

Clinical Prevalence of diseases and disorders in cattle and goat at Rangunia Upazilla, Chattogram, Bangladesh



Submitted by:

Md. Sohanur Rahman

Roll No: 17/67

Reg No: 01908

Intern ID: 56

Session: 2016 – 2017

A clinical report submitted in partial satisfaction of the requirements for the

degree of *Doctor of Veterinary Medicine*

Faculty of Veterinary Medicine

Chattogram Veterinary and Animal Sciences University

Khulshi, Chattogram- 4225, Bangladesh

November 2022

Clinical Prevalence of diseases and disorders in cattle and goat at Rangunia Upazilla, Chattogram, Bangladesh



Approved as to style and content by:

.....

Signature of Supervisor

Professor Dr. Md. Abdul Alim

Department of Pathology and Parasitology

Faculty of Veterinary Medicine, CVASU

Chattogram Veterinary and Animal Sciences University

Khulshi, Chittagong-4225, Bangladesh

November 2022

Table of contents

Chapter	Contents	Page No.
	Table of contents	3
	List of Figures & List of Tables	4
	List of Abbreviation	5
	Acknowledgement	6
	Abstract	7
Chapter-I	Introduction	8
Chapter-II	Method & Materials	9-10
	2.1 Study population & period	
	2.2 Study area	
	2.3 General examination	
	2.4 Physical examination	
	2.5 Clinical examination	
	2.6 Data collection	
	2.7 Statistical analysis	
Chapter-III	Results	12-17
Chapter-IV	Discussion	18-20
Chapter-V	Conclusion	21
	Limitation	22
	References	23-25
	Biography	26

List of Figures

Figure	Contents	Page No.
Figure 2.1	The geographical location of data collection site.	9
Figure 2.2	(a) Inspection	11
	(b) taking body temperature	
	(c) Slide preparation	
	(d) Microscopic observation	
	(e) data entry	
	(f) bloat treatment in goat	
	(g) mastitis affected cow	
	(h) teat canal blockage correction through teat siphon	
	(i) milk secretion after correction.	

List of Tables

Table No.	Contents	Page No.
Table 3.1	Prevalence of clinical diseases in cattle.	12-13
Table 3.2	Prevalence of clinical diseases in goat.	15
Table 3.3	Comparison based on sex of Cattle and Goats under the categorized group	17

List of Abbreviations

Abbreviation	Elaboration
DLS	Department of Livestock Services
FMD	Food and Mouth Disease
BRDC	Bovine Respiratory Disease Complex
BQ	Black Quarter
HS	Hemorrhagic Septicemia
LSD	Lumpy Skin Disease
PPR	Peste des Petits Ruminants
CCPP	Contagious Caprine Pleuropneumonia

Acknowledgments

All praises are due to the immeasurable grace and profound kindness of Almighty “GOD”, the The supreme authority and supreme ruler of the universe, who has empowered me to complete the work successfully.

I would like to express my gratitude to my supervisor, **Professor Dr. Md. Abdul Alim**, Dept. of Pathology and Parasitology, Faculty of Veterinary Medicine, Chattogram Veterinary and Animal Sciences University. My heartfelt thanks to him for his valuable guidance, suggestion, supervision and encouragement during the entire period of this study to complete this production report.

I would like to express my deep sense of gratitude and thanks to **Professor Dr. Mohammad Alamgir Hossain**, Dean, Faculty of Veterinary Medicine, and CVASU.

I express my sincere gratitude and thanks to **Professor Dr. A. K. M. Saifuddin**, Director of External Affairs, and for his supervision and kind co-operation during the period of internship.

I am also grateful to **Md. Mustafa Kamal**, Upazilla Livestock Officer (ULO), Rangunia Upazilla, Chattogram and **DR. Harun Ar Rashid**, Veterinary Surgeon (VS), Rangunia Upazilla, Chattogram for his cordial information and guidance at the time of the farm visiting. Thanks to the owner of the farm and other helping hands who helped me in collecting data for this study.

Last but not least, I am profoundly grateful to my family members for their endless sympathies, kind co-operation, sacrifices and prayers.

The Author

November 2022

ABSTRACT

The present study aimed to determine the clinical prevalence of diseases and disorders in cattle and goats at the Upazilla Veterinary Hospital, Rangunia, Chattogram district of Bangladesh from February 2022 to April 2022. A total of 190 clinical cases (127 cattle and 63 goats) were recorded and analyzed. Each clinical case was diagnosed on the basis of general examination, clinical examination, microscopic examination, and using common laboratory techniques. The clinical cases were categorized into three categories based on the treatment required (Medical, Gynaeco-obstetrical, and Surgical). Among the clinical cases, the highest percentage was found for medicinal (cattle 81.10% and goats 82.54%) followed by surgical (cattle 10.24% and goats 15.87%) and gynaeco-obstetrical (cattle 8.66% and goats 1.59%). Within the medical cases, LSD (13.39%) and Mastitis (10.24%) were recorded as the main disease in cattle. PPR (15.87) and CCPP (11.11) were recorded as the main diseases in goats. On the other hand, gynaeco-obstetrical and surgical cases were found as significant. The current investigation could be helpful in designing control measures for prevalent diseases.

Key words: Cattle, clinical prevalence, diseases and disorders, goat.

Chapter -I

Introduction

Livestock is a conclusive component of the diversified farming system that has been used in Bangladesh for millennia. The livestock sub-sector contributes 1.47% of the agricultural GDP and 3% of the national economy, while directly and indirectly supporting 20% of employment. Approximately, 3.02% of the Gross Domestic Product (GDP) in Bangladesh comes from the animal farming sector (Economic Index, 2010). Most of the animals in Bangladesh's rural areas are kept under traditional management. Goats and cattle are Bangladesh's two most significant livestock populations, respectively. These livestock populations make up the essential building blocks of the livestock sector. This livestock population plays a significant responsibility in the urban economy (Kamaruddin, 2003). In Bangladesh, 264.35 lakh goats and 243.91 lakh cattle are raised (DLS, 2021). In Bangladesh's agrarian economy, most people rely on a diversified farming system to support them in rural areas. The prevalence of geoclimatic conditions and traditional livestock production methods in rural areas encouraged an increase in the occurrence of economically relevant animal diseases. The veterinary hospital is an ideal and reliable source of information about animal diseases and their treatment. People of the surrounding local areas bring their sick animals every day in the veterinary hospital to treat diseased conditions. It is important to know the disease occurrence pattern to resolve the problems in the local area via clinical records of the veterinary hospital. Previous reports on clinical case records from Mymensingh (Samad, 2001; Samad et al., 2002), Haluaghat Upazilla Veterinary Hospital, Mymensingh (Sarkar et al., 1999), Dairy Cooperatives in Pabna district (Pharo, 1987), Ulipur Upazilla Veterinary Hospital, Kurigram (Kabir et al., 2010), Chandanaish Upazilla of Chittagong district, Bangladesh (Pallab et al., 2012) and Patuakhali Science and Technology University Veterinary Clinic (Rahman et al., 2012) give information on commonly occurring disease conditions in rural areas of Bangladesh. Therefore, the objective was to determine the clinical prevalence of diseases and disorders in cattle and goats at the Upazilla Veterinary Hospital, Rangunia, Chattogram, Bangladesh.

Chapter -II

Materials and method

2.1. Study population and period:

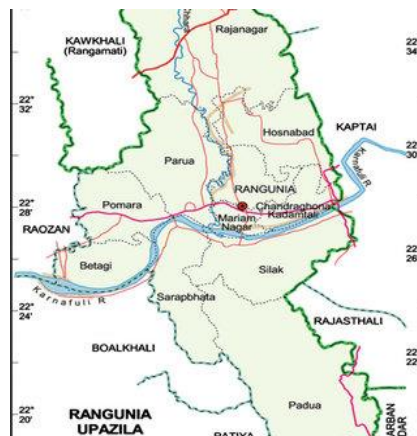
The study was carried out for the period of 3 months from 1st February 2022 to 31 April 2022 at Rangunia Upazilla, Chattogram. The study was undertaken on Seventeen (N=17) animals for Lumpy Skin Disease and one hundred ninety (N=190) animals for overall disease prevalence which includes both cattle and goats.

2.2: Study area:

The study was performed at Upazilla Livestock Office, Rangunia in Chattogram district, Bangladesh. Rangunia Upazilla is located between 22°18' and 22°37' north latitudes and in between 91°58' and 92°08' east longitudes. It has 46,176 households and a total area of 347.72 km². It is surrounded by Chandanaish Upazilla on the south; Patiya Upazilla, Boalkhali Upazilla, Raozan Upazilla & Kawkhali Upazilla of Rangamati district on the west; Kawkhali Upazilla of Rangamati district on the north and Kaptai Upazilla & Rajasthali Upazilla of Rangamati district and Bandarban Sadar Upazilla on the east. Rangunia is the headquarter of this Upazilla.



(a)



(b)

Fig 2.1: Geographical location of data collection site. (a) Map of Bangladesh, (b) Map of Rangunia Upazilla.

2.3: General examination:

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

2.4: Physical examination:

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

2.5: Clinical examination:

Clinical examinations of all 190 clinically sick ruminants (cattle = 127, goat = 63) of different ages were conducted on the basis of disease history, owner complaint, symptoms, to diagnose the following diseases and disorders. These recorded clinical cases were primarily categorized into three major groups based on the treatment required. These groups were: (1) Medicinal cases, (2) Gynaeco-obstetrical cases, and (3) Surgical cases.

2.6. Data collection:

For collecting necessary and required information a structured questionnaire was followed during the study period. Data related to animal demography (age, sex), vaccination and deworming status, duration of illness along with clinical signs and treatment given was collected. An open-ended questionnaire was followed for collecting information.

2.7: Statistical analysis:

All data which were collected on a questionnaire entered MS excel (Microsoft office excel-2007, USA).



(a)



(b)



(c)



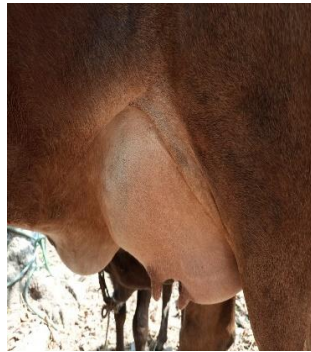
(d)



(e)



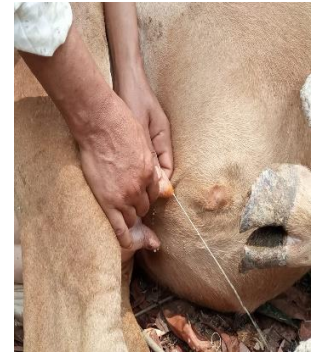
(f)



(g)



(h)



(i)

Figures 2.2 :(a) Inspection (b) taking body temperature (c) slide preparation (d) microscopic observation (e) data entry (f) bloat treatment in goat (g) mastitis affected cow (h) teat canal blockage correction through teat siphon (i) milk secretion after correction.

Chapter-III

Results

Prevalence of clinical diseases in cattle & goats:

Of the 127 recorded clinical cases of sick cattle, there were 81.10% medicinal cases, 8.66% gynaeco-obstetrical, and 10.24% surgical cases (Table 3.1). Of the 63 clinically sick goats, 82.54% were medicinal, 1.59% were gynaeco-obstetrical and 15.87% were surgical cases (Table 3.2).

Table 3.1: Prevalence of clinical diseases in cattle:

Diseases	Cattle(n=127)	
	No of Animal	Percentage (%)
Bloat	5	3.93
Digestive Disorder (Diarrhea)	12	9.45
Calf scour	8	6.30
Pediculosis	3	2.36
BQ	4	3.15
Fever	7	5.51
Arthritis	1	0.79
Papillomatosis	3	2.36
BRDC	2	1.57
LSD	17	13.39
Fascioliasis	8	6.30

FMD	2	1.57
Anorexia	4	3.15
Ascariasis	1	0.79
Milk Fever	3	2.36
Mastitis	13	10.24
HS	1	0.79
Foot rot	1	0.79
Mange	2	1.57
Colic	2	1.57
Babesiosis	2	1.57
Dysentery (Coccidiosis)	2	1.57
Subtotal Medicinal Cases	103	81.10
Retained Placenta	5	3.93
Repeat Breeder	3	2.36
Pyometra	1	0.79
Anoestrus	2	1.57
Subtotal Gynaeco- obstetrical Cases	11	8.66
Abscess	5	3.93
Myiasis	3	2.36
Navel ill	3	2.36
Urolithiasis	2	1.57
Subtotal Surgical Cases	13	10.24

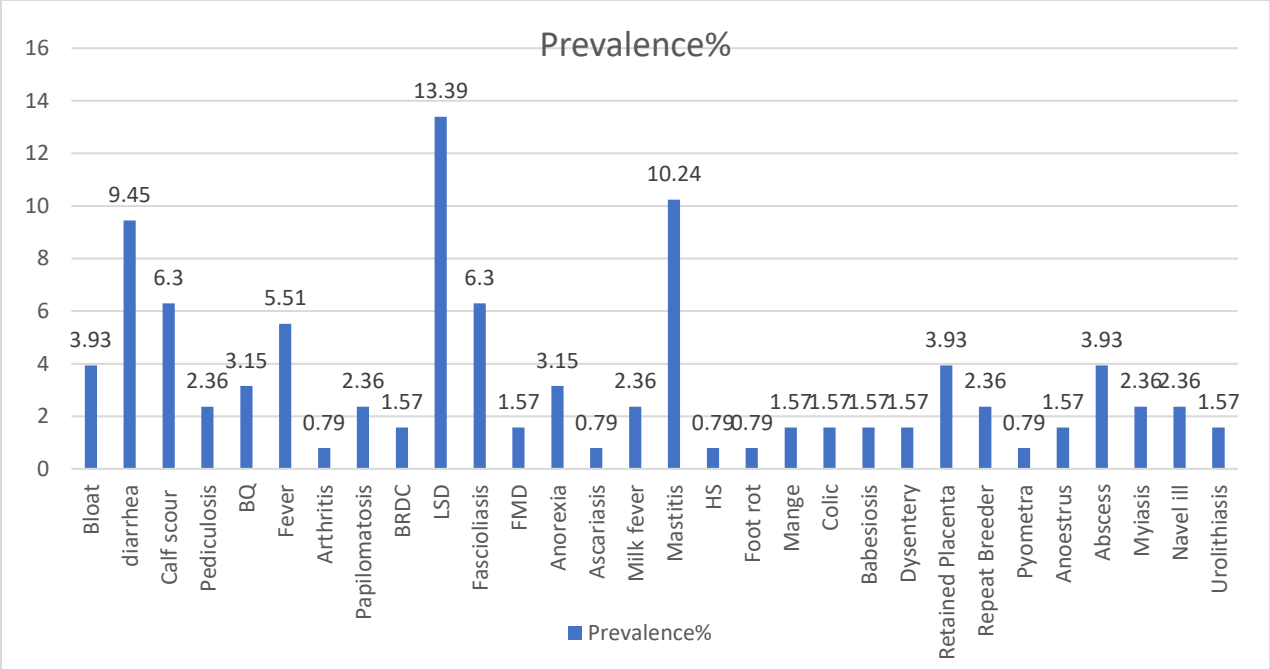


Fig: Prevalence of clinical diseases in cattle

Table 3.2: Prevalence of clinical diseases in Goat:

Diseases	Goat(n=63)	
	No of Animal	Percentage (%)
Digestive Disorder (Diarrhea)	6	9.52
PPR	10	15.87
CCPP	7	11.11
Fever	6	9.52
Anorexia	4	6.35
Dysentery (Coccidiosis)	1	1.59
FMD	1	1.59
Fascioliasis	6	9.52
Bloat	6	9.52
Actinomycosis	3	4.76
Listeriosis	2	3.17
Subtotal Medicinal Cases	52	82.54
Retained Placenta	1	1.59
Repeat Breeder	0	0
Sub-total (Gynaeco-obstetrical Cases)	1	1.59
Abscess	1	1.59
Myiasis	3	4.76
Navel ill	1	1.59
Gid Disease	3	4.76
Urolithiasis	2	3.17
Sub-total (Surgical Cases)	10	15.87

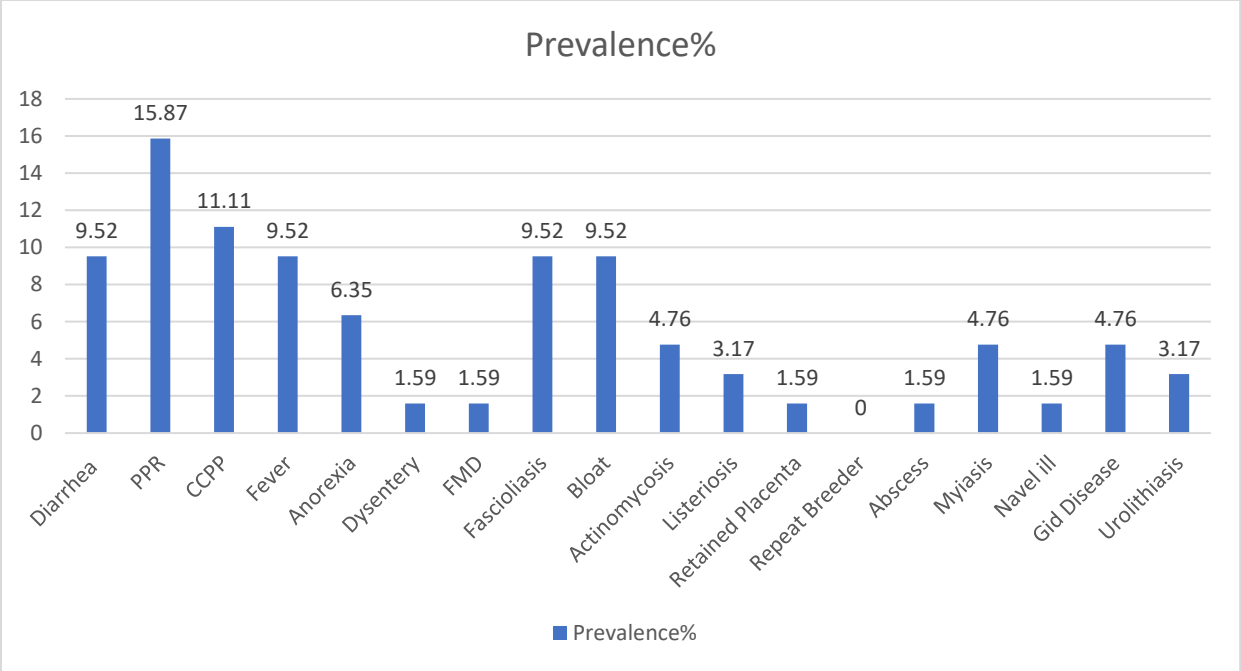


Fig: Prevalence of clinical diseases in goat

Table 3.3: Comparison based on sex of Cattle and Goats under the categorized group

Cases	Cattle			Goats		
	Total	Male (%)	Female (%)	Total	Male (%)	Female (%)
Medicinal	103	45.63(47)	54.36(56)	52	59.62(31)	40.38(21)
Gynaeco-obstetrical	11	0	100.00(11)	1	0	100.00(1)
Surgical	13	46.15(6)	53.85(7)	10	20.00(2)	80.00(8)
Total	127	41.73(53)	58.27(74)	63	52.38(33)	47.62(30)

Chapter-IV

Discussion

From the obtained record of the clinical cases of animals that were treated, out of the total 125 cattle 80.8% had medical, 8.8% gynaeco-obstetrical and 10.4% surgical cases (Table 3.1). Among 63 goats, 82.54% had medical, 1.59% gynaeco-obstetrical and 15.87% surgical problems (Table 3.2). In a study that was similar to this one, medical cases made up 84.1% of cattle cases, 4.7% of Gynaeco-obstetrical cases, and 11.2% of surgical cases. In the Patuakhali Science and Technology University Veterinary Clinic in Babugonj, Barisal, medical cases made up 81.0% of goat cases, 1.1% of gynaeco-obstetrical cases, and 17.9% of surgical cases (Rahman et al., 2012). From 1999 to 2001, the Bangladesh Agricultural University (BAU) Veterinary Clinic, Mymensingh, recorded 90.76% medical, 5.46% gynaeco-obstetrical, and 3.78% surgical cases in cattle and 76.91% medical, 3.67% gynaeco-obstetrical, and 19.42% surgical cases in goats. (Samad, 2001). On the other side, an overall comparison of affected cattle and goats based on gender (male and female) shows that in case of cattle females were affected slightly more than male (Table 3.3). Study exhibits 42.4% male cattle and 57.6% female cattle affected by different diseases during three months. In contrast to these findings, a previous study at the Upazilla Veterinary Hospital in Ulipur, Kurigram district, Bangladesh, indicated that females were more sensitive to disease than males (Kabir et al., 2010). On the other hand, goats males were affected slightly more than female (52.38% male and 47.62% female) in three months (Table 3.3). Clinical cases record of fever with unknown etiology revealed that 5.51% cattle and 9.52% goats were affected. The incidence of fever in this study's percentages is comparable to other reports of 5.1 to 12.1% instances of fever in cattle (Samad, 2001; Samad et al., 2002; Rahman et al., 2012) and 4.4 to 10.37% fever cases in goats (Hoque and Samad, 1997; Rahman et al., 2012; Alam et al., 2015). Anorexia due to unknown cause was reported in 3.15% cattle and 6.35% in goats (Table 3.1 & 3.2). The most prevalent condition among the non-specific clinical entities in standard ruminant practice is anorexia syndrome (Prasad et al., 1980). In Bangladesh, the most common cause of bloat in ruminants is diet-related (Sutradhar et al., 2000). This study recorded 3.93% cases of bloat in cattle and 9.52% in goats (Table 3.1&3.2). According to earlier research, bloat affected cattle at 2.2% and goats at 2.5%. (Rahman et al., 2012) and 1.83% prevalence of bloat in cattle and 3.98% in goats (Samad, 2001). Digestive disorders were found 9.45% and 9.52% in cattle and goats respectively to be high

in occurrence (Table 3.1 & 3.2). The 11.5% prevalence of non-specific diarrhea in cattle could be used to compare the current study (Kabir et al., 2010) and 12.23% in goats (Hoque and Samad, 1996, 1997). Dysentery is an intestinal inflammation that results in colic and tenesmus as well as the expulsion of blood and mucus-filled stools. This condition was noted in 1.57% of cows and 1.59% of goats. (Table 3.1 & 3.2). Other study reported 1.76% and 1.87% dysentery in cattle and goats (Samad, 2001). CCPP recorded in goats was 11.11% (Table 3.2) where earlier recorded 16.8% cases of CCPP in goats (Rahman et al., 2012). This condition can be varied due to seasonal variation. The prevalence of different parasitic infestations was recorded considerable in both species of ruminants. The most frequent case is fascioliasis 6.30% in cattle and 9.52% in goats. The parasitic infestations are high in local areas in Bangladesh because animals are grazed beside roads, wetlands following traditional methods of rearing (Akter et al., 2011). Foot and mouth disease (FMD) was recorded 1.57% cases in cattle and 1.59% in goat (Table 3.1 & 3.2). According to Rahman et al. (1972), Sarker et al. (1999), and Rahman et al. (1999), the relative prevalence in cattle was 5.71, 8.58, and 5.78%, respectively. Black quarter (BQ) was recorded 3.15% in goat (Table 3.2). Similar investigations revealed an incidence of BQ in cattle of 0.31, 0.46, and 0.23%. (Rahman et al., 1972; Rahman et al., 1999 and Samad, 2001 respectively). However, the incidence of BQ in cattle from different geographical locations in Bangladesh reported 0.04% (Haque et al., 1988). Papillomatosis was recorded 2.36% in cattle (Table 3.1). However, according to data from Bangladesh, there are 3.04% more warts in rural areas than in cattle (Nooruddin et al., 1986). Peste des Petits Ruminants (PPR) was recorded 15.87% cases in goats (Table 3.2). The PPR cases recorded in this report is higher than 5.2% reported by (Rahman et al., 2012) in goats. Mastitis 10.24% were diagnosed in cows (Table 3.1). The prevalence of clinical mastitis of 2.12% was reported in dairy cattle by (Islam et al., 2010). According to certain studies, clinical mastitis in cows was 0.37, 0.89, 0.65, 0.71, and 0.9% lower. (Nooruddin et al., 1986; Sarker et al., 1999; Rahman et al., 1999; Samad, 2001; Rahman et al., 2012, respectively). Though mastitis is a common disease in Bangladesh due to poor management of dairy farms, this condition can be varied due to regional variation. Retained placenta disorder was recorded in 3.93% cows and 1.59% does (Table 3.1 & 3.2). This report is slightly lower than 4.71% in cattle and much more 6.25% in goats reported by Lucky et al. (2016) but higher than 0.37% and 0.50% in cows reported by Rahman et al. (1999) and Samad (2001), respectively. This condition occurs due to dirty cattle shed which may lead to early infection of the placenta responsible for inflammation and hence

delay or reduced changes of placental separation and expulsion. Repeat breeding was recorded in 2.36% in cattle and there was no case found in goats (Table 3.1 & 3.2). However, the reported prevalence of repeat breeders in cows in Bangladesh varied from 5 to 20.2% (Shamsuddin, 1995; Sarder et al., 2010). Anoestrus was estimated 1.57% in cattle but there was no case available in goats. Samad (2001) reported 0.86% in cattle and 0.47% in goats. The abscess was recorded in 3.93% cattle and 1.59% goats (Table 3.1 & 3.2). Rahman et al. (2012) reported 1.1% cattle and 1.3% goats affected with an abscess at Patuakhali Science and Technology University Veterinary Clinic, Babugonj, Barisal. Myiasis was recorded in 2.36% cattle and 4.76% goats (Table 3.1 & 3.2). Maggot-infested wounds have been reported in cattle 1.07% (Nooruddin et al., 1986) and 2.20% (Das and Hashim, 1996) from Bangladesh. Myiasis prevalence was reported higher (11.0% in cattle) which is similar to the report of Rahman et al. (1972). Navel-ill was recorded only in 2.36% calves and 1.59% kids (Table 3.1 & 3.2). This result confirms the 0.79% and 0.62% cases of navel disease in calves and kids, respectively, that Samad et al. (2001) reported. Gid disease was recorded in goat 4.76% (Table 3.2). Previous studies recorded 5.38% (Samad, 2001) and 2.5% (Rahman et al., 2012) gid disease in goats. Although, Urolithiasis was recorded 1.57% in cattle and 3.17 in goats (Table 3.1 & 3.2). However, obstructive urolithiasis in cattle reported very low percentage, 0.02% (Samad, 2001) and 1.1% (Rahman et al., 2012).

Chapter-V

Conclusion

The present study gives the scenario of diseases and disorders in the study area. LSD in cattle and PPR in goats were the most prevalent disease state in the region. Along with this, mastitis in cattle and CCPP were also found dominant. To prevent mastitis, cows should be kept standing for at least 15 minutes after milking to prevent bacteria from entering the udder through the teat. Cows immediately after milking balanced feed or hay can be given to help it stand. To reduce the incidence of LSD, we can use mosquito repellent at night to avoid mosquito infestation. To prevent PPR and CCPP, animal should be kept away from exposure to cold. Moreover, hygienic management and feeding practices can develop the health status of animals from digestive disorders. The obtained knowledge from this study would help for the future identification and characterization of several etiological agents of various diseases as well.

Limitation

Number of limitations was encountered for the current study:

- i) small sample size.
- ii) Non-laboratory disease diagnosis.
- iii) All the sick animals in the entire Upazilla could not counted.

References

- Akter, Y., Uddin, M. M., Islam, M. N., & Khatun, M. A. 2011. Prevalence of Gastrointestinal Parasitism in Dairy Cattle in Muktagacha Upazilla of Mymensingh District, Bangladesh Bangladesh Research Publication Journal. 5: 376-380.
- Alam, M. A., Amin, M. R., Paul, T. K., Saha, T. K., Rahman, M. K., & Rizon, M. K. 2015. Prevalence of clinical diseases and disorders of goats at Upazilla Livestock Development Center, Kapasia, Gazipur. Asian Journal of Medical and Biological Research. 1(1): 47-52.
- Das, B. C., & Hashim, M. A. 1996. Studies on surgical affections in calves. Bangladesh Veterinary Journal. 30: 53-57.
- Haque, M. E., Samad, M. A., & Rahman, A. 1988. Epizootiology investigation of Black quarter in cattle of Bangladesh. Bangladesh Veterinarian. 5: 10-13.
- Hoque, M. S., & Samad, M. A. 1996. Prevalence of clinical diseases in dairy cross-bred cows and calves in the urban areas in Dhaka. Bangladesh Veterinary Journal. 30: 118-129.
- Hoque, M. S., & Samad, M. A. 1997. Present status of clinical diseases of goats in the urban areas in Dhaka. Bangladesh Veterinary Journal. 31: 35-40.
- Kabir, M. H., Reza, M. A., Razi, K. M. A., Parvez, M. M., Bag, M. A. S., & Mahfuz, S. U. 2010. A report on clinical prevalence of diseases and disorders in cattle and goat at the Upazilla Veterinary Hospital, Ulipur, Kurigram. International Journal of Biological Research. 2: 17-23.
- Lucky, N. S., Hossain, M. K., Roy, A. C., Haque, M. M., Uddin, A. H. M. M., Islam, M. M., & Howlader, M. M. R. 2016. A longitudinal study on clinical diseases and disorders of cattle and goats in Sylhet, Bangladesh. Journal of Advanced Veterinary and Animal Research. 3(1): 24-37.
- Nooruddin, M., & Rahman, M. S. 1985. A note on bovine demodicosis in Bangladesh. Indian Journal of Veterinary Medicine. 5: 139-140.
- Nooruddin, M., Sarker, A. J., Baki, M. A., Ali, M. R., Dey, A. S., & Hoque, M. F. 1986. Prevalence of diseases of external organs of cattle. Bangladesh Veterinary Journal. 20: 11-16.

- Osmani, A. B. M. M. G., Hossain, M. A., Rahman, M. M., & Alam, M. R. 2000. Corneal opacity in cattle: Prevalence and therapeutic evaluation of certain drugs. *Bangladesh Veterinarian*. 17: 42-45.
- Pallab, M. S., Ullah, S. M., Uddin, M. M., & Miazi, O. F. 2012. A cross-sectional study of several diseases in cattle at Chandanaish Upazilla of Chittagong district. *Scientific Journal of Veterinary Advances*. 1: 28-32.
- Pharo, H. J. 1987. Analysis of clinical case records from dairy co-operatives in Bangladesh. *Tropical Animal Health and Production*. 19: 136-142.
- Prasad, J., Uoshi, S. V., & Rekib, A. 1980. Studies on the clinico-pathics of grazing animals in tropics – corneal opacity syndrome. *Indian Veterinary Journal*. 57: 310-315.
- Rahman, A., Samad, M. A., & Huq, M. M. 1978. Clinico-pathological studies on psoroptic mange in a goat. *Bangladesh Veterinary Journal*. 13: 53-55.
- Rahman, M. A., Ali, K. M., & Rahman, A. 1972. Incidence of diseases of cattle in Mymensingh. *Bangladesh Veterinary Journal*. 6: 25-30.
- Rahman, M. A., Islam, M. A., Rahman, M. A., Talukder, A. K., Parvin, M. S., & Islam, M. T. 2012. Clinical diseases of ruminants recorded at the Patuakhali Science and Technology University Veterinary Clinic. *Bangladesh Journal of Veterinary Medicine*. 10(1&2): 63-73.
- Rahman, M. M., Ali, M., & Hashem, A. 1999. Livestock disease problems in a selected area of Sherpur district. *Bangladesh Journal of Training and Development*. 12: 205-210.
- Rosenberger, G. 1979. *Clinical Examination of Cattle*. 2nd edn., Verlag Poul Parey, Germany.
- Samad, M. A. 2001. Observations of clinical diseases in ruminants at the Bangladesh Agricultural University Veterinary Clinic. *Bangladesh Veterinary Journal*. 35: 93-120.
- Samad, M. A., Bari, A. S. M., & Bashar, S. A. 1988. Gross and histopathological studies on bovine babesiosis in Bangladesh. *Indian Journal of Animal Science*. 58: 926-928.
- Samad, M. A., Islam, M. A., & Hossain, A. 2002. Patterns of occurrence of calf diseases in the district of Mymensingh in Bangladesh. *Bangladesh Veterinary Journal*. 36: 1-5.

- Samad, M. A., Rahman, A., & Hossain, M. I. 1979. Studies on Demodectic mange in cattle. Bangladesh Journal of Scientific Research. 2: 7-13.
- Sarder, M. J. U., Moni, M. I. Z., & Aktar, S. 2010. Prevalence of reproductive disorders of cross breed cows in the Rajshahi district of Bangladesh. SAARC Journal of Agriculture. 8: 65-75.
- Sarker, M. A. S., Hashim, M. A., Rahman, M. B., & Begum, H. 1999. Studies on bovine lymphadenitis syndrome. Bangladesh Veterinarian. 10: 6-8.
- Sen et al. 23 Shamsuddin, M. 1995. Fertility trend and status of oestrus detection in the bovine under farm conditions in Bangladesh. Bangladesh Veterinary Journal. 29: 9-16.
- Sutradhar, B. C., Hossain, M. A., & Alam, M. R. 2000. Incidence of bloat and its response to certain drugs in cattle. Bangladesh Veterinarian. 17: 37-41.

Biography

This is Md. Sohanur Rahman, Son of Late. Maynal Haque and Mrs. Zahanara Khatun. He passed Secondary School Certificate (SSC) examination obtaining GPA 5.00 from Komar Vangi High School, Rowmari in 2013, and Higher Secondary Certificate (HSC) examination obtaining GPA 5.00 from Bangladesh Agricultural University College, Mymensingh in 2015. Then He enrolled for the degree ‘Doctor of Veterinary Medicine (DVM)’ in Chattogram Veterinary and Animal Sciences University (CVASU), Bangladesh. At present, he is dealing as an undergraduate intern veterinarian. He has a high interest in medical research and public health. As a veterinarian, the author wishes to develop his career in the field as a Veterinary Surgeon. Above all, as a human being, he wants to serve the nation through his knowledge, creativity, and profession.