Chapter-I

INTRODUCTION

Bangladesh is an over populated developing country where livestock plays an important role in the development of total traditional economy. There are about 23.94 million cattle, 1.478 million buffalo, 3.401 million sheep, 25.931 million goat 275.183 million chicken, 54.016 million duck in Bangladesh (DLS, 2018-19). They provide mainly meat, milk, egg, draught, hides and skins, bones, offal, feathers as important export item which help in earning foreign exchange. The country has a densely livestock population but suffers from an acute deficit of livestock products like meat, milk and eggs. The deficit accounts for 5.582 million metric ton for milk, 2000.85 million number for egg. Though Bangladesh has one of the highest livestock populations in the world, but characterized by very low productivity, because of low productivity, inferior genetic material, indiscriminate breeding leading to severe genetic erosion, neglect of animal health care and non-existence of an efficient value chain, shortage of feeds and fodder resources and lack of awareness (BIDS, 2012). Among the various constraints to cattle, buffaloes and goats production, diseases and disorders are the most important which degraded the productivity of these animals (Sarker *et al.*, 1999). Most of the animals are weak, emaciated and nonsatisfactory productive performance due to mainly malnutrition and diseases. In Bangladesh 45.1% people depend on agriculture for their livelihood. Agriculture and livestock farming helps our population to be employed is about 80% and people are involved in livestock sector as permanent occupation is about 20%.

Livestock is an essential component of mixed farming system practiced in Bangladesh for centuries. Major portion of the livestock constitute cattle, goats and poultry. Most of these animals are reared under smallholder traditional management system in rural areas. Peoples of Bangladesh earns their livelihood through raising cattle and poultry is about 20%.

Use of cow dung as manure and fuel, animal power for transportation draught power for tilling land provide a significant portion of the Gross Domestic Product (GDP). The contribution of livestock in the magnitude of GDP is about 1.54 % in Bangladesh. The management practices of animals and geo-climatic condition of Bangladesh are favorable for the occurrence of various diseases.

The veterinary hospitals are the ideal and reliable source of information about animal diseases, their illustration and solution. About animal diseases and their management, veterinary clinics and hospitals become a crucial source of information. People from the neighboring areas bring their sick animals to the veterinary hospital every day. Analysis of the case record gives a very comprehensive idea about the disease problems at local areas.

In the last few decades, as the major infectious diseases of cattle, goat and poultry in Bangladesh are brought under control by vaccination and farmer's awareness, emphasis has increasingly shifted to economically important diseases to the dairy and poultry producers. However, more information is required to describe the pattern of occurrence of clinical diseases for the provision of appropriate veterinary care and effective disease control programmed and animal production. The objectives were to determine clinical prevalence of diseases and disorders in cattle, goat and poultry at the Upazila Veterinary Hospital. Considering the above backgrounds the present study was undertaken with the following objectives of the study are given below:

- To determine the prevalence of different diseases and disorders of livestock and poultry population.

- To study the diseases with different demographic variable (age, sex, etc.) of livestock and poultry.

Chapter-II
Materials and Methods

2.1 Study area

The study was conducted at Upazila veterinary hospital, Gabtoli is a northern upazila under Bogura district of Bangladesh. During winter season, the environment become so freezy and in summer season it becomes so hot. It has some low land area. Some of the places affected by flood during rainy season. The district is connected with the Jamuna river.
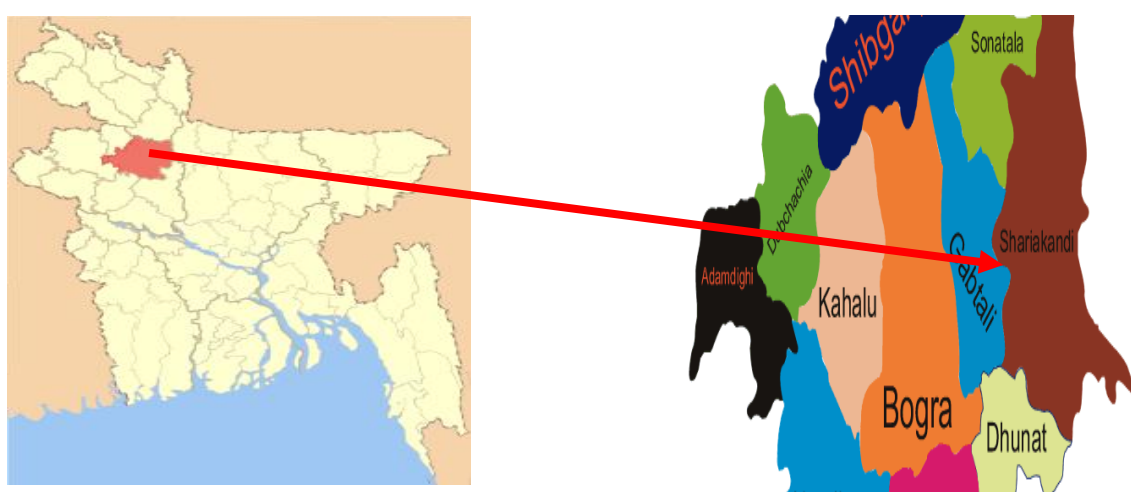

Figure 1 Study area

2.2 Study period

The study was conducted for a period of 2 months between 13th October 2019 to 13th December 2019.

2.3 Study population

The clinical study was undertaken at the Upazila veterinary Hospital, Gabtoli, Bogura to determine the general clinical prevalence of disease and disorder in livestock. The study population are cattle, sheep, goat, pigeon, and duck. The data were collected from Upazila veterinary hospital register book and the information were taken on the specific time of study period.(367 clinical cases from which 121 goats, 162 cattle, 78 poultry and 6 buffalo).

2.4 Diagnostic procedure of diseases and disorders

2.4.1 General examination

Physical condition, behavior, posture, gait, superficial skin wound, prolapsed of the uterus and vagina, salivation, nasal discharge, distension of the abdomen, locomotive disturbance etc were observed by visual examination of the patient.

Figure 2 General examination of animal

2.4.2 Physical examination

Examination of different parts and system of the body of each of the sick animals were examined by using procedure of palpation, percussion, auscultation, needle puncture and walking of the animals.

2.4.3 Clinical examination

The temperature, pulse, and respiratory rate from each of these sick animals were recorded. Clinical examinations of all clinically sick livestocks of different ages were conducted on the basis of diseases history, owner complaint, symptoms, to diagnose the following diseases and disorders. History of each case (present and past) was carefully taken which gave a guideline for examination of the animals. According the merit of the individual case, general clinical examination were conducted on the basis of disease history and owners complaint, symptoms. These recorded clinical cases were primarily categorized into three major groups on the basis of treatment required. These groups were: (1) Medicinal cases, (2) Gynaeco-obstetrical cases and (3) Surgical cases.

Table1 List of Disease that found in different species of ruminants

Cattle	Goat	Buffalo
1. Lumpy skin disease(LSD)	1. PPR	1.Myiasis
2. Abscess	2. Myiasis	2.Mastitis
3. Myiasis	3. Malnutrition	
4. Mastitis	4. Digestive disorder	
5. FMD	5. Dermatitis	
6. Protozoan desentry	6. Mastitis	
7. Eye infection	7. Protozoan desentry	
8. Enteritis	8. Arthritis	
9. Reproductive disorder	9. Fracture	
10. Dermatitis	10. Enteritis	
11. Malnutrition	11. Pneumonia	
	12. Urolithiasis	

2.5 Medicinal Case

2.5.1 Lumpy skin disease

LSD were diagnosied in all ages of cattle on the basis of clinicoepidemilogical determinants. The presence of fever and nodular like lesion in all body parts with the history of rapid spread of disease in bovine population.

Figure 3 Lumpy skin disease

2.5.2 P.P.R (Peste des petits Ruminants)

P.P.R is very common and fetal diseases of goat. The main features of this disease are high fever (106-107°F), oculo-nasal discharge and respiratory distress, profuse diarrhea.

Figure 4 PPR in goat

2.5.3 Abscess

Abscess is the circumscribed cavity containing pus. It was diagnosed by the palpation and needle puncture.

Figure 5 Abscess in cow leg

2.5.4 Myiasis

Due to poor management and unhygienic condition of the farm house, Myiasis is often seen in goats with following signs

• Skin lesion with bad odur , Larvae of fly are sometimes found.

Figure 6 Myiasis in cow leg

6

2.5.5 Malnutrition:

Following signs define malnutrition in

• Poor BCS , Retarded growth

2.5.6 Anorexia

Anorexia syndrome were diagnosed on the basis of owner's complaint with the history of partial and complete absence of appetite with varying decreased food intake.

2.5.7 Dermatitis

Dermatitis was diagnosed by the presence of hard, dry hyperkeratotic skin, alopecia, pruritis, reddening of skin etc.

Figure 7 Dermatitis in goat

2.5.8 Mastitis

Mastitis is very common disease for cow and doe. The main features of this disease are swollen udder, pain, block of teat canal, clotted milk, color change of udder.

Figure 8 Mastitis in goat

2.5.9 Protozoan dysentery

Clinical Presumptive diagnosis of dysentery can be on history of growing animals and clinical signs including dysentery, tenesmus, mild systemic involvement and dehydration. Confirmatory diagnosis can be made by demonstrating the oocysts in fecal sample of clinically affected animals.

2.5.10 Foot and Mouth Disease (FMD)

FMD were diagnosed in calves and adult cattle on the basis clinico-epidemiological determinants. The presence of fever and vesicular eruption in the mouth and on the feet of same animal with the history of rapid spread of the disease in bovine population were regarded as Foot and Mouth Diseases.

Figure 9 FMD in cow

2.5.11 Arthritis

Clinically arthritis in sucking and growing animals was diagnosed using clinical signs of lameness and swollen joints

Figure 9 Arthritis in goat

2.5.12 Fracture

Fractures in goats were diagnosed by clinical sign lameness and presence of pain and swelling.

2.5.13 Castration

Castration in goats was performed by open covered method. In UVH, it usually done after one month of age.

2.5.14 Dystocia

It means prolonged and difficult parturition. It was diagnosed on the basis of clinical history and signs and palpation. The head of the fetus was deviated at lateral side and corrected by manually.

Figure10 Dystocia correction in goat

2.5.15 Pneumonia

This disorder was diagnosed on the basis of owner's complaint and recording abnormal function of respiratory system like polypnoea, dyspnoea, coughing, sneezing, nasal discharge, thoraco- abdominal breathing etc.

2.5.16 Urolithiasis

Urolithiasis was diagnosed mainly in castrated goats with the history and owners complain of complete retention of urine, and clinical findings of distension of urinary bladder, restlessness, occasionally rupture of urinary bladder and aspiration of fluid from the abdominal cavity by rupture of the bladder.

Table2 Clinical signs and post-mortem findings of different diseases of poultry

Name of the disease	Clinical signs	Post-mortem findings
Colibacillosis	- Ruffled feathers - Huddling at corner of the shed - Loss of body weight - Brown color droppings	- Distended abdomen - Pericarditis - Perihepatitis - Edema in the body cavities intestine

Disease	Symptoms	Postmortem lesions
Salmonellosis	• Ruffled feather • Whitish to greenish diarrhea Chalky white excreta adhered with the vent	• Enlarged liver and spleen • showing congestio
Coccidiosis	• Ruffled feather • Poor growth • Bloody diarrhea and anaemia	• Caecafilled with blood • Caecal wall show patchy hemorrhages
Newcastle Disease(ND)	• Depression and prostration • Loss of appetite • Greenish/yellowish diarrhea Incoordination • Twitching of neck	• caecal tonsils • Congested trachea
Infectious Bursal Disease (IBD)	• Soiled vent and feathers • Whitish and watery diarrhea , Anorexia, trembling severe prostration	• Swollenand edematous bursa • Haemorrhages in thigh
Mycoplasmosis	• Respiratory rales • Coughing • Nasal discharge	• caseous exudates in air sac, exudates
Infectious Bronchitis	• Tracheal rales • Sneezing • Nasal discharge	• Catarrhal exudates in the lung • Kidney swollen
Infectious Coryza	• Facial edema • Inappetance • Swollen wattles	• Haemorrhage in trachea • Catarrhal inflamation of nasal passage

Necrotic Enteritis	• Depression	• Intestine distended with gas
		• Intestinalcontent become dark
Avian Leucosis	• Decrease production	• White or grey color focal
	• mortality	• diffuse necrotic lesions present in liver, heart,bursa of fabricius
CurlToe Paralysis	• Anorexia	• Paralysis of the flexor of the
		• Sitting on itshock
	• Unsteady gait	

Figure 11 Postmortem of poultry

2.6 Statistical analysis

The obtained information was imported, stored and coded according to record keeping sheet using Microsoft Excel-2007 and then exported to STATA/IC-13 (Stata Corporation College Station) for epidemiological analysis. Descriptive analysis (basically, prevalence %) was done with diseases and disorder based on species, sex and breed.

Chapter- III

Results and Discussion

A total of 367 different clinical cases were recorded at UVH during our study period. Based on the descriptive analysis, we found highest percentages patients were cattle (44.14%) followed by goat (32.97%) poultry (21.25%) and other animals like buffalo. Non-affected animals are the highest category animal that came to hospital (Table-3).

Table 3 Percentages of diseases based on species and infection status at UVH(N=367)

Variables	Categories	Frequency (n)	Percentages (%)
	Buffalo	6	1.6
Species	Cattle	162	44.14
	Goat	121	32.97
	Poultry	78	21.25
Infection status	Affected	175	47.68
	Non affected	192	52.31

Table 4 Overall disease prevalence based on species (N=175)

Variables	Category	Frequency of affected (n)	Prevalence
	Buffalo	3	1.71
Species	Cattle	89	50.86
	Goat	43	24.57
	Poultry	40	22.86

Graph 1 Different disease category

Disease category

- Medicinal cases
- Gynaeco obstetrical cases
- Surgical cases

113
13
9

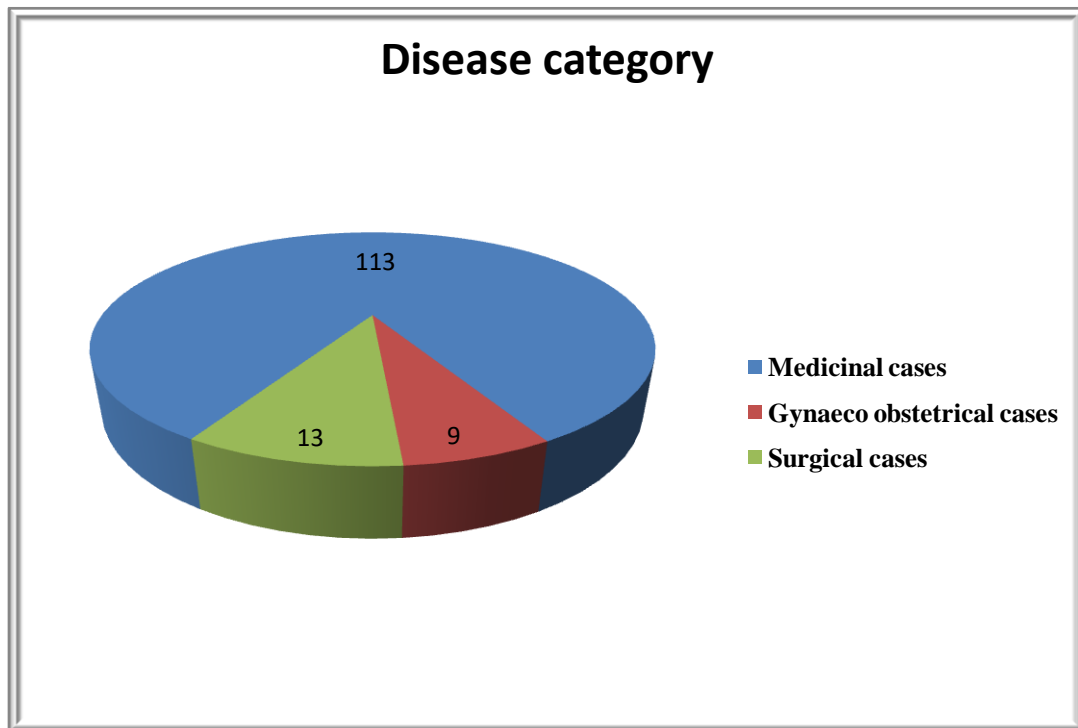**Table 5** Overall disease prevalence based on sex and breed on livestock (N=135)

Variable	Category	Frequency (n)	Prevalence (%)
Sex	Male	45	33.33%
	Female	90	66.67%
Breed	Local	57	42.22%
	Cross	78	57.78%

Table 6 Overall Prevalence of diseases and disorders in cattle, buffalo and goat

Disease/Disorder	Frequency of affected (n)	Prevalence (%)
Lumpy skin disease	16	11.85
Fracture	5	3.70
Arthritis	7	5.19
Protozoan desentry	11	8.15
Dermatitis	8	5.93
Digestive disorder	19	14.07
Enteritis	14	10.37
Eye infection	1	0.74
FMD	1	0.74
Mastitis	5	3.70
Abscess	8	5.93
PPR	13	9.63
Malnutrition	11	8.15
Pneumonia	4	2.96
Reproductive disorder	6	4.44
Myiasis	3	2.22
Urolithiasis	3	2.22
Total	135	100.00

In total 17 diseases or disorders were recorded in 135 affected ruminants brought to the Veterinary Hospital for treatment purposes during the study period. Among the 135 cases higher prevalence was recorded as digestive disorder 19 (14.07%) followed by LSD 16(11.85%), enteritis 14(10.37%), PPR 3(9.63%), and so on where lower is FMD (0.74%).

Table 7 Detail prevalence of clinical cases in different ruminants

Disease/Disorder	Species		
	Cattle(N=89)	Buffalo(N=3)	Goat(N=43)
Lumpy skin disease	16(11.85%)		
Abscess	8 (5.93%)		
FMD	1(0.74%)		
Eye infection	1(0.74%)		
Enteritis	14(10.37%)		
Reproductive disorder	6(4.44%)		
Myiasis	1(0.74%)	1(0.74%)	1(0.74%)
Mastitis	2(1.48%)	2(1.48%)	1(0.74%)
protozoan desentry	10(7.40%)		1(0.74%)
Digestive disorder	18(13.33%)		1(0.74%)
Dermatitis	6(4.44%)		2(1.48%)
Malnutrition	6(4.44%)		5(3.70%)
PPR			13(9.63%)
Pneumonia			4(2.96%)
Arthritis			7(5.19%)
Fracture			5(3.70%)
Urolithiasis			3(2.22%)
Total	89(65.93%)	3(2.22%)	43(31.85%)

Graph 2 The clinical prevalence of disease and disorders of male and female
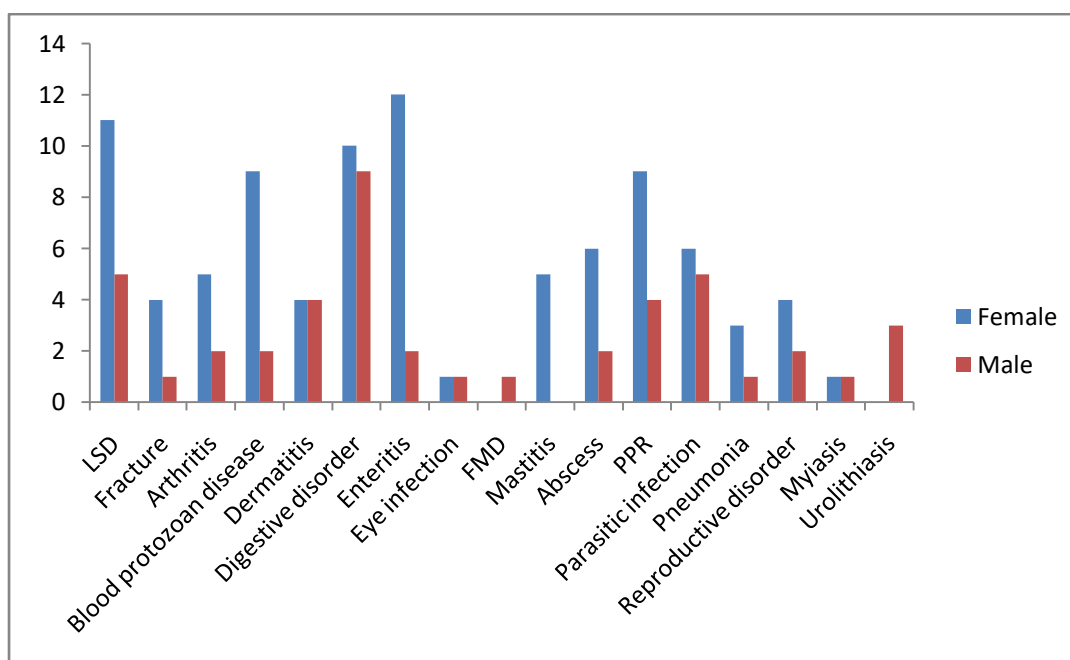
Table 8 Prevalence of disease in poultry (N=40)

Sl No	Disease and disorders	Prevalence
1	Newcastle Disease	10 (25%)
2	Coccidiosis	6 (15%)
3	Infectious Bursal Disease	12 (30%)
4	Mycoplasmosis	2 (5%)
5	Salmonellosis	3 (7.5%)
6	Colibacillosis	2 (5%)
7	Necrotic Enteritis	1 (2.5%)
8	Avian Leucosis	1 (2.5%)
9	Infectious Bronchitis	1 (2.5%)
10	Infectious Coryza	1 (2.5%)
11	Curled Toe Paralysis	1 (2.5%)
	Total	40(100%)

In total 11 types of diseases/disorder were recorded in fourty (40) birds, brought to the Veterinary Hospital for postmortem purposes during the study period. Among the 40 cases higher prevalence was recorded as Infectious Bursal Disease 12 (30%) followed by Newcastle Disease 10 (25%) Coccidiosis 6 (15%)

Table 9 Prevalence of diseases in Poultry according to strain (Broiler and layer)

Sl No	Disease	Broiler(%)	Layer(%)
1	Infectious Coryza	0	1(2.5%)
2	Curled Toe Paralysis	0	1(2.5%)
3	Infectious Bursal Disease	7(17.5)	5(12.5)
4	Mycoplasmosis	2(5)	0
5	Salmonellosis	3(7.5)	0
6	Colibacillosis	1(2.5)	1(2.5)
7	Necrotic Enteritis	1(2.5)	0
8	Avian Leucosis	0	1(2.5)
9	Infectious Bronchitis	0	1(2.5)
10	Newcastle Disease	8(20)	2(5)
11	Coccidiosis	6(15)	0
	TOTAL	28(70%)	12(30%)

The comparative clinical prevalence of disease of poultry according to strain (broiler and layer) were presented and revealed that Boiler 28(70%) were more susceptible than layer 12(30%) Newcastle disease 8(20%), Infectious bursal disease 7(17.5%), Coccidiosis 6(15%) were prevalent in broiler whereas Infectious bursal disease 5(12.5%) was prevalent to layer.

DISCUSSION

During the study period a total of 175 clinical cases of which 89 cattle, 43 goats,3 buffalo and 40 poultry cases were recorded and analyzed. Among the affected animals Cattle (50.86%) was the maximum affected followed by goat (24.57) and others. Again female (74.29%) are more susceptible then male (25.71%) to the disease and disorder. Crossbred animals (56%) was more prone to disease than local animals (44%)

Medicinal cases 113(83.70%), gynaeco-obstetrical cases 9(6.67%) and surgical cases 13 (9.62%) from the total recorded clinical cases of sick animals . Among the 135 cases higher prevalence was recorded as digestive disorder 19(14.07%) followed by LSD 16(11.85%), enteritis 14(10.37%),PPR 3(9.63%), and so on where lower is FMD (0.74%).

In total 17 diseases or disorders were recorded in 135 animals, brought to the Veterinary Hospital for treatment purposes during the study period The comparative clinical prevalence of disease and disorders of male and female livestock were presented and revealed that females 90(66.67%) were more susceptible than male 45(33.33%). enteritis 12(8.89%) was prevalent followed by LSD 11(8.15%) in females whereas Digestive disorder 9(6.67%) and LSD 5 (3.70%) was prevalent in male.

In total 11 diseases were recorded in 40 birds, brought to the Veterinary Hospital for postmortem purposes during the study period. Among the 40 cases higher prevalence was recorded as IBD 12(30%), which supports the result of Islam *et al*., (2003) (15.8%). The prevalence of Infectious Bursal Disease 12(30%), which supports the study evidenced by Talha *et al*., (2001) (19.1%); Giasuddin *et al*., (2002) (11.8%); Islam *et al*., (2003) (24.3%) and Ahmed *et al*., (2009) (11.1%) respectively. Followed by Newcastle Disease 10(25%), that was higher than Sil *et al*., (2002); Islam et al., (2003) who reported 21.5% and 22.7% .The prevalence of Salmonellosis 3(7.5%), which was higher than Uddin, (2010) (7.4%). It might be due to the influence of cold weather and sudden rainfall. The comparative clinical prevalence of disease of poultry according to strain (broiler and layer) were presented and Boiler 28(70%) were more susceptible than layer 12(30%) Newcastle disease 8(20%), Infectious bursal disease 7(17.5%), Coccidiosis 6(15%) were prevalent in broiler whereas Infectious bursal disease 5(12.5%) was prevalent to layer.

CHAPTER- IV

CONCLUSION

This study was conducted to investigate the present situation of clinical diseases and disorder of animal. Domestic animals are most susceptible to digestive disorder and other diseases. This may be due to low land area and marshy grazing field where intermediate host for parasitic infestation are available and the farmer are not aware about the anthelmintic treatment of animal. The contagious disease like LSD, PPR and FMD are frequently outbreaks this district. So, restriction of movement and frontier vaccination is necessary to control these types of diseases.

The study showed that general systemic states, digestive disorder, LSD, dermatitis, are predominantly present. Necessary steps of biosecurity should be taken to prevent seasonal influence of infectious disease of livestock. Proper feeding, management and with the regular anthelmintic therapy is therefore necessary to gain maximum output from rural livestock. The knowledge derived from this study will increase our understanding the clinical cage of animal in a particular area and taking necessary preventive measure to disease at national policy level. Proper planning and program should be undertaken to prevent and control disease and disorder.

CHAPTER V

LIMITATIONS

During my study period in Upazila Veterinary Hospital, Gabtoli , Bogura the following limitations were observed

- Due to short duration of the study period the relationship of different types of diseases with the season cannot be studied.

- Small number of sample size of cattle, goat and poultry.

- Lack of laboratory diagnosis facilities that hampered the accuracy of the result.

- Some owners were not cooperative in data collection, physical and clinical examinations.

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BIOGRAPHY

I am Manik Chandra Das son of Ajit Chandra Das and Kalpona Rani Das. I passed Secondary School Certificate examination in 2011 (G.P.A-5.00) followed by Higher Secondary Certificate examination in 2013 (G.PA-5.00). Now I am an intern veterinarian under the Faculty of Veterinary Medicine in Chattogram Veterinary and Animal Sciences University. In the future I would like to work as a veterinary practitioner and do research on clinical animal diseases in Bangladesh.