

# CHAPTER-I

## INTRODUCTION

Bangladesh is an agricultural dependent country with a high population density and per capital income is very low. In our country, one of the most potential subsectors of agriculture is livestock which plays a great role in promoting human health and national economy of the country. About 98% of livestock reared by the landless and marginal farmers in rural areas has removed their poverty (Alam, 1993). Livestock not only assists in upgrading the financial condition but also makes a substantial contribution to human nutrition. Large ruminants (Cattle and Buffalo) and small ruminants (sheep and goat) constitute the major portion of livestock in our country. The present population of livestock is 23.95 million cattle, 1.39 million Buffalo, 24.15 million goats and 3.07 million sheep (DLS, 2011). The total contribution of livestock sub-sector to Gross Domestic Product (GDP) in Bangladesh is approximately 2.9 % (DLS, 2011). It also generates 13% of foreign currency and provides 20% full-time employment and 50% partial employment of rural population (Alam, 1993). The annual milk production is 50.67 million ton, meat production 36.20 million ton in our country (DLS, 2011).

In Bangladesh 80% rural people rear indigenous cattle (Siddiki et al., 2009).The livestock production system is hampered by deficiencies in feeding and breeding; further more aggravate the conditions with disease and parasitism. The geo-climatic condition of the country also favors the growth, development, and survival of various parasites. Gastrointestinal parasitism is a worldwide problem (Regassa *et al.*, 2004. The main reasons of poor health condition, retarded growth rate, diminishing the working efficiency, decrease milk and meat production, abortion; cost associated with preventive measures and reduces the disease resistance capability are caused by parasitic infection, which may ultimately lead to heavy economic loss (Chavan *et al.*, 2008, and Radostits et al., 1994). The total annual loss due to gastrointestinal parasites was 25-30 million sterling pounds reported by Rahman (1997). It has been estimated that about 10% animal die annually due to parasitic disease. Prevalence of helminthes parasitic infestation in cattle in some areas of Bangladesh has been reported earlier (Rahman, 1970; Rahman and Razzak, 1973). Among the gastrointestinal parasites trematodes like as Fasciola and Paramphistomum are more commonly encountered in our country. Fascioliasis is distributed throughout the world (Blood et al., 1990) Fascioliasis is an infection caused by fluke *fasciola hepatica* and *fasciola gigantica* in the class of Trematoda, most often characterized by fever, eosinophilia, and abdominal pain, although as many as half of the patients may be

asymptomatic. *Paramphistomum* sp., is geographically widespread which is mainly caused by *Paramphistomum cervi* and *paramphistomum microbothrium* and clinically characterized by foetid diarrhea, Dehydration, anorexia, loss of body weight, Pale mucous membrane and there may be sub maxillary edema. Both of the parasitic cases are frequently uncounted in drier months, immediately after heavy rains or floods when pastures are heavily contaminated with metacercariae as well as encysted cercariae. There are many similarities in clinical sign and symptoms of this two diseases. Diagnostically eggs are almost similar. Many veterinarians mistakenly treat paramphistomiasis rather than fascioliasis due to similarities of the sign, symptoms and egg morphology.

Previously many study was founded to identify the prevalence of fascioliasis and paramphistomiasis. So far, till now comparative study of prevalence between Fascioliasis and Paramphistomiasis was not conducted in our country. So, the present study was conducted to measure the prevalence's of gastrointestinal parasites more specifically *Fasciola* sp., and *Paramphistomum* sp., in Kaligang Upazilla under Lalmonirhat district.

### **Objectives of present study:**

1. To measure the prevalence of Fascioliasis and Paramphistomiasis at Kaligang Upazilla.
2. To suggest an effective anthelmintic campaign for the farmer

# CHAPTER-II

## MATERIALS AND METHODS

### 2.1 Study area:

The study was performed in Upazilla Veterinary Hospital, Kaliganj, Lalmonirhat. This area was chosen to study clinical cases affected by Fasciola and Paramphistomum.



Figure: Study area

### 2.2 Study period:

The duration of study was about March to April 2017

### 2.3 Study population:

A total 75 cattle of different age and sex were registered for examining the feces. The animal were brought to veterinary hospital, by their owner. Sometimes I have visited the farm and collecting feces from there and examined under microscope. During study population, the total number of animals were divided into three age group.

#### Selection of animals and Survey Design

a) Different cattle breed were selected for this study. Mainly, local breeds and crossbred cattle were selected for this study.

b) To determine the age and breed susceptibility of different parasites, cattle were categorized into three sub groups as Age group-I (6 month – 2 year), Age group – II (2year -4year), Age group-III above 4 year.

Group	Age category
Age Group - I	6 month – 2 year
Age Group - II	2 year – 4 year
Age Group - III	Above 4 year

c) A total of 75 fecal samples were collected from 75 individuals, were brought for examination in Upazilla Veterinary Hospital (UVH) during the study period. The cattle were suspected to be affected with gastro-intestinal parasitic infestation on the basis of owner complaint, clinical history- emaciation and gastro-intestinal disturbances; clinical signs- diarrhoea, inappetite, unthriftiness; and physical examination. The description of each patient age, sex and date was recorded to assess their influence on the Veterinary Hospital Kaligang in Lalmonirhat district. The suspected *Fasciola* sp., infected cattle were separated from better thorough check-up and for confirmatory diagnosis.

#### 2.4 Collection of sample:

Fecal sample from all reported animal were collected directly from the rectum in small polythene bag. The sample were transferred to the diagnostic laboratory at prevalence of the GI parasitic infestation. Random sampling was followed during sample collection. A prototype questionnaire was used to record the information like owner's name and address, animal Identification (ID), breed, age, sex, deworming history.

#### 2.5 Criteria of diagnosis:

The egg of suspected parasites were identified on the basis of their morphological features.

#### 2.6 Morphological study of *Fasciola* egg:

Eggs are oval, operculated, yellow-brown color and measure 130 to 150 by 60 to 90  $\mu\text{m}$ .

( Hendrix,1998)



Figure: Egg of *Fasciola* sp.,

#### 2.7 Morphological study of *Paramphistomum* egg:

Presence of posterior knob, distinct operculum and measure 114 to 176  $\mu\text{m}$  by 73 to 100  $\mu\text{m}$ .(Foreyt,2001)



Figure: Egg of *Paramphistomum* sp.

### **Examination techniques:**

1. Physical examination.
2. Microscopic examination.

- a) Direct smear method.
- b) Sedimentation method.

### **1. Physical examination:**

A presumptive diagnosis of Fascioliasis and Paramphistomiasis in cattle can be made on history of enzootic area and most of the suspected cattle were showed following signs:-

#### **Clinical sings of *Fasciola sp*:**

- The animal become anemic
- The animal become Dull, Depressed, roughened coat appearance
- Pale and oedema of the mucosa and conjunctiva
- Sub mandibular oedema (Bottle jaw) develop
- Loss of body weight
- Loss of milk production.
- Diarrhoea with characteristic foul odor
- The animal become show inappitance

In long standing case, the fowl odor feces appearance and animal become dehydrated.

#### **Clinical sign of *paramphistomun sp*:**

- Persistent foetid diarrhea.
- Dehydration observed in affected animal and loss of body weight.
- Dehydration and anorexia followed by sudden and frequent death.
- Pale mucous membrane and there may be sub maxillary edema.

## **2. Microscopic examination:**

### **a) Direct smear method**

A drop of fecal sample was taken on a glass slide, thoroughly diluted with few drop of water, covered with cover slip and examined under microscope using both low and high power of magnification (10x and 40x) for the identification of *Fasciola* egg and *Paramphistomum* eggs.

### **b) Sedimentation method:**

5gm of fecal sample was diluted with 20ml of water in a cylinder, after which the cylinder was kept standing for one hour. After this, supernatant fluid was decanted off, one drop of sediment was taken to little glass slide, with covered with cover slip and examined under microscope for the presence of *Fasciola* egg and *Paramphistomum* eggs. The *fasciola* and *Paramphistomum* eggs were identified on the basis of their morphological feature as described by Soulsby (1982).



Figure: Sample preparation for microscopic examination

## **2.8 Data collection:**

The species, age, sex, breed, body condition score with drugs and vaccination history was recorded during the handling the patient. Information about affected cattle and knowledge about parasitic disease and its management were also obtained from the farmers, who brought their animals affected by parasites to the Veterinary Hospitals during the study period. A face to face farmer's interview was performed to record the information using a separate questionnaire.

## 2.9 Entry and analysis of data:

All the data obtained from the study areas were entered into Microsoft Excel 2013 according to the selective parameters.



Figure: Microscopic observation

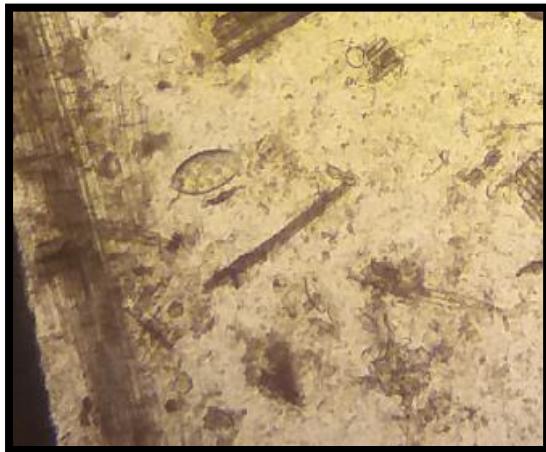


Figure:Egg of *Fasciola* sp.,



Figure:Egg of *Paramphistomum* sp.,



## CHAPTER-III

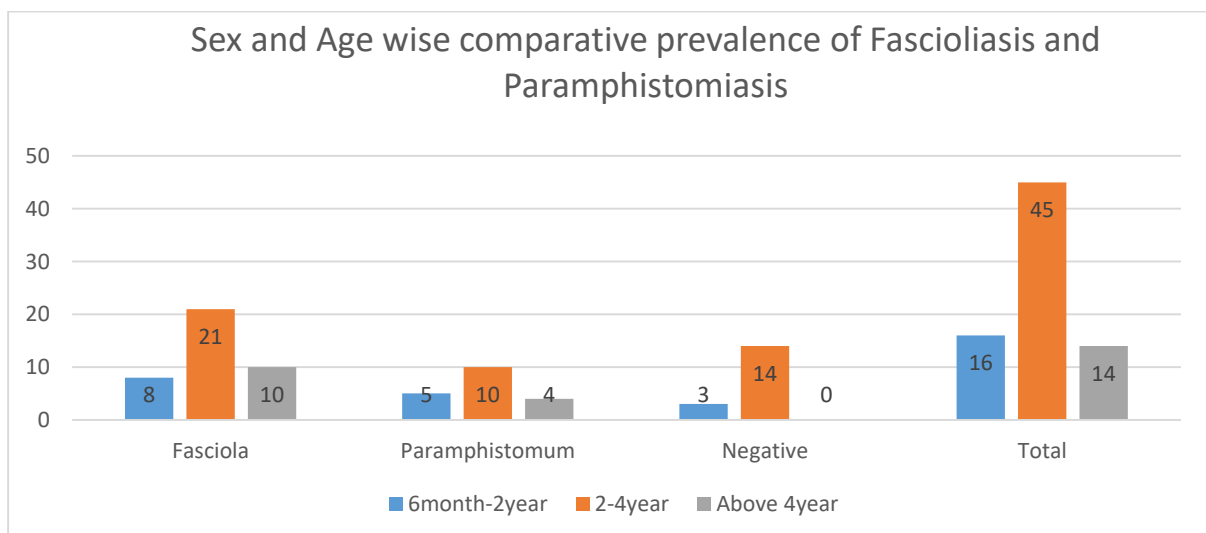
### RESULTS

The most of the cases in this study area were affected Fascioliasis than Paramphistomiasis. The fecal examination by direct microscopic examination is the best for diagnosis. The clinical signs of animal is also observed. In the study area, out of 75 samples the 58 cases were test positive of which 52% are *Fasciola* sp., and 25.33% are *Paramphistomum* sp., In *Fasciola* sp., male are 18.66% and female are 33.34% and In *Paramphistomum* sp., female are 16% and male are 9.33%, respectively.

**Table3.1:** Total prevalence of Fascioliasis and Paramphistomiasis.

Variable	Frequency (n)	Percentage (%)
<i>Fasciola</i>	39	52
<i>Paramphistomum</i>	19	25.33
Negative	17	22.67
Total	75	100

This table showed that, total case is 75, in which frequency of *Fasciola* sp., is 39(52%), frequency of *Paramphistomum* sp., is 19(25.33%) and negative case frequency is 17(22.67%) According to this table Fascioliasis is higher than Paramphistomiasis.



**Table 3.2:** Sex and age wise comparative prevalence of Fascioliasis and Paramphistomiasis.

Species	Sex	Total positive case	6 month – 2 years	2 – 4 years	Above 4 years
<i>Fasciola sp.,</i>	Female	25(33.33%)	5(6.67%)	14(18.67%)	6(8%)
	Male	14(18.66%)	3(4%)	7(9.33%)	4(5.33%)
<i>Paramphistomum sp.,</i>	Female	12(16%)	3(4%)	6(8%)	3(4%)
	Male	7(9.33%)	2(2.67%)	4(5.33%)	1(1.33%)
Negative	Female	7(9.33%)	1(1.33%)	6(8%)	
	Male	10(13.33%)	2(2.67%)	8 (10.66%)	
Total		75	16	45	14

This table shows that the total prevalence of *Fasciola sp.*, is 52%. In female prevalence is (33.33%) which is higher than the male (18.66%). When categories *Fasciola sp.*, according to age it shows that two to four year age group are more susceptible than age group six month to two year and above four year.

Again This table shows that the total prevalence of *Paramphistomum sp.*, is 25.33%. In female prevalence is (16%) which is higher than the male (9.33%). When categories *Paramphistomum sp.*, according to age, it shows that two to four years age group are more susceptible than age group six month to two year and above four year.

**Table3.3:** Total comparative prevalence of Fascioliasis, Paramphistomiasis and negative cases on the basis of different factors like- Breed, Body condition, grazing pattern and anthelmintic treatment.

Variable		Frequency (n)	Percentage (%)	<i>p</i> -value	
Animal related data	Breed	Local	61	81.33	0.004
		Cross	14	18.67	
	Body condition	Cachectic	48	64	0.002
		Normal	27	36	
Managemental data	Anthelmintic practice	Yes	28	37.33	0.094
		No	47	62.67	
	Grazing pattern	Free grazing	52	69.33	0.082
		Zero grazing	23	30.67	

This table shows that total prevalence of Fascioliasis, Paramphistomiasis and negative cases on the basis of different factors like- Breed, Body condition, grazing pattern and anthelmintic treatment. In total 75 cases on the basis of Breed animal are divided into local and cross breed. Local breed (81.33%) are more susceptible than cross breed (18.67%). On the basis of Body condition animal are divided into cachectic and normal. Cachectic animal (64%) are more susceptible than normal (36%). On the basis of Anthelmintic practice animal are divided into two group. Previous time anthelmintic used animal (37.33%) are less susceptible than that animal in which anthelmintic not used (62.67%). On the basis of Grazing pattern animal are divided into two group. Free grazed animal are more susceptible than zero grazed animal.

**Table 3.4:** Prevalence of Fascioliasis on the basis of different factors like- Breed, Body condition, grazing pattern and anthelmintic treatment.

Variable		Frequency (n)	Percentage (%)	
Animal related data	Breed	Local	33	84.62
		Cross	6	15.38
	Body condition	Cachectic	21	53.85
		Normal	18	46.15
Managemental data	Anthelmintic practice	Yes	15	38.46
		No	24	61.54
	Grazing pattern	free grazing	23	58.57
		Zero grazing	16	41.03

This table shows that total prevalence of Fascioliasis on the basis of different factors like- Breed, Body condition, grazing pattern and anthelmintic treatment. In total 39 cases on the basis of Breed animal are divided into local and cross breed. Local breed (84.62%) are more susceptible than cross breed (15.38%). On the basis of Body condition animal are divided into cachectic and normal. Cachectic animal (53.85%) are more susceptible than normal (46.15%). On the basis of Anthelmintic practice animal are divided into two group. Previous time anthelmintic used animal (38.46%) are less susceptible than that animal in which anthelmintic not used (61.54%). On the basis of Grazing pattern animal are divided into two group. Free grazed animal are more susceptible than zero grazed animal.

**Table 3.5:** Prevalence of Paramphistomiasis on the basis of different factors like- Breed, Body condition, grazing pattern and anthelmintic treatment.

Variable		Frequency (n)	Percentage (%)	
Animal related data	Breed	Local	11	57.89
		Cross	8	42.11
	Body condition	Cachectic	10	52.63
		Normal	9	47.37
Managemental data	Anthelmintic practice	Yes	9	47.37
		No	10	52.63
	Grazing pattern	Free grazing	14	73.68
		Zero grazing	5	26.32

This table shows that total prevalence of Paramphistomiasis on the basis of different factors like- Breed, Body condition, grazing pattern and anthelmintic treatment. In total 19 cases on the basis of Breed animal are divided into local and cross breed. Local breed (57.89%) are more susceptible than cross breed (42.11%). On the basis of Body condition animal are divided into cachectic and normal. Cachectic animal (52.63%) are more susceptible than normal (47.37%). On the basis of Anthelmintic practice animal are divided into two group. Previous time anthelmintic used animal (47.37%) are less susceptible than that animal in which anthelmintic not used (52.63%). On the basis of Grazing pattern animal are divided into two group. Free grazed animal are more susceptible than zero grazed animal.

## CHAPTER-IV

### DISCUSSION

The parasitic infestation mainly Fascioliasis and Paramphistomiasis is responsible high productive and economic loss for farmer. The prevalence of *Fasciola* sp., is 39(52%), and prevalence of *Paramphistomum* sp., is 19(25.33%). In both sex's table 3.1 are common. In *Fasciola* sp. The female 33.33% are more susceptible than male 18.66%. Similarly in *Paramphistomum* sp., Female (16%) is also more susceptible than male 9.33%. According to my study it has been the prevalence of *Fasciola* sp., is shown that higher than *Paramphistomum* sp., The overall performance of *Fasciola* sp., 52% and *Paramphistomum* sp., is 25.33%. In this study the fecal sample examination revealed that overall prevalence of *Fasciola* sp., 52% where Garrels (1975) showed that the overall prevalence was 22.41%. Which is less than my study. Chawdhury (1990) showed that 19.72%. Which is less than my study. So In my study it showed that the prevalence of *Fasciola* sp. is higher than that of Garrels and Chawdhury. The result is also higher than the report of Rahman and Razzak (1973), which was 16.3% Chilardi and Mantovani (1975) showed that, by fecal examination of overall prevalence of *Fasciola* sp., was 57% which is closely related to my study (56.66%) and again Lowcock (1982) showed that, in Nepal, on fascioliasis by examining fecal sample from cattle the prevalence is 66% which is higher than my study (52%)

Okiluddin (1996) examined that, fecal sample of cattle in Kisoregang district and showed that the overall prevalence is 43%, which is less than my study. Rahman (2006) showed that by fecal examination the overall prevalence of *Fasciola* sp., in cattle was 64.27% which is higher than my study 52%. Siddiki et al., (2010), showed that prevalence of *Fasciola* sp., in red Chittagong cattle is (2%) which is very much lower than my study. Bilquees and Alam (1988) reported only 8.50% prevalence of Fascioliasis in buffaloes and 6.95% in cows from Karachi, Pakistan. Similarly, Sabri et al (1981) observed prevalence of Fascioliasis 8% in cattle which is lower than my study 52%.

In case of *Paramphistomum* sp., the overall prevalence in Bandarban district was 56.50% where as my study is 25.33% which is lower than that study. The *Paramphistomum* sp., prevalence in savar area is 46% which is higher than my study (25.33%). Islam et al., (1989) mentioned that the *Paramphistomum* sp., most prevalent in ruminant in Bangladesh. Controversies over the pathogenicity of the adult amphistomes still exist in the country.

Hoque *et al.*, (1992), showed that, the prevalence of *Paramphistomum* sp., is 21.8% which is lower than my study.(25.33%). Islam *et al.*, (1992), reported 48.3% infestation rate *Paramphistomum* species in water buffalo in Bangladesh which is higher than my study (25.33%). Siddiki *et al.*, (2010), showed that prevalence of *Paramphistomum* sp., in red Chittagong cattle is (38%) which is higher than my study. M.N. Kakar *et al.*, showed that prevalence of *paramphistomum* in ruminant is 7.82% which is lower than my study. S.A.Sardar *et al.*, (2006) stated that the overall prevalence of gastrointestinal parasite in native cattle is *Fasciola* sp., 25%, which is lower than my study and *Paramphistomum* sp., 45.28%, which is higher than my study. Uddin *et al.*, (1994) conducted a study on the overall infection rates of different species of gastro-intestinal helminthes in Bandarban district. They showed the infection rates were *Fasciola* spp. (15.42%), which is lower than my and *Pararamphistomum* spp. (56.66%) which is higher than my study.

Table: 3.2 Incase of *Fasciola* species the age group of 2-4 years are more susceptible than age group 6 month and above 4 years. The age group of 6month -2years population size are small and above 4 years age group of animal immunity is higher than others group. 4 years group are less susceptible and female (25) are more susceptible than male(14) due to female population larger. Table: 3.3, Local breed (81.33%) are more susceptible than cross breed (18.67%). On the basis of Body condition animal are divided into cachectic and normal. Cachectic animal (64%) are more susceptible than normal (36%). On the basis of Anthelmintic practice animal are divided into two group. Previous time anthelmintic used animal (37.33%) are less susceptible than that animal in which anthelmintic not used (62.67%). On the basis of Grazing pattern animal are divided into two group

.

## **CHAPTER-V**

### **LIMITATION**

- The study period was short. Sample size was short.
- Farmers were not cooperative during the study.
- No follow up done in the study period.
- This study is limited to certain parameters and some of the parts of the study were left untouched due to time and cost factors so that future researchers can elaborate this study by approaching the untouched portion.
- Again in my study for conformation only observe clinical sign and done fecal examination but not the serological technique used.



## CHAPTER-VI

### CONCLUSION

The study focused the estimation of the comparative prevalence of Fascioliasis and Paramphistomiasis on cattle of Kaliganj Upazilla, Lalmonirhat. The results revealed that the prevalence of *Fasciola* sp. (52%) is higher than *Paramphistomum* sp. (25.33%). The breed and BCS had significant effect ( $p < 0.05$ ) on the prevalence of irrespective of disease conditions. The frequency of parasitoses was significantly higher in local breed (81.33%) and cachectic animal (64%) than cross (18.67%) and normal (36%) animal accordingly. There was no significant effect ( $p > 0.05$ ) of sex, grazing pattern and anthelmintic administration on the prevalence of both parasitic infestations. Nevertheless, the prevalence is higher in those animals which had been managed through free grazing system (69.33%) and without deworming practices (62.67%). So, cross bred animal with good body conformation and the management of having regular deworming and zero-grazing system can be advisable to retard the prevalence of Fascioliasis and Paramphistomiasis.

## **CHAPTER-VII**

### **REFERENCES**

- Alam, J., 1993.** Livestock: The sector for more investment in Bangladesh. Asian Livestock (FAO).
- Bilqees F.M, Alam, M. A., 1988.** Fascioliasis in Livestock in Karachi. Proc. Parasitological 5, 15-39.
- Blood, D. C., Radostits, O. M., Henderson, J. A., Arundel, J. H. and Gay, C. C. 1990.** Veterinary Medicine. 7th edn The English Language Book Society and Bailliere Tindall
- Chavhan, P.B., Khan,L.A., Raut, P.A., Maske, D.K., Rahman, S., Podchalwar, K.S., and Siddiqui, M.F.M.F., .2008.** Prevalence of Nematode parasites of Ruminants at Nagpur. Vet. world., 1(5): 140
- Chowdhury, S.M.Z.H., Taimur, H.J.F.A., and Jahan. S., 1991.** Fluke infestation in some selected villages of Bangladesh Vet., 7:45-46
- Cholardi, Mantovani. 1975.** Epidemiological studies on Fascioliasis due to *Fasciola gigantica* in cattle in Italy. Bull 6;4-9
- Foreyt, W. J., 2001:** Veterinary Parasitology (Reference Manual) 5th Edition., Iowa State Press. pp: 69-113.
- Garrels, G., 1975.** Gastro intestinal Parasitic Infestation of cattle in same village of Dhaka and Tangail Districts of Bangladesh. Bang. Vet. J., 9 (1-4): 9-10.
- Hoque et al., 1992.** Incidence of paramphistome infections in ruminants Indian J. Anim. Sci.59:231-234
- Hendrix, C.M., 1998.** Diagnostic Veterinary Parasitology. (2nd edition), Mosby, Philadelphia, U.S.A

- Islam, F.M.S., 1989.** Incidence of parasites of buffaloes in some areas of Bangladesh. MS thesis, Submitted to the Department of Parasitology, Bangladesh Agricultural University, Mymensingh.
- Islam, F.M.S., Rahman, M.H. and Chowdhury, S.M. 1992.** Prevalence of Parasites of Water Buffaloes in Bangladesh. *Asian Australasian J. of Anim. Sci.*, 5(4): 601-604.
- Lawcock, Casildo L., Castro Z., 1982.** The susceptibility of Lymnaeid snails to *Fasciola* sp. infections in Nepal. *Vet. parasitol.*, 35:157-161
- Kakar *et al.*, 2008.** Prevalence of endo and ecto parasite in cow and buffalo of quetta, Pakistan, *Pakistan Vet. J.*, 2008, 28(1): 34-36.
- Okiluddin S. M., 1996.** Studies on Fascioliasis of cattle in Kishoregonj district. M. Sc. Thesis,  
Department of Parasitology, Bangladesh Agricultural University, Mymensingh
- Rahman, M.H., and Razzak, A., 1973.** Incidence of helminth parasites infecting cattle in the Kotwali thana of Comilla. *Proceedings of First Bangladesh Veterinary conference*, Bangladesh Agricultural University, Mymensingh. p.25
- Rahman M. H., and Mondol MH 1983.** Helminth parasites of cattle (*Bos indicus*) in Bangladesh. *Ind. Para.*, 7: 173-174.
- Rahman M.L., 1992.** Helminth infection in cattle of Feni District of Bangladesh. *Bang. Vet.*, 9(1-2) 105-106
- Regassa, F., Sori, T., Dhuguma, R., and Kiros, Y., 2004.** Epidemiology of Gastrointestinal Parasites of Ruminants in Western Oromia, Ethiopia. *Intern. J. Appl. Res. Vet. Med.*, 4(1): 5157
- Sardar S. A., Ehsan M. A., Anower A. K. M. M., Rahman M. M., Islam M. A., 2006:** Incidence of liver flukes and gastro-intestinal parasites in cattle. *Bangladesh J. of Vet. Med.*, 4 39–42.

- Sabri, M. A.M. Z., Khan, H. A., Chowdhury and H. A., Samad, 1981.** Studies on the incidence and taxonomy of *Fasciola* species in buffaloes and cattle. *J. Anim. Sci. Pakistan*, 3: 49-54
- Siddiki A. Z., M. B. Uddin, M. B. Hasan, M. F. Hossain, M. M. Rahman, B. C. Das, MS Sarker and M. A., Hossain, 2010.** Coproscopic and haematological approaches to determine the prevalence of helminthiasis and protozoan diseases of Red Chittagong Cattle (RCC) breed in Bangladesh. *Pak. Vet. J.*, 30(1): 1-6.
- Shelmon, E., 1978.** A survey on liver infections with *Fasciola gigantica* among slaughtered animals in Iraq.
- Soulsby, E. J. L., 1982.** *Helminths, Arthropods and Protozoa of Domesticated Animals*, 7th edition. Balliere Tindall, London, UK. pp. 40-52
- Siddiki, A.Z., Uddin, M.B., Hasan, M.B., Hossain, M. F., Rahman M. M., Das, B. C., Sarker, M. S. and Hossain, M.A., 2009.** Coproscopic and Haematological Approaches to Determine the Prevalence of Helminthiasis and Protozoan Diseases of Red Chittagong. *Pak. Vet. J.*, 30(1): 16.
- Uddin K. H., Main M. F., Taimur M. J. F. A., 1998.** Gastrointestinal Helminth infections of goats in Chittagong Hill Tract Area of Bangladesh. *Bang. J. Liv. Res.*, 5: 18-24.

# CHAPTER- VIII

## APPENDIX

### QUESTIONNAIRE

Case No: .....

Date...../...../.....

1. Nature of case: Fresh/Repeat

Category of case: Medicine/Surgery/ Gynecology

2. Name of the owner: ..... Mobile:.....

Address: ..... Occupation: Farming/ Business/.....

#### 3. Patient identification data

Species: Cattle/Buffalo/Sheep/Goat/others Breed: Local/Cross/..... Age: ..... Sex: Male/Female  
Weight: .....Kg Milk yield: .....L/day

#### 4. Source/ Target population:

Source of patient: Farm Livestock/ Domestic Pet/ Family livestock Animal Size of farm: .....

5. Owner's complain: .....

#### 6. Clinical history (Anamnesis):

Onset: Sudden/ Gradual Duration of illness: ..... Weakness: No/ Yes Feeding History:  
Normal/ Loss of appetite/ Off fed Rumination: Present/ Absent Salivation: No/ Yes Lacrimation: No/  
Yes Defecation: No/ Yes Feces: Normal/ Diarrhoea Urination: Normal/ Frequent/ Dribbled Cough:  
Yes/No Vaccination history: No/ Yes Last Vaccination: .....

#### 7. Clinical examination:

Rectal temperature: .....° F/C Respiration rate: ...../minute Pulse rate: ...../minute  
Visible mucous membrane: Pink/ Pale/ Icteric/ Cyanotic/ Hair coat: Shiny/ Rough/ Lesion/ Others  
Posture: Normal/ Defective Gate: Normal/ Lameness Abdomen size: Normal/ Distended/squeezed  
Lymphnode: Normal/ Enlarged BitingWound: Present/Absent Wound area:  
Ear/Neck/Abdomen/Thigh/Tail Frequency of Biting: .....

8. Additional findings: .....

#### 9. Diagnosis:

Presumptive: ..... Confirmatory: .....

10. Prognosis: Good/ Fair/ Favorable/ Grave

#### 11. Welfare Issue:

##### I Freedom from hunger and thirst

Type of Feeding: Concentrate/roughage Feeding Nature: Free Grazing/ Tethering/ Zero Grazing

Amount of concentrate:.....Kg/day Amount of roughage:.....Kg/day Amount of water:.....L/day

# QUESTIONNAIRE

## **II Freedom from discomfort:**

**Space requirement:** .....feet<sup>2</sup>/animal      **Floor of shed:** Concrete/ Brick/ Sandy/ Muddy **Types of Housing:** Concrete/ Semi-concrete **Ventilation system:** Open/ Moderate/ Close

## **III Freedom from pain, injury and disease**

**Injury Lesion:** Present/Absent    **Concern with Vet.:** Yes/ No **Previous Disease History:** .....

<b>Anesthesia During Operation</b>	<b>Yes/ No</b>
<b>Types of Anesthesia</b>	<b>Local/ General/ Regional</b>
<b>Anesthesia Performed by</b>	<b>VS/ VFA/Compounder/</b>
<b>Anesthesia Technique</b>	
<b>Anesthetic Agents</b>	

## **IV Freedom to behave normally:**

**Rearing System:** Free/ Semi-intensive/ Intensive **Breeding Nature:** Natural/ Artificial **Company with other Animal:** Yes/No

## **V Freedom from fear and distress:**

**Mental suffering during treatment:** Yes/ No      **General attitude:** Alert/ dull/ Depressed/ Others  
**Beating to control animal:** Yes/ No

### **12. Treatment:**

<b>Date</b>	<b>Observation(s)</b>	<b>Treatment</b>

## **CHAPTER-IX**

### **ACKNOWLEDGEMENT**

The author wishes to acknowledge the immeasurable grace and profound kindness to the creator and the supreme ruler of the universe Almighty “ALLAH” who empowers the author to complete the research work successfully.

The author is ever grateful to Professor Dr. Goutam Buddha Das, Honorable ViceChancellor of Chittagong Veterinary and Animal Sciences University, Professor Md. A Halim, Honorable Dean, Faculty of Veterinary Medicine, Chittagong Veterinary and Animal Sciences University and Professor Dr. A.K.M. Saifuddin, Director, External Affairs, Chittagong Veterinary and Animal Sciences University, for arranging such type of research work as a compulsory part this internship programme and providing kind support in this regard.

The author feels proud in expressing his deep sense of gratitude and indebtedness to internship tutor Professor Dr. Mohammad Rashedul Alam, Department of Physiology, Biochemistry and Pharmacology, Chittagong Veterinary and Animal Sciences University.

The author also would like to express his deepest sense of respect and appreciation to DR. Chandan Kumar, Veterinary Surgeon, Upazila Veterinary Hospital, Kaligang for his close supervision and kind cooperation to collect the information from other Veterinary Hospital during the internship period.

The author expresses thanks and warmest sense of gratitude to his parents and all well-wishers.

The Author,

October, 2017

# **CHAPTER-X**

## **BIOGRAPHY**

This is Sajedul Islam, son of Iman Hossain and Sakina Begum who was born in Kaligang Upazilla at Lalmonirhat, Bangladesh. I completed my Secondary School Certificate (SSC) Examination in 2009 with GPA- 5.00 from BIAM Model School and Collage, Bogra, Rajshahi, and Higher Secondary Certificate (HSC) Examination in 2011 with GPA- 4.40 from SOS Herman Gmainer College, Bogra, Rajshahi. Currently I have been studying Veterinary Science at the Chittagong Veterinary and Animal Sciences University, Chittagong, Bangladesh. At present I am doing my Internship Programme which is compulsory for awarding my degree of Doctor of Veterinary Medicine (DVM) from CVASU. My favorite hobby is playing football, Cricket and exploring the unexplored. I feel much comfort and pleasure on voluntary community works for the betterment of e society as well as for the nation.