

## Prevalence of Gastrointestinal Parasite in Cattle of Rupandehi District of Nepal in Different Seasons

Utsav Lamichhane<sup>1\*</sup>, Namrata Ghimire<sup>2</sup> and Hom Bahadur Basnet<sup>3</sup>

<sup>1</sup>B.V. Sc & A.H., <sup>2</sup>B.Sc. Ag., Agriculture and Forestry University, Rampur, Chitwan, Nepal

<sup>3</sup>Professor, Department of Veterinary Microbiology and Parasitology,

Agriculture and Forestry University, Rampur, Chitwan, Nepal

\*Corresponding Author E-mail: [utsav.lamichhane@gmail.com](mailto:utsav.lamichhane@gmail.com)

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### ABSTRACT

Majorly the gastrointestinal of cow is infected with nematodes, cestodes and trematodes. This eventually contribute to decrease the productivity of cattle. To analyze the seasonal prevalence of the gastrointestinal parasite, a study was done in Thutipal of Rupandehi district in two different seasons i.e. summer and winter. Method used to recover and identify the parasite egg or larva from the fecal sample was sedimentation technique. In summer season total of 48 fecal samples of cattle were taken out of which 14 samples showed the parasitic infestation. This was 29.17% infestation. Similarly, 51 fecal samples were taken in winter season in the same location, out of which 10 samples showed the parasitic infestation. This showed the winter infestation to be 19.6%. Infestation within the result for the summer was 58.33% which was higher than that of winter which was 41.67%. Statistically the result in both seasons was found to be non-significant. Also, the infestation in the breed of cattle was analyzed. Result showed 7 fecal samples of Jersey infested with parasite out of 47 Jersey cattle which was 14.89% infestation. Similarly, 21 fecal samples of Jersey cross infested with parasite out of 52 Jersey crosses which was 40.38%. Infestation within the result was also higher for the Jersey cross which was 75% than that of the Jersey which was 25%. The result was statistically non-significant. But the infestation percentages in both seasons are itself significant to hamper the productivity of the cattle.

**Keywords:** Gastrointestinal, Nematodes, Rupandehi, Parasitic infestation

### INTRODUCTION

Climate of Rupandehi district is tropical which supports the growth of parasites like Paramphistomum and Fasciola. Paramphistomum is very common in the tropical climate. Out of 12 subspecies of Paramphistomum 11 subspecies are found in

Nepal (Rana et al., 1997). The parasite enters the cattle when the contaminated grass, fodder is ingested. Intermediate hosts are snail like *Lymnaea*, *Pygmanisas*, *Fossaria* (Lopez, Romero & Velasquez et al., 2008). Generally, the immature ones are pathogenic and affects liver as they reside there and mature.

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The immature parasites of Paramphistomum cause superficial hemorrhage in bile duct and gallbladder. Also, in the intestine they cause necrosis and hemorrhage. The Fasciola i.e. liver fluke infects the cattle as the metacercaria stage of the parasite is ingested. Metacercaria itself is the infective stage of the parasite. Metacercaria are hatched in the small intestine of cattle. After hatching they reach liver, they feed within the liver tissue and grow till they reach bile duct (Kaplan et al., 2010). This parasite also requires intermediate host which is mud snail (*Galba truncatula*). As indicated by name, the parasite mainly affects the liver which include fibrinous clot on surface, hepatomegaly, traumatic hepatitis, necrosis of parenchyma of liver.

## MATERIALS AND METHODS

### Region of study

The fecal samples were taken during two seasons from Padsari, Thutipal of Rupandehi district with exact location of 27.547181° N, 83.461268° E which is in the western terai belt of Nepal. The district comprises of tropical climate. The samples were collected and analyzed in the animal health camp organized in coordination with the veterinary clinic at Thutipal. Samples were collected during

mid-January of 2018 for the winter analysis and during mid-july of 2018 for the summer analysis. The viable fecal sample brought to the health camp was analyzed while few samples were collected directly from the rectum of cattle by rectal palpation and then analyzed.

### Sampling and collection

There was randomization in the sampling as the random samples were obtained in the health camp. A total of 99 samples were analyzed out of which 48 were analyzed in summer and 51 in winter.

### Examination and analysis of the sample

As described by Bhatia et al 2016 for the sedimentation technique to recover egg and larva from fecal sample, the samples were analyzed for the presence of parasitic egg or larva. Four slides of each sample were examined under microscope for the confirmation.

### Data recording

Presence of egg or larva of parasite was recorded after the slide was examined under microscope.

### Data analysis

Data recorded was entered in MS Excel 2016 and analyzed in IBM SPSS version 25.

## RESULTS

**Table 1: Variation of parasitic infestation in cattle in different seasons**

Season	Samples taken	Sample with parasite	% infestation (within season)	% infestation (within result)
summer	48	14	29.17%	58.33%
Winter	51	10	19.6%	41.67%

**Table 2: Variation of parasitic infestation in cattle in different breeds**

Breed	Samples taken	Sample with parasite	% infestation (within season)	% infestation (within result)
Jersey	47	7	14.89%	25%
Jersey Cross	52	21	40.38%	75%

## DISCUSSION

The study showed higher infestation in the summer (29.17%) than in the winter (19.6%) with the P value greater than 0.05, statistically non-significant. The result was similar to the result of our previous study in Chitwan

district. Our study in Chitwan showed the summer infestation to be 26% and the winter infestation to be 22%. Both Rupandehi and Chitwan shares tropical climate that can be possible reason for the similar results. Higher infestation of parasite in the summer can be

due to available of moisture and optimum temperature for the growth of parasite. Our finding agrees with the findings of Sardar et al. (2016). But our finding is in contraindication to the findings of Chavhan et al. (2008) who reported higher infestation during winter.

Comparing the degree of infestation between Jersey and Jersey cross, infestation in Jersey cross was found higher which was 40.38% than that in Jersey which was 14.89%. The P value here was greater than 0.05 which implies there is no significant relationship between parasitic infestation and the breed. This result was also similar to that of our previous study in Chitwan which already showed the infestation in Jersey cross to be 39.4% and the Jersey to be 12.5%.

### CONCLUSION

Statistically the relationship of parasitic infestation with seasons and the breeds was non-significant. But the parasitic infestation in the gastrointestinal tract of cattle is widely prevalent and the study represents the overall prevalence in the terai belt of Nepal. So, the topic requires further broad studies. One of the major problems in the studied region is that the farmers are aware of the use of antihelminth but there is knowledge gap for the scientific dosing and frequency of the use of antihelminth.

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