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Prevalence of Gastro-Intestinal Parasitic Infestation in Cows with Various Reproductive Ailments in Tribal Areas of Himachal Pradesh

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ABSTRACT

Gastrointestinal (GI) parasitic infection poses a significant concern in cattle management. The influence of gastrointestinal (GI) parasites on reproduction is contingent on multiple factors. Faecal samples were collected from 285 reproductively compromised, normal cyclic and pregnant cattle from five different tribal zones of Himachal Pradesh viz. Lahaul, Spiti, Kinnaur, Pangi and Bharmour. Coprological examination revealed the presence of gastro-intestinal parasites in 47 percent of cattle whereas 52.9 percent cattle were bereft of it. Incidence of gastro-intestinal parasites was highest (15.7%) in true anestrus cows followed by endometritis (12.2%), pregnant cattle (9.4%), silent estrus (6.3%), miscellaneous (2.1%), and normal cyclic (1.05%), respectively. Overall incidence of different parasites i.e., strongyles, oocyst of protozoans (Coccidia), amphistomes, cestodes (Moneizia spp.) and mixed infestation was 25.61, 5.61, 2.45, 0.3 and 12.98 percent, respectively. Among the different physiological and pathological conditions, anestrus cows had the highest incidence (22%) for parasitic load.

Key words: Gastro-intestinal parasites, Tribal, Cattle, Anestrus, Incidence.

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INTRODUCTION

Gastrointestinal parasites are universal parasitic agents of cattle all over the world; they are the main etiological factors for both clinical and subclinical parasitism which leads to major financial losses to the farmer. It assumes a pivot role in decreasing animal production through reduction of working capacity, growth, body weight and milk yield (Choubisa and Jaroli, 2013; Panigrahi *et al*., 2014). Various ecto and endo-para-

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sites can affect livestock and pose adverse effects on health, production, welfare and reproduction. This is primarily attributed to the prevalent anthelmintic resistance resulting from repeated use or inadequate dosages. Parasitic infections specially, gastrointestinal nematodes can adversely affect onset of puberty and age at first calving by depressing weight gain of affected animal and body weight is main for attainment of puberty (Shalaby, 2013). The epidemiology of gastro-intestinal parasites in livestock varies depending on the prevailing climatic conditions and managemental practices followed locally. Scanty information is available on the prevalence of gastrointestinal parasitic infections in cows reared in remote tribal locations. Therefore, the parasitic fauna of cattle, when mapped out precisely in diverse agro-climatic zones of Himachal Pradesh, revealed important information, depending upon which further control measures can be decided.

MATERIALS AND METHODS

Faecal samples were collected from rectum of animals with help of polyethene sleeves from different tribal zones and preserved in 10 percent of formalin (Hu *et al.,* 2015). Samples were transported to Department of Veterinary Gynaecology and Obstetrics in refrigerated condition. Qualitative analysis of faeces was done by direct smear, Flotation and Sedimentation methods. Quantitative analysis of faeces was done by Stoll's dilution technique which provided the number of eggs per gram of faeces (Viyanant *et al.,* 1982). Data obtained were compiled and tabulated and finally converted into percentage.

RESULTS AND DISCUSSION

Fourty seven percent cattle showed presence of gastro-intestinal parasites and 52.9 percent were bereft of gastro-intestinal parasites in faeces. Contrarily, various authors reported the incidence of gastro-intestinal parasites as 51.29 (Mir *et al.,* 2013), 65 (Gupta *et al.,* 2012), and 58.35 percent (Das *et al.,* 2018). Incidence of gastro-intestinal parasites was highest (15.7%) in true anestrus cows followed by endometritis (12.2%), pregnant cattle (9.4%), silent estrus (6.3%), miscellaneous (2.1%), and normal cyclic (1.05%), respectively. In concurrence to our study, Kumar and Singh (2018) and Harichandan *et al.,* (2018) reported 39.10 and 38.21 percent incidence of true anestrus, respectively. However, lower incidence of true anestrus was recorded by Khan *et al.,* (2016) and Nishi *et al.,* (2018) i.e., 31.79 and 40.2 percent, respectively. Contrarily, high incidence of 67.68, 65.0, 53.15 and 43-67.11 percent true anestrus was recorded in cows of West Bengal (Maji and Samanta 2013), Kerala (Kutty and Ramachandran 2003), Madhya Pradesh (Pandit, 2004) and Punjab (Verma *et al.,* 2003), respectively. Comparatively low incidence was recorded in cows of Kashmir (31.0%; Bhattacharyya and Buchoo 2008), Goa (29.0%; Chakurkar *et al.,* 2008), Gujarat (24.73%; Patel *et al.,* 2007) and Tamil Nadu (16.6%; Selvaraju *et al.,* 2005). Anestrus mainly occurs due to malnourishment, as the low energy and nutritional deficiencies are among the main reasons of true anestrus in farm animals (Bearden *et al.,* 2004). Moghazy (2011) also reported higher incidence of parasitic infestation in heifers suffering from ovarian cyclic inactivity, mainly coccidiosis and ascariasis, as compared to the normal cyclic heifers.

In our study, pregnant cows were also found positive for gastrointestinal parasitism which might due to the misconception of not following the deworming schedule during pregnancy. Overall incidence of different parasites i.e. strongyles, oocyst of protozoans (Coccidia), amphistomes, cestodes (Moneizia spp.) and mixed infestation was 25.61, 5.61, 2.45, 0.3 and 12.98 percent, respectively. Contrarily, Gupta *et al.,* (2012) reported 43.0 percent strongyles in cattle faeces. However, low incidence of strongyles was reported by Das *et al.,* (2018) i.e. 18.76 percent, which was not in concurrence with the findings of current study.

CONCLUSIONS

The present study concludes that among the different physiological and pathological conditions, anestrus cows had the highest incidence (22%) for parasitic load. Necessary steps should be taken in timely manner to improve the productivity from these cattle.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

Table 1: Incidence of gastro-intestinal parasitic infestation in cows with various reproductive conditions in different tribal areas of Himachal Pradesh

Reproductive abnormality/status (Diagnosis)		Gastro-intestinal helminth parasitic infestation (Status)	Lahaul & Spiti						Chamba				Overall	
			Kinnaur Lahaul				Spiti		Pangi		Bharmour			
			Number of faecal samples											
			n= 66		n=93		n= 54		n=33		n=39		N= 285	
			N	%	N	%	N	%	N	%	N	%	N	%
Anestrus	True/ Post-partum/ Small genitalia	Present	15	22.8	12	12.6	7	12.9	7	21.2	4	10.2	45	15.7
		Absent	8	12.1	10	10.5	12	22.2	5	15.1	4	10.2	39	13.6
	Silent estrus	Present	2	3.1	3	3.1	6	11.1	6	18.1	1	2.5	18	6.3
		Absent	1	1.5	2	2.1	6	11.1	1	3	4	10.2	14	4.9
Endometritis		Present	10	15.1	14	14.7	7	12.9	2	6.1	2	5.1	35	12.2
		Absent	8	12.1	13	13.6	14	25.9	2	6.1	9	23	46	16.1
Miscellaneous		Present	2	3.1	3	5	-	-	1	3	-	-	6	2.1
		Absent	1	1.5	6	10	-	-	2	6.1	6	2.5	15	5.2
Normal	Pregnant/ Recently Calved	Present	9	13.6	12	12.6	2	-	3	9.1	1	-	27	9.4
		Absent	9	13.6	12	12.6	-	-	4	12.1	6	15.3	31	10.8
	Estrus/ Normal Cyclic	Present	1	1.5	2	3.1	-	-	-	-	-	-	3	1.05
		Absent	-	-	4	4.2	-	-	-	-	2	5.1	6	2.1
Grand total		**Present**	**39**	**59.09**	**46**	**49.4**	**22**	**40.7**	**19**	**57.6**	**8**	**20.5**	**134**	**47.0**
		Absent	**27**	**40.9**	**47**	**50.5**	**32**	**59.2**	**14**	**42.4**	**31**	**79.5**	**151**	**52.9**

Table 2: Incidence of specific gastro-intestinal parasites in cows

Total samples examined	Strongyles	Amphistomes	Moneizia	Coccidia	Mixed	No Infestation
285	73 (25.61%)	7 (2.45%)	1 (0.35%)	16 (5.61%)	37 (12.98%)	151 (52.9%)

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