

Prevalence of gastrointestinal helminthes in cattle and buffalo in Samastipur district of Bihar

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ARTICLE INFO	ABSTRACT
<p>Original Research Article Received on April 01, 2020 Revised on April 13, 2020 Accepted on May 19, 2020 Published on May 25, 2020</p> <p>Article Authors Pramod Kumar, R. K. Asthana, P. K. Ram, Manoj Kumar</p> <p>Corresponding Author Email pramod123ndri@gmail.com</p>	<p>A total of 366 faecal samples including 225 cattle and 141 buffalo of different age groups were randomly collected and analyzed for presence of gastrointestinal helminthes parasites from five different blocks on both sides of Burhi Gandak River in Samastipur district of Bihar in 2015-16. Among cattle 115 (51.11 %) and among buffalo 88 (62.40%) samples were found positive for different species of gastrointestinal helminthes. The prevalence of trematodes, nematodes and cestodes in cattle were 44, 6 and 8 percent, respectively and in buffalo were 35, 18 and 15 percent, respectively. Mixed infection in cattle and buffalo faecal samples was 6.8% and 5.6%, respectively. 4.40 % cattle and 6.60 % buffalo were severely affected, in which egg count per gram was more than 1600. In 1-90 days age group calves 65.6 % cattle and 90.47 % buffalo were positive.</p>
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Gastrointestinal helminthes are well-recognized problem in animals reared under grazing and semi-intensive system of farming. Cattle, buffalo and goat are usually infected by one or more gastrointestinal helminthes parasites. The variation in the prevalence of parasitic intensity depends upon the geographical locations, climatic conditions, grazing behaviour, immunological and nutritional status of the host, presence of intermediate host and number of infective larvae or eggs ingested by the animals (Blood and Radostitis, 1989). It is one of the major constraints in the development of a profitable dairy farming. Flood affected areas are known for higher prevalence of Gastrointestinal helminthes parasites in milch animals due to presence of intermediate host like snails etc.

These helminthes adversely affect health and productivity of animals and also decrease the resistance of animals towards various diseases, which may ultimately lead to higher morbidity and mortality. Gastrointestinal helminthes syndrome is always caused by a mixture of species of helminthes parasites in the alimentary tract (Chaudhry *et al.*, 1984). Effects of helminthes on the production are well documented all over the world. Anorexia and reduction in feed intake, loss of blood and plasma proteins in gastrointestinal tract, alterations in protein metabolism, decrease in bioavailability of minerals, enzymes and diarrhea, all contribute to loss in weight gain (Soulsby, 1983). Economic losses are due to subclinical effect which is not noticed immediately.

Keeping in view the immense economic losses to dairy farmers due to heavy parasitism in milch animals, a survey and study was conducted to investigate the prevalence of gastrointestinal helminthes in cattle and buffalo around Burhi-Gandak River in Samastipur district of Bihar. The purpose of this study was to know the prevalence of different gastrointestinal helminthes parasites in cattle and buffalo in five blocks adjacent to Burhi-Gandak River in Samastipur district of Bihar.

Materials and Methods

A total of 366 faecal samples of animals including 225 cattle and 141 buffalo belongs to different age groups, were randomly collected from five different blocks namely Kalyanpur, Pusa, Ujiyarpur, Vibhutipur and Singhia, which lies on both sides of Burhi Gandak River in Samastipur district of Bihar in 2015-16. Animals were divided into four different age groups. In group A animals were of 1-90 days old, in group B, 91-180 days old; in group C, 181-420 days old and group D, 421 days and above. Among the cattle number of male and female were 48 and 177, respectively and among buffalo male and female were 28 and 113, respectively.

Faecal samples were collected from rectum of animals with help of sterile disposable plastic gloves and transferred into wide mouthed screw capped sterile plastic containers that contains 10% formaldehyde as a preservative. Sample containers were properly labelled with necessary information about animals like age, sex, area, date and time. Consistency and colour of faecal sample were recorded and were brought to the laboratory of Animal Production Research Institute, Dr. Rajendra Prasad Central Agricultural University, Pusa, Bihar and also kept at 4°C for further processing.

All the faecal samples were screened for identification and counting of eggs to evaluate the severity of infection. After uniform mixing of the samples eggs were identified from faecal samples using Telemann method and counted by McMaster method as given by (Thienpont *et al.*, 1979). The eggs of the helminthes were identified according to the keys given by (Thienpont *et al.*, 1979, Soulsby, 1983). The data were analyzed using chi-square test as per method described by (Snedecor and Cochran, 1994).

Results and Discussion

Out of 225 faecal samples of cattle and 141 of buffalo of different age and sex groups 51.11 % and 62.40%, respectively were found infected with different species of gastrointestinal helminthes. The percentage of infection of trematodes, nematodes and cestodes in cattle were 44, 6 and 8 %, respectively. In buffalo infection of trematodes, nematodes and cestodes were 35, 18 and 15 percent, respectively. Mixed infection in cattle and buffalo with trematodes, nematodes and cestodes were observed in 6.8% and 5.6% faecal samples, respectively in fig 2. The number and percentage of eggs per gram (epg) was counted from faecal samples of animals naturally infected with different species of helminthes. The infected cattle and buffaloes were grouped on the basis of severity of infection.

Among cattle 19.50 % positive animals shed eggs in their faeces that ranged from 100-400 epg, while 8, 13.70, 5.3 and 4.40 percent animals excreted eggs in their faeces that ranged from 401-800, 801-1200, 1201-1600 and >1601 epg, respectively (table 1). Similarly, in buffalo 23% positive animals shed eggs in their faeces that ranged from 100-400 epg, while 9, 16, 7 and 6.60 percent animals excreted eggs in their faeces that ranged from 401-800, 801-1200, 1201-1600 and >1601 epg, respectively (table 1). In different age group in cattle percentage prevalence of gastrointestinal helminthes clearly depicts that younger animals especially in age group 1-90 days were having more infection than older age groups. In buffalo in age group 1-90 days and 91-180 days old, its prevalence was 90.47 % and 83.33 % respectively (table 2).

It could be due to vertical transmission from their dam to the neonatal calves. Further, it was observed that in faeces of buffalo calves with lower body weight than average, egg per gram was higher than calves with higher body weight in same age group. Among both in cattle and buffalo, the higher prevalence of infection was found in group A followed by group B, C and D. The prevalence of gastrointestinal helminthes infection was found higher in female than male in both cattle and buffalo. The percentage prevalence in male and female was 45.21 and 54.78 %, respectively, while in buffalo it was 47.52 and 52.27 %, respectively (fig 2).

Table 1. The percentage of eggs per gram counted from faecal samples of cattle and buffalo

Eggs Per Gram (epg)	No. of Cattle Positive Samples	% Cattle	No. of Buffalo Positive Samples	% Buffalo
100-400	44	19.50	33	23
401-800	18	8	19	9
801-1200	31	13.70	16	16
1201-1600	12	5.30	9	7
1601 and above	10	4.40	11	6.60

Table 2. The percentage of positive samples among different age groups in cattle and buffalo

Age Group (in Days)	Cattle			Buffalo		
	No. of Sample Examined	No. of Positive Samples	%	No. of Sample Examined	No. of Positive Samples	%
1-90	32	21	65.6	21	19	90.47
91-180	20	11	55	18	15	83.33
181-420	48	26	54.17	32	21	65.62
421 and above	125	57	45.6	70	33	47.14
	225	115	51.11	141	88	62.40

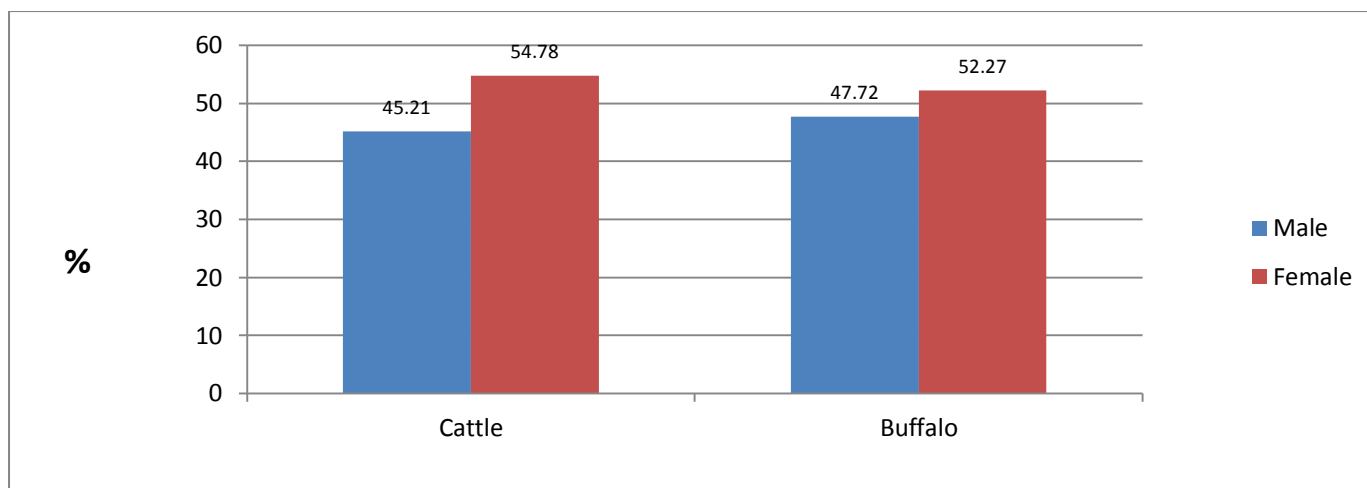


Fig 1. Percent prevalence of gastrointestinal helminthes in cattle and buffalo

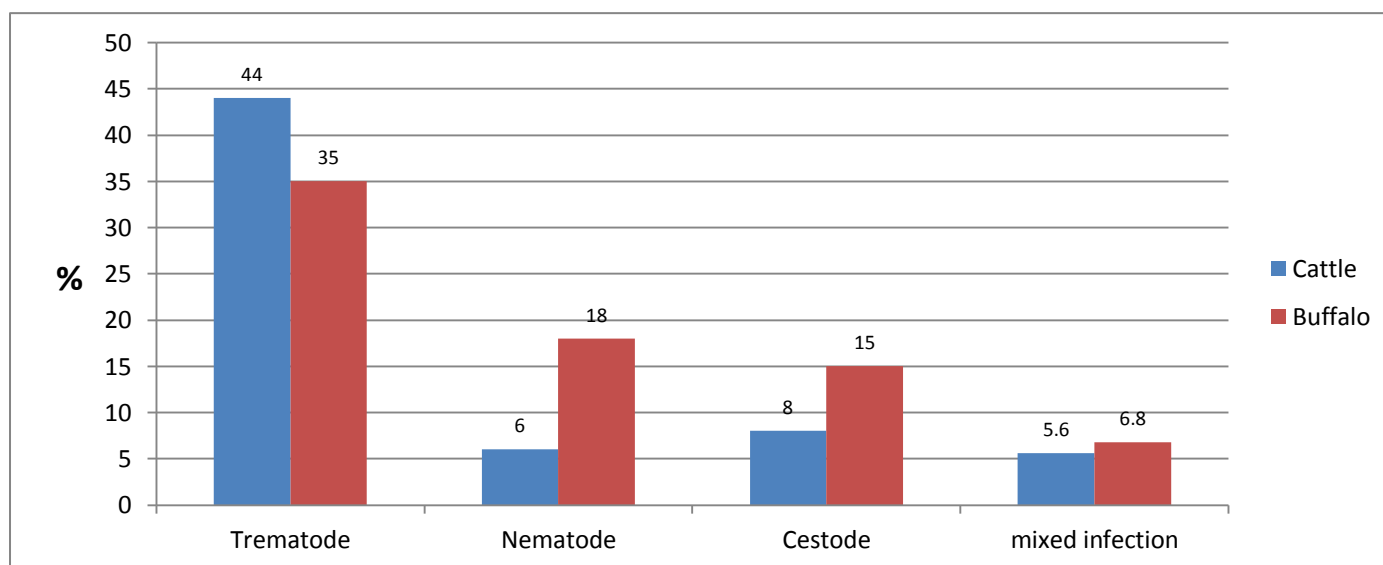


Fig 2. Percent prevalence of different gastrointestinal helminthes in cattle and buffalo

Out of 44 trematode infected cases in cattle, 39 samples were having eggs of *Fasciola hepatica* and 14 samples contain both *Fasciola hepatica* and *Amphistome*. In buffalo, out of 35 trematode infected cases 31 samples were having eggs of *Fasciola hepatica* and 9 samples contain both *Fasciola hepatica* and *Amphistome*. Out of total positive cases 13% cattle and 24 % buffalo were infected with nematodes (*Toxocara vitularum*, *Trichuris ovis* and *Ascaris sp.*). Similarly, among positive cases, infection of cestode (*Taenia sp.*) in cattle and buffalo were 15 % and 21 %, respectively. Mixed infection was observed in 6.80% cattle and 5.60% buffalo faecal samples, where eggs of *Fasciola hepatica*, *Fasciola gigantica*, *Amphistome*, *Toxocara vitularum*, *Trichuris ovis*, *Taenia sp.* and *Ascaris sp.* were found.

In different age group in cattle percentage prevalence of gastrointestinal helminths clearly enhanced prevalence of fasciolopsis in monsoon is due to abundance of intermediate hosts in the river bank area. Since this study was done at the end of rainy season, November-January, higher prevalence of fasciolopsis was observed. It is apparent that prevalence of fasciolopsis in tropical countries like India is largely determined by the rainfall and production system (Copeman and Copland, 2008).

Perhaps, the topography of this region, moderate to high temperature, fair rainfall might have produced favourable condition. Poor management and open grazing of animals could be the reason for higher prevalence of gastrointestinal helminths. In buffalo calves its higher prevalence in early age group could be due to vertical transmission from dam to calves and poor management of the calves. Thus, it is suggested that deworming should be done at regular interval of time to reduce worm load in dairy animals, especially in young cattle and buffalo calves.

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