district are scarce. Thus, the present study was undertaken to assess the seasonal influence on the occurrence of gastrointestinal nematode diseases in an organized farm of Wayanad district of Kerala.

Materials and Methods

The study consisted of collection of faecal samples randomly from 15 adult goats and 15 kids from Instructional goat farm, College of Veterinary and Animal Sciences, Pookode, Wayanad. Faecal samples were collected every month for a period of one year (November, 2012 to October, 2013). The samples were processed through sedimentation by centrifugation. Positive samples were separated and egg per gram (EPG) of each sample was determined (Soulsby, 1982). Faecal culture was performed to identify the predominant nematode parasite.

Results and Discussion

In the present study, it was observed that strongylosis was the most predominant parasitic disease in goats, irrespective of the age group (Table 1) followed by trichurosis and amphistomosis. Haemonchosis was the

predominant strongyle infection in the farm. There were two peaks of EPG for strongylosis in adult goats and kids during the period of one year (Fig. 1). The first peak in adult goats was during the months of April (EPG = 593) and the second peak of EPG in adult goats was during October (EPG = 790). The first peak of EPG in kids was observed during January to February, 2013 and second peak during June to October.

The high faecal egg counts of strongyles might be largely due to *Haemonchus contortus* as *H. contortus* was considered as the major cause of parasitic gastroenteritis in sheep and goats in different parts of India (Thaper, 1956; Patnaik *et al.*, 1973; Dhar *et al.*, 1982). Moreover, *H. contortus* is considered more prolific egg producer (Hunter and Heath, 1984). The high humidity (> 96 per cent) along with high temperature (31⁰C) in the month April might have favored the occurrence of strongylosis.

Table.1 Effect of temperature, humidity and rainfall on presence of ova in the faecal sample and average egg per gram (EPG) of adult goats and kids

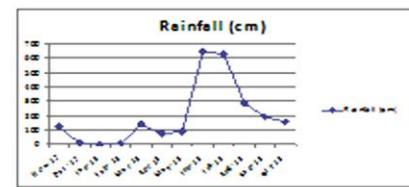
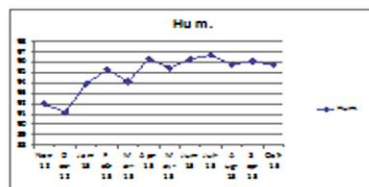
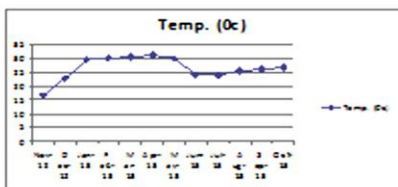
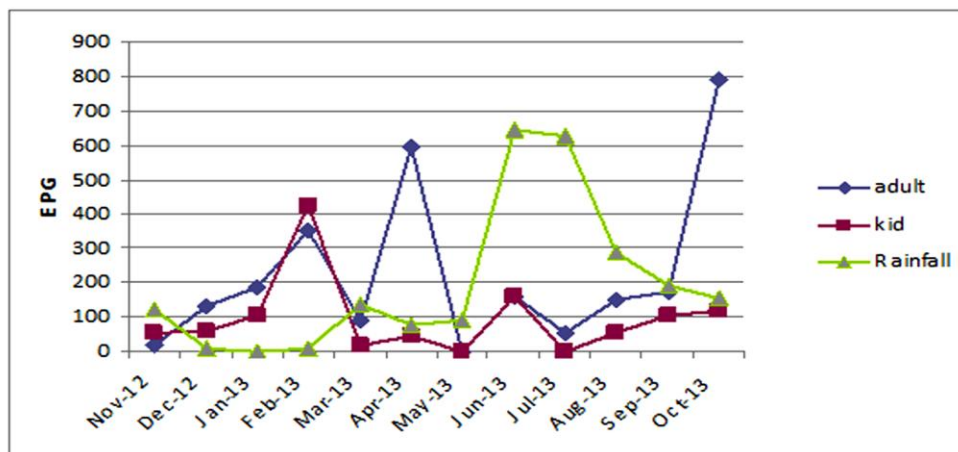
Month	Temp. (°c)	Hum. (%)	Rainfall (cm)	Adult		Kids		EPG (Adults goats)			EPG (Kids)		
				E	P	E	P	S	T	A	S	T	A
November-2012	16.62	92.00	124.40	15	9	15	4	20	6	13	53	-	-
December-2012	22.83	91.16	9.00	15	10	15	5	133	-	6	60	-	-
January- 2013	29.43	93.94	0	15	13	15	9	187	-	-	107	-	-
February- 2013	29.98	95.32	7.60	15	15	15	15	353	13	13	427	-	-
March-2013	30.33	94.16	139.00	15	7	15	4	93	-	13	20	-	13
April-2013	31.00	96.33	77.60	15	15	15	15	593	33	-	47	40	-
May-2013	29.81	95.45	91.40	15	0	15	0	0	-	-	-	-	-
June-2013	24.08	96.33	646.20	15	9	15	10	160	6	-	160	-	-
July- 2013	23.81	96.68	626.40	15	6	15	1	53	-	-	-	-	6
August- 2013	25.50	95.84	286.60	15	8	15	5	153	-	-	53	-	-
September -2013	26.03	96.10	193.40	15	11	15	10	173	13	-	106	-	-
October-2013	26.60	95.74	156.00	15	12	15	10	790	-	6	120	-	-

Temp. - Average maximum temperature, Hum.- Average maximum humidity, EPG- Average eggs per gram of faeces, E- Total number of samples examined, P- No of samples positive, S- Strongyle ova, T- *Trichuris* ova, A- Amphistome ova

Table.2 Deworming practices followed in the instructional goat farm, Pookode during November, 2012 to October, 2013

Sl.No	Date of deworming	Drug	Dose and route
1	12-02-2013	Ivermectin	200 µg /kg Body weight, Subcutaneous injection
2	20-04-2013	Fenbendazole	7.5 mg/kg Body weight, orally
3	30-05-2013	Albendazole	10 mg/kg Body weight, orally
4	25-07-2013	Fenbendazole	7.5 mg/kg Body weight, orally
5	08-09-2013	Ivermectin	200 µg/kg Body weight, Subcutaneous injection

Figure.1 Pattern of EPG for strongyles in kids and adult goats



The summer rains (of March) helped in the increase of humidity and thereby the establishment of this peak of EPG. It was observed that the atmospheric temperature slowly increased during the months from June to October which helped in development of hot humid climatic conditions ideal for the survival of larval stages of nematodes.

Lowered resistance of the young ones during January to February might have caused the first peak of EPG in kids. It is clear that the summer rains (during the month of March) and monsoon rains (during the month of June-July), have contributed to the higher EPG in adults and kids.

It is well documented that gastrointestinal parasitism in grazing animals is directly related to the availability of larvae on pasture and seasonal pasture contamination (Smeal *et al.*, 1980). The warm and humid climate favours the development and survival of pre-parasitic stages (Durie, 1961). Infection with helminths not only lowers the animal's immunity but it renders susceptible to other pathogenic infections (Garedaghi *et al.*, 2011).

Administration of deworming drugs (three different anthelmintics with two different modes of actions) was done five times in the year in the farm (Table 2) during the study period. Even though ivermectin was administered twice during the course of study; the EPG did not reduce after administration. Hence, benzimidazole group of anthelmintics (Albendazole) may be used for deworming. The frequent and indiscriminate use of anthelmintics may result in development of anthelmintic resistance. Hence, based on the results of the present study, administration of anthelmintics during January-February followed by second administration during the month of August may reduce the worm load; improve productivity and thereby decreasing losses due to deaths.

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