

## Study on Effect of Different Managemental Conditions on Anthelmintic Resistance in GI Nematodes of Goat in Patna, Bihar

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### ABSTRACT

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A total number of 100 farmers were selected purposively from Patna district of Bihar, who are actively engaged in rearing the goat. For present study the variables like types of shed, Flooring, Type of roof, Manger/Drinker Ventilation Facilities, Cleanliness, Floor space of goat and use of bedding material were taken under consideration. The 50 rural and 50 urban goat farmers were taken for the present study. It was found that about 85 % of the respondents of rural and urban areas has insufficient floor space in their goat sheds and 60 % of rural goat keeper were used dry leaves for their bedding material, whereas 84 % of the urban respondents were using jute bags as their bedding materials. It was because of free abundance or availability of dry leaves in rural areas. Among the sheds, 84.17% had Kachcha type flooring and 15.83% had pucca type (cement concrete) flooring.

**Keywords:** Anthelmintic Goat GI Nematodes Patna

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### INTRODUCTION

In India, considerable growth has been reported in production of goat milk and meat during the last decade. The goat meat production has doubled (9.3% to 18.3%) and goat milk production has shown a growth rate of 31.53% during the last decade. The livestock sector of India has a significant potential, it contributes 4.11% of total GDP (Gross Domestic Product) and about 25.6% of the total agriculture GDP. The goat sector and its products alone contribute 8.5% to Indian livestock GDP. In last few years, it is a rapidly growing industry in India (Dash, 2017) providing glimpse of future hope for young entrepreneurs to develop knowledge and skill in this species. Diseases are considered principal reasons for poor productivity and marked economic losses in the form of reduced growth rate (Sanyal, 1994) and increased morbidity and mortality (Singh et al., 2017). In Indian condition, understanding of anthelmintic resistance is still meager (Singh et al., 2002). The information on the occurrence of the anthelmintic resistance has been limited to organized farms but now reports from a number of field flocks suggested that the extent of anthelmintic resistance has been underestimated in India (Singh et al., 2002). In context of Bihar, only one sporadic study have been carried out pertaining to anthelmintic resistance in small ruminants, but studies of anthelmintic resistance on goats are lacking. Thus, an immediate attention towards a serious and major field problem of anthelmintic resistance in goats in Bihar, is need of hour to assess the status of the anthelmintic resistance in order to facilitate formulation of a suitable module for worm management programme in goats. With the above all facts, this topic of study has been taken to study on anthelmintic resistance in naturally infected gastro-intestinal nematodes parasites in goats of organized farm and their managemental

practices.

### MATERIAL AND METHODS

The Present study was carried out for observation of anthelmintic resistance /management in GI nematodes of goats flocks through questionnaire survey. In this context, to know the awareness of rural goat keepers a questionnaire based studies for assessment of first-hand information regarding Type of management *viz.* Types of shed, Flooring, Type of roof, Manger/Drinker Ventilation Facilities, Cleanliness, Floor space of goat and Use of bedding material has been utilized as an important tool. The questionnaire was prepared with allotment of numerical categories and based on which, factors are significantly associated with control strategies were discussed.

### RESULTS AND DISCUSSION

The present study, guidelines were formulated for farmers for control of anthelmintic resistance of GI parasitism in goats. In this context, initially the awareness and other information's on Management practices were gathered through questionnaire survey. For which 100 farmers were selected and they were interviewed to know the management practices to assess the need of control measures of anthelmintic resistance. Each questions asked has been converted in to numerical values and were categorized. The said numerical data has been analyzed. From the analysis following interferences applicable to goats were drawn:

It was observed that overall prevalence of GI nematodes infection in goat population in and around Patna district was found to be 93.71%. Dynamics of prevalence and impact of various GI nematodes infections in local population of goat in Patna and its surrounding areas surveyed by collection of faecal samples and a questionnaire survey among the

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**Table 1:** Type of Housing management practices followed by the respondents in Patna district

Sl. no.	Categories	Rural Goat Keepers (N=50)		Urban Goat Keepers (N=50)	
		Yes	No	Yes	No
1.	<b>Type of shed</b>				
	(a) Part of residence.	47 (94)	03 (06)	36 (72)	14 (28)
	(b) Separate.	03 (06)	47 (94)	14 (28)	36 (72)
2.	<b>Flooring</b>				
	(a) Kuccha sandy	50 (100)	--	14 (28)	--
	(b) Bricked.	00 (00)	--	31 (62)	--
	(c) Cemented.	00 (00)	--	05 (10)	--
3.	<b>Type of roof</b>				
	(a) Thatched.	05 (10)	--	00 (00)	--
	(b) Tin.	13 (26)	--	06 (12)	--
	(c) Asbestos.	21 (42)	--	18 (36)	--
	(d) RCC	09 (18)	--	26 (52)	--
	(e) Others.	02 (04)	--	00 (00)	--
4.	<b>Manger/Drinker</b>				
	(a) Pucca.	00 (00)	--	00 (00)	--
	(b) Ton with stand.	00 (00)	--	10 (20)	--
	(c) Plastic / drum etc.	12 (24)	38 (76)	40 (80)	--
	(d) Others.	38 (76)	12 (24)	00 (00)	--

livestock farmers. The aim of this study was to determine the prevalence and intensity of overall gastro-intestinal nematodosis in respect to establish relationship between management practices. The revealed population of local goats harboring various gastro-intestinal parasites which is highly alarming situation and definitely responsible for reducing the efficiency and productivity. Pooled faecal samples from organized farms and free ranged goat flocks of villages areas revealed non-significant influences between these two patterns of goat managements, but higher prevalence accounted in free ranged goat flocks. Stocking density of goat population in semi-intensive management induces the chances of contamination for the other healthy goat flocks, which might be facilitate the higher incidence of parasitism in semi-intensive managed goats. Prevalence of nematodes in goats have been well documented and present report is in accordance with the findings of Singla (1995) who suggested that degree of parasitism or worm burden greatly depend upon the management and hygienic condition of area. Tchoumboue *et al.*, (2000) recorded the significant role of management pattern for the incidence of nematodes in the goats. Similarly, Thangathurai *et al.*, (2003) reported higher prevalence rate due to improper management of enteric parasitism in sheep. Pandit *et al.*, (2003) observed higher incidence of GI nematodes in sheep managed in filed as compared to the farm. From Rajnandgaon city of Chhatisgarh. Deoras *et al.*, (2004) reported that higher number (98%) of animal shed had mud floor in rural areas. But in urban areas

**Table 2:** Type of Cleanliness Hygienic management practices followed by the respondents in Patna district

1.	<b>Ventilation facilities:</b>				
	(a) Poor	26 (52)	--	28 (56)	--
	(b) Fairly good	11 (22)	--	18 (36)	--
	(c) Good	13 (26)	--	04 (08)	--
2.	<b>Cleanliness</b>				
	(a) Dirty	09 (18)	--	08 (16)	--
	(b) Clean	41 (82)	--	42 (84)	--
3.	<b>Floor space of goat</b>				
	(a) Optimum	07 (14)	--	08 (16)	--
	(b) Not optimum	43 (86)	--	42 (84)	--
4.	<b>Use of bedding material in Winter season</b>				
	(a) Straw	04 (08)	--	08 (16)	--
	(b) Jute bags	16 (32)	--	42 (84)	--
	(c) Dry leaves.	30 (60)	--	00 (00)	--

only 47.1 % of animals sheds had mud floor, significantly higher number of (47.1%) of sheds had concrete floor and 5.5 % had brick floor. They also found that the majority of animal sheds in rural areas had improper drainage, whereas, in urban areas 17.2% were using two row system. In Uttar Pradesh, Malik *et al.*, (2005) observed that sizeable number of landless agricultural labour category were sharing their family accommodation with animals and bore well hand pump was the main source of drinking water for animals. Garg *et al.*, (2005) observed that all the households followed semi-intensive system of housing in Baran district of Rajasthan. Sinha *et al.*, (2009) revealed in Bareilly district that 63.3 % of the rural farmers shared their residence with the animals, this percentage was higher in semiurban areas (83.3%). Brick floor was observed in 72.2, 80 and 85.6 % houses respectively in rural, semi-urban and urban areas. Size and height of the houses were optimum in more than 75,65 and 90 % of the farmers in rural, semi-urban and urban areas. Kishore *et al.*, (2013) reported that among the farmers who provided housing, 60 % provided thatched roof sheds, 36.66 % provided asbestos roof sheds and 3.34 % provided no housing. Among the sheds, 84.17 % had kuchcha type flooring and 15.83 % had pucca type (cement concrete) flooring. The present study is in agreement with the reports of Deoras *et al.* (2004), who reported similar types housing for the animals of the majority of farmers. In Patna and surrounding areas, type of management practices adopted by the rural goat keepers as well as urban goat keepers was recorded and data were presented in Table 1. The table 1 depicts that 94 % and 72 % of the respondents of rural and urban goat keepers respectively were using their residential premises for the purpose of goat keeping. Interestingly only 6 % and 28 % goat keepers of rural and urban areas, respectively had created separate unit or provision for their goat keeping. This might be due to the facts that the majority of the respondents' goat keepers were from landless or marginal categories and have no sufficient land for building the separate unit for goats. Further, all the rural goat keepers (100%) had kachcha and sandy floor for their goat shed. So, for the type of roof was concerned 42 % of the respondents of rural area had asbestos roof followed by tin

roof (26%), whereas 52 % urban goat keepers had RCC roof followed by 36 % had asbestos roof. This trend was found because of housing structure and economic status of urban goat keepers was comparatively better than rural goat keepers. Further, 76 % of the rural goat keepers were using manger and drinker made up with the help of local material, whereas 80 % of the urban respondents were having plastic and drum for their use as manger and drinker etc. During the study that more than 50 % of rural and urban respondents had poor ventilation facilities in their goat shed, but contrary to this more than 80 % of the rural and urban respondents shed was found clean. This might be due to the fact that in the small herd size, the cleanliness of shed was easy and can be done by any family members. Further the table 2 reflects that about 85 % of the respondents of rural and urban areas has insufficient floor space in their goat sheds and 60 % of rural goat keeper used dry leaves as bedding material, whereas 84 % of the

urban respondents used jute bags as their bedding materials. It was because of free abundance or availability of dry leaves in rural areas.

## CONCLUSION

The study revealed that about 94% of rural goat keeper used their own residential space for goat keeping whereas 72% of urban farmers used the same pattern. So far flooring space and ventilation facilities was concerned all the rural farmers used Kachcha sandy floor and interestingly about 50% of them had poor ventilation facilities in their goat shed. It is apparent from the study that there is urgent need of improvement through creating awareness programme among rural and urban Goat keeper regarding adopting the scientific managerial practices to mitigate the incidence of GI nematodes in goats. The similar recommendations would be helpful for Goat keepers of other part of the state also.

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