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# PREVALENCE OF GASTROINTESTINAL PARASITES IN BUFFALO AND COW CALVES IN RURAL AREAS OF TOBA TEK SINGH, PAKISTAN

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## ABSTRACT

The present study was conducted on 160 calves (80 of each buffalo and cow). The results indicated that 75 % buffalo and 56.25% cow calves were positive for worm infestation. The highest prevalence of nematodes was recorded followed by mixed infection and cestodes, and no calf was found positive for trematodes. Buffalo and cow calves between 1 to 6 months of age exhibited highest prevalence (86.67, 69.05 %) compared to the age group of 7 to 12 months (60, 42.10 %). Calves on grazing were heavily infected (83.33 % buffalo calves, 75 % cow calves) than those of stall fed (70 % buffalo calves, 46.16 % cow calves). Buffalo male calves were more affected (88.38 %) than female calves (59.46 %) where as, the same was for cow calves. Maximum farmers in the study area were totally ignorant about the recommended calf related management techniques and following the traditional practices. Calf mortality up to 60 % was found in the study area and high worm infestation was one of the leading factors along with the non adoption of prophylactic measures.

**Key words:** Prevalence, endo-parasites, cow calves, buffalo calves, field conditions.

## INTRODUCTION

The gastro- intestinal tract (GIT) of animals harbor a wide variety of parasites mainly helminthes, which causes clinical and sub clinical parasitism. These parasites adversely affect the health status of animals and cause enormous economic losses to the livestock industry. In Pakistan parasitic infestation is quite prevalent and cost about 26.5 million rupees annually to the livestock industry (Anwar *et al*., 1995; Irfan, 1984).

Gastrointestinal parasites in calves lead to reduced growth and constantly hampering the development of livestock industry in Pakistan. Although no exact figure of economic losses is available but it is fact that million of rupees are being lost due to reduced milk yield, rejection of meat and edible offals, depreciation of hides, delayed age of maturity and death particularly in calves and high production cost due to the use of drugs (Akbar, 1989; Chaudhry *et al*., 1984).

Therefore it is important to control GIT parasites through better management as in developed countries, and knowledge on prevalence of these parasites is mandatory. This paper describes the prevalence of GIT parasites and associated predisposing causes in buffalo and cow calves of rural areas of Toba Tek Singh.

## MATERIALS AND METHODS

The present study was conducted in the rural areas (Chak No. 375, 376 old, 376 new and 377 J.B) of Toba Tek Singh district of Punjab. For this purpose, a total of 160 calves (80 of each buffalo and cow) were randomly selected, 40 calves from each village were included in the panel of study. Information related to age, species, sex and management (Deworming, feeding system, housing conditions, mortality rate and disease problem) were recorded.

The fecal samples were collected directly from the rectum of the animals in separate self sealed polythene bags for coporological examination by direct smear Method, Sedimentation Method and Salt Floatation Method as described by Soulsby (1982). Thirty percent of the positive samples were tested for the identification of parasitic species (Soulsby, 1982). Data collected was analyzed by chi-square method and presented in tabulated form.

## RESULTS AND DISCUSSION

**Predisposing factors:** It was observed that most of the calves particularly male buffalo calves were neglected at farmer's level, offered them such feed / fodder that is refused by the lactating animals. Majority of the calves had the problem of pica, leading to worm infestation. In the study area, most of the farmers were aware about deworming but adoption trend was very low. Only 33 % of the farmers were doing deworming of their calves. Where as, the dosage rate and quality of dewormer was questionable. It was also observed that all the animals owned by the farmers were not dewormed at the same time. Milk let down by the calves was a common practice in the study area. Teats of the cows / buffaloes were not washed prior to let down, and all the dung / mud adheres on teats is ingested by the calves that may lead to worm infestation. Farmer's compliant was that the dewormers

are expensive and ineffective. The use of Kamila as dewormer was the common practice.

**Prevalence of gastrointestinal parasites in buffalo and cow calves:** The prevalence of gastrointestinal parasites in buffalo calves was 75 % (60 out of 80). On over all basis, highest prevalence of nematodes, followed by mixed infection and cestodes was found. No trematodes were found in any of the calf. It was found that calves up to 6 months of age were more affected (86.67 %) by gastrointestinal parasites compared to 7-12 months of age (60 %) (Table-1).

Calves on grazing were heavily infected by gastrointestinal parasites (83.33 %) than stall fed calves (70 %). Sixty four and 12 % calves reared on grazing were found infected with nematodes and cestodes. Whereas, in case of stall fed calves 62.85 and 14.28 % were found positive for nematodes and cestodes, respectively. A mixed infection with nematodes and cestodes was encountered in 25.71 and 24 % in stall fed and grazed buffalo calves, respectively (Table 2).

Sex wise prevalence of gastrointestinal parasites indicated that male buffalo calves (88.38 %) were more affected than female calves (59.46 %). Microscopic examination revealed the prevalence of eggs of *Strongyloides pappillosus, Toxocara vitulorum, Haemonchus contortus, ostertagia ostertagi, Bunostmum phleboyomum, Oesophagostomum radiatum*, Trichstrongylus spp. Nematodirus spp. Cooperia spp. *Moniezia benedeni* and *Moniezia expensa*, irrespective of their individual percent prevalence.

Out of 80 cow calves, 45 were found positive for gastrointestinal parasites. A higher prevalence of 69.05 % was found in calves between 1 to 6 months age. However, 42.10 % calves having age 7 to 12 months were found positive for worm infestation (Table 1). Prevalence was higher for that of nematodes followed by mixed infection and cestodes (Table 2). No calf was found positive for trematodes. Calves on grazing were more affected (75 %) then stall fed calves (46.16 %). Further investigation revealed that 62.06, 6.89 and 31.03 % grazed cow calves were infected with nematodes, cestodes and mixed infection of nematodes and cestodes, respectively, whereas, prevalence of nematodes, cestodes and mixed infection of nematodes and cestodes was 56.25, 6.25 and 37.50% in stall fed calves, respectively. The main species found were *Strongyloides papillosus, Oesophagostomum radiatum, Bunostomum phlebotomum,* and *Ostertagi ostertagi*, irrespective of their individual percent prevalence.

In this study, higher prevalence of endo parasites may be attributed to non adoption of recommended calf management related practices and careless attitude of the farmers in calf raising. It was also supported by Iqbal (1987) who pointed out that calves are neglected class of animals at farmer's level, offered them low quality fodder that is refused by the lactating animals. Kakar and Kakarsulemankhel (2008) reported that high incidence of parasitism in calves under field conditions is mainly due to non adoption of prophylactic measures as regular deworming with quality dewormer and recommended dose is not in practice.

The findings of the present study are in close agreement with the findings of Amir (1994), Mourad *et al.* (1985) who reported higher prevalence of gastro-intestinal parasites in buffalo calves than cow calves. In this study, the eggs identified were almost same as pointed out by various pervious studies (Masood and Majid, 1989: Javed *et al.*, 1993 Rehman *et al*. 2009). They observed the presence of *Haemonchus contortus, ostertagia ostertagi, Bunostmum phlebotomum, Oesophagostomum radiatum,* Trichstrongylus spp. Nematodirus spp. Cooperia spp. *Moniezia benedeni* and *Moniezia expensa* eggs in cow and buffalo calves. Javed *et al.* (1993) observed 64.43 % prevalence of gastrointestinal parasites in buffalo and cow calves. The main species observed were *Oesophagostomum radiatum, Mecistocirrus digitatus, Bunostmum phlebotomum,* strongyloides spp. and *haemonchus contortus* that are in agreement with the findings of the present study. The difference in prevalence may be due to geoclimatic conditions and variation in management practices, in practice in the study area.

However, higher incidences in buffalo calves as compared to cow calves may be attributed to differences in feeding habits and hygienic habitats of the two species. Same justification was also supported by Kakar and Kakarsulemankhel (2008). The higher prevalence of gastro-intestinal parasites up to 6 month age may be attributed to calves habits to lick other animals, mud, dung etc. This justification was also supported by the respondents that the young calves frequently lick the mud that leads to worm infestation. Milk let down through calf is a common practice in field but teat washing is done after let down and all the dung urine etc. adheres on dam's teats is ingested by the calf resulting worm infestation.

The higher prevalence of worm infestation in buffalo male calves might be attributed to neglected attitude of the farmers towards the management of buffalo male calves and preference attitude for female raising, as heifer farming was the common trend in that area. In the study area, farmers were engaged in agriculture activities and use of cow bullocks was the common practice and low prevalence of worm infestation in males might be due to caring attitude. The higher incidence of worm infestation in grazed calves as compared to stall fed calves might be due to picking of worm eggs, shed by the infected animals during grazing through faeces. This justification was also supported by Pritchard *et al*. (1990), Gibbs (1993) and Ranjan *et al.* (1992) who pointed out that pasture contamination is

exclusively the results of eggs shed by adult animals during grazing. Adult animals are comparatively immune but calves picked up the increased number of infectious larvae. The presence of dams along with their calves is likely to result in pasture contamination which are dangerous to the calves.

**Conclusion:** The higher prevalence of worm infestation in cow and buffalo calves at farmers level is mainly due to non adoption of recommended calf related management practices. Adoption of prophylactic measures such as deworming, hygienic measures and feeding management can minimize this problem.

**Table 1. Prevalence of GIT parasites in buffalo and cow calves**

| Factors | No. of calves examined | | No. of calves positive % | |
|---|---|---|---|---|
| | Buffalo calves | Cow calves | Buffalo calves | Cow calves |
| **Age** | | | | |
| 1-6 Months | 45 | 42 | 39 (86.67 %) | 29 (69.05 %) |
| 7-12Months | 35 | 38 | 21 (60 %) | 16 (42.10 %) |
| **Sex** | | | | |
| Male | 43 | 35 | 38 (88.38 %) | 18 (51.43 %) |
| Female | 37 | 45 | 22 (59.46 %) | 27 (60 %) |
| **Feeding System** | | | | |
| Grazing | 30 | 28 | 25 (83.33 %) | 21 (75 %) |
| Stall fed. | 50 | 52 | 37 (70 %) | 24 (46.16 %) |

**Table 2. Prevalence of various types of GIT parasites in buffalo and cow calves**

| Factors | Nematodes | | Cestodes | | Trematodes | | Mixed infection | |
|---|---|---|---|---|---|---|---|---|
| | Buffalo calves | Cow calves | Buffalo Calves | Cow calves | Buffalo calves | Cow calves | Buffalo calves | Cow calves |
| **Age** | | | | | | | | |
| 1-6 Months | 28 (71.79%) | 20 (68.96%) | 3 (7.69%) | 2 (6.89%) | - | - | 8 (20.51%) | 7 (24.13%) |
| 7-12 Months | 14 (40%) | 9 (56.25%) | 1 (4.76%) | 1 (6.25%) | - | - | 6 (28.57%) | 6 (37.50%) |
| **Sex** | | | | | | | | |
| Male | 27 (71.05%) | 12 (66.66%) | 4 (10.52%) | 1 (5.55%) | - | - | 7 (18.42%) | 5 (27.78%) |
| Female | 12 (54.54%) | 21 (77.77%) | 3 (13.63%) | 1 (3.70%) | - | - | 7 (31.81%) | 5 (18.51%) |
| **Feeding System** | | | | | | | | |
| Grazing | 16 (64%) | 18 (62.06%) | 3 (12 %) | 2 (6.89%) | - | - | 6 (24%) | 9 (31.03%) |
| Stall fed. | 22 (62.85%) | 9 (56.25%) | 5 (14.28%) | 1 (6.25%) | - | - | 9 (25.71%) | 6 (37.50%) |

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