

## Prevalence of gastrointestinal parasites of livestock in a central dry zone of Karnataka

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### Abstract

Prevalence of gastrointestinal parasites among cattle (18.22%), buffaloes (20.85%), sheep (39.34%) and goats (46.12%) of southern taluks of central dry zone of Karnataka during drought period has been reported. Strongyles were the most common nematode. *Toxocara* infection was slightly higher in buffaloes than in cattle. *Fasciola*, amphistomes, *Moniezia* and *Entamoeba* infections were low among livestock but *Fasciola* infection was not seen in sheep. *Eimeria* infection was found comparatively higher in sheep than goats. Ova of *Gongylonema* were recorded from one cattle and *Strongyloides* were observed only in sheep. Low incidence of *Trichuris* infection was noticed in cattle, sheep and goats. Strongyle infection in livestock was found higher during southwest monsoon.

**Keywords:** Gastrointestinal parasites, Prevalence, Cattle, Buffalo, Sheep, Goat.

### Introduction

Gastrointestinal parasitism is a major constraint for livestock production causing in heavy economic losses. Studies from different parts of India indicate that variation in the prevalence of parasitic infections from region to region is largely due to climatic factors and the availability of vectors in vector-borne infections. The present study was undertaken to know the prevalence and seasonal distribution of gastrointestinal parasites of domestic ruminants of southern taluks of central dry zone of Karnataka.

### Materials and Methods

Fresh faecal samples of 1416 cattle, 235 buffaloes, 666 sheep and 425 goats were collected at random from different villages of southern taluks of central dry zone of Karnataka. They were processed by sedimentation technique and subjected to microscopic examination to detect the ova or cysts of parasites. Identification of helminths was mainly based on the characteristics of the ova and strongyles were confirmed on coproculture, besides occasional post-mortem studies.

### Results and Discussion

The overall prevalence and seasonal distribution of gastrointestinal parasites of ruminants are tabulated (Table 1).

*Large ruminants:* Among the large ruminants, 258 samples (18.22%) of cattle and 49 (20.85%) of buffaloes were found positive for the ova of different gastrointestinal parasites indicating that cattle had lower rate of parasitism than buffaloes. Mixed infections of two to three different parasites were observed in 9.30% cattle and 14.28% buffaloes. *Toxocara* sp., strongyles, *Fasciola* sp., amphistomes, *Moniezia* sp., *Entamoeba* sp., *Eimeria* sp. and *Buxtonella* sp. were recorded among cattle and buffaloes, but the ova of *Trichuris* sp. and *Gongylonema* sp. were also detected. Strongyle infections ranked high in cattle (11.09%) than buffaloes (9.79%). Both these observations are in conformity with the reports of Punniamurthy *et al.* (1988). *Toxocara vitulorum* infection was recorded more in buffalo calves (1.28%) than in cow calves (0.14%).

Among the snail-borne trematodes, very low infection of *Fasciola* sp. (0.14%) and amphistomes (1.27%) was recorded in cattle, whereas 0.42% samples were positive for both these infections in buffaloes. The reason for low trematode infections was due to drying up of snail habitats. In canal irrigated areas of the Mysore and Mandya districts

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Table 1. Prevalence and seasonal distribution of gastrointestinal parasites of livestock

Livestock	Prevalence		Seasonal distribution							
	Overall total		Cold weather (Jan & Feb)		Hot weather (Mar-May)		Southwest monsoon (Jun-Sep)		Northeast monsoon (Nov & Dec)	
	Exam	Positive	Exam	Positive	Exam	Positive	Exam	Positive	Exam	Positive
Cattle	1416	258 (18.22)	194	29 (14.95)	217	28 (12.90)	578	124 (21.45)	427	77 (18.03)
Buffaloes	235	49 (20.85)	22	0 (0.00)	23	5 (21.74)	98	24 (24.49)	90	19 (20.65)
Sheep	666	262 (39.34)	59	17 (28.81)	154	42 (27.27)	199	106 (52.27)	254	97 (38.19)
Goats	425	196 (46.12)	55	20 (36.36)	121	50 (41.32)	156	86 (55.13)	93	40 (43.01)

Note: % positive is shown in parenthesis.

of Karnataka, amphistome and *Fasciola* sp. infections were highly predominant in bovines than strongyles (Muraleedharan *et al.*, 1990). Similar information on prevalence of higher percentage of amphistomes with lesser percentage of other common infections in bovines was recorded from Eastern Haryana and Gujarat (Ghosh *et al.*, 1987; Hirani *et al.*, 1999).

*Moniezia* sp. (*M. benedini* and *M. expansa*) were commonly seen in cattle and buffaloes with equal percentage of infection (0.85). Among protozoa, 0.28, 1.69 and 4.38% infections of the cysts of *Entamoeba* sp., *Eimeria* sp. and *Buxtonella* sp., respectively were recorded in cattle whereas the corresponding figures for buffaloes were 1.70, 2.13 and 7.23%. The infection rates for *Moniezia* sp. and *Eimeria* sp. were quite low compared to those reported from Tamil Nadu (Balasubramanyam *et al.*, 2001; Hirani *et al.*, 1999).

*Small ruminants*: About 39.34% sheep and 46.12% goats harboured different gastrointestinal parasitic infections. Concurrent infections up to three types of parasites were observed in 5.72% sheep and 8.67% goats examined. Infections of *Trichuris* sp., strongyles, amphistomes, *Moniezia* sp., *Entamoeba* sp. and *Eimeria* sp. were also reported in which strongyle infections were predominant in 31.68% sheep and 39.53% goats. *Haemonchus contortus* was the very common strongylid of small ruminants, but rarely *Oesophagostomum columbianum* was recorded. *Strongyloides* (0.45%) infection was noticed only in sheep while goats were found free from this infection. Studies from Tamil Nadu and West Bengal indicated that sheep were more susceptible to these infections than goats, and strongyles as well as *Trichuris* sp. infections were found higher in goats than sheep (Bandyopadhyay, 1999; Balasubramanyam *et al.*, 2001).

Surprisingly, *Fasciola* sp. infection was observed only in goats (0.47%), but not in sheep. Sheep and goats had 1.05 and 0.47% amphistome infections, respectively. *Moniezia* (*M. benedini* and *M. expansa*) was the sole cestode infection found in sheep (1.65%) and goats (0.94%). Low percentage of *Entamoeba* sp. infection was recorded among sheep (0.15%) and goats (0.23%). In the present study, eimerian oocysts were recovered from 8.26% sheep and 6.12% goats, while 34.61 and 21.01% infections among sheep and goats, respectively were recorded by (Balasubramanyam *et al.*, 2001) in Namakkal district of Tamil Nadu.

Contrary to the present finding, higher percentage of parasitism was reported from other parts of Karnataka (Muraleedharan *et al.*, 1994; Dhanalakshmi *et al.*, 2001). Lower percentage or even absence of *Moniezia* sp. infection among sheep in Orissa and Coimbatore (Misra *et al.*, 1974; Chellappa and Gopalakrishnan, 1977). Higher infection rate of trematodes and cestodes and lower infection of nematodes were reported in goats from Assam (Talukdar, 1996). Makhdoomi *et al.* (1995) recorded very high percentage of *Strongyloides* sp. infection followed by *Moniezia* sp. and *Eimeria* sp. with very low infection rates of strongyles and trematodes in Kashmir valley.

*Seasonal incidence*: Higher incidence of gastrointestinal parasites was found mostly during monsoon in livestock. Strongyle infections were recorded throughout the year. Their incidence attained peak during southwest monsoon with simultaneous increase in gastrointestinal parasitism. A second peak was observed during northeast monsoon in buffaloes, sheep and goats whereas in cattle, it was found during cold weather. Monsoon was found to

be more favourable for strongyle infections among livestock (Misra *et al.*, 1974). Report of Gupta *et al.* (1987) indicated that gastrointestinal nematodes of sheep persisted throughout the year in Haryana. Whereas peak worm burden with nematodes in sheep was earlier reported in monsoon in the region around Bangalore (Seshachalam, 1977).

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