

Chapter-I

INTRODUCTION

Bangladesh is an agriculture based country in the world, where livestock has been an important component of the mixed farming system practiced in Bangladesh for centuries. Livestock plays an important role on the agriculture economy of Bangladesh. The non-crop agriculture sector has registered significantly higher growth rate over the last few years. The crop sector showed an annual growth rate of 1.2% while fisheries, livestock and forestry sub-sectors experienced 5.3, 5.6, and 4.0% growth rate respectively, (**Mondal, 1999**). The share of the livestock sub-sector in GDP at constant prices was 2.9%, which was 17.2% of agriculture and forestry rector in FY- 2005-2006. The share of this sector is projected at 2.9% of GDP, which would be 17.7% of agriculture and forestry sector in FY-2006-2007. Among the sub-sectors of the broad agriculture sector, the growth of the livestock sector is the highest. The value of livestock industry is enormous. It is reported to be the fasted growing agriculture sector, with livestock now being the world's largest land user. In Bangladesh at present, there are about 22.9 million cattle, 1.26 million buffaloes, 21.7 million goats, 2.8 million sheep, 212.5 million chickens, 39.8 million duck (**Anon, 2009**). In recent year, this sector has been playing an increasingly important in the economy uplift of Bangladesh. It is a labor intensive and quick yielding sector which augments growth and alleviates poverty.

In spite of its substantial importance much less attention has been given in the development of this sectors compared to the crop sector most probably due to the lack of proper knowledge about the methods and problems of production and utilization of livestock in our country. In addition, livestock disease is one of the main important hindrances towards the development of the livestock. As

a result the direct impact of animal disease includes loss and productivity, through the death or slaughter of the animals, reduce production of milk, meat and reduce productive capacity. Afazuddin (1985) esteemed, TK 108067.6 as an annual economic loss due to various parasitic diseases at Savar military army farm. Parasitism claims to be the main obstructor in livestock rearing in Bangladesh (Jabber and Green. 1983). Besides parasitic disease, some other important infection disease like PPR, mastitis and non-infection diseases like dystocia, acidosis, pregnancy toxemia etc. causes a great loss in the economy of Bangladesh. Indirect impact includes loss of export market, effect on human health, effect on social status etc.

Chittagong district is one of the important sites for livestock population especially at Doublemooring Thana and the most of the common livestock diseases are frequently found in this area. Therefore, the present investigation was conducted at the Thana Livestock Office, Doublemooring for two months during internship training programme with the following objectives:

- 1) To determine the prevalence of different diseases and disorders of animal.
- 2) To study the infection with different demographic variable (age, sex, breed etc.).

Chapter-II

REVIEW OF LITERATURE

Muller and Owens (1974) reported an overall incidence of retained placenta in goat.

Rogoziewice and Jaskowski (1976) reported 9% incidence of retained placenta in goat with variable incidence rates of different farms, seasons and year.

Sinha *et al*, (1978) reported an overall 14.1% incidence rate of retained placenta in goat with highest incidence during summer (March of June) months (26.0%).

Malhotra and Kapur (1982) conducted epidemiological studies on mastitis which revealed the masitogenic agents like *Staphylococci*, *Streptococci*, *E. colli* and *pseudomonas spp*. Were widespread on different sites of the goats, milkers hands, milking cans and in the milk samples.

Banerjee *et al*, (1985) recorded 5.8% and 42.2% prevalence rates of pneumonia and other lung affections in goats detected at slaughter and postmortem examination, respectively in India.

Dewan and Das (1988) suggested that urolithiasis could be prevented either by adding 4% sodium chloride in concentrate ration or provided water and green grass and leaves. In Bangladesh, Dr Taylor identified the first PPR outbreak during 1993.

Sill *et al*, (1995) reported that PPR spread throughout the country and had devastating effects in organized goat farms.

Reader and Obi (1999) reported that PPR was not clearly recognizable up to 1972, but the true extend of the disease has become apparent in recent years and is still being clarified. He also reported that PPR virus was excreted from all routes at the onset of clinical symptoms, with titer increasing from organs most seriously affected during the course of the disease.

Debnath, (1995) reported that PPR thought that might have come from India, and the epidemic areas morbidity rate has been estimated to be 80% to 90% accompanied by a mortality rate of 50% to 80%. He also reported that PPR are a contagious disease of sheep and goats caused by a morbilli virus of the Paramyxoviridae family.

Debnath (1995) recorded that transmission of disease is occurred by close contact, secretion and excretion of sick animals to the healthy. The discharges from the eyes, nose and mouth as well as the loose feces contain large amounts of virus. Although sub-clinical infections can be experimentally induced in goats.

Rahman et al., (1984) reported that clinical findings of mastitis are with only mild changes in either the milk or the udder, with the gross changes in the milk or udder. Udder grossly enlarged and may be more than 2° F above normal.

Rahman et al., (1972) reported that clinical findings of chronic fascioliasis indicate that lose weight, develop submandibular edema (Bottle-jaw), chronic diarrhea and emaciated.

Garrels et al., (1975) reported that clinical pathology in case of acute fascioliasis, severe norm chromic anemia and hypoalbuminemia observe in goats. In the sub-acute and chronic diseases, rapid weight loss with a severe hypo chromic, macrocytic anemia will be seen.

In Bangladesh, **Bhuyan et al., (1970)** investigated Fascioliasis in which 12.9% of goats were infested with *Fasciola gigantica*.

Blood et al., (1989) reported that clinical findings of urolithiasis manifested by a syndrome of abdominal pain with kicking at the belly, treading with the hind feet and swishing of the tail repeated twitching of the penis, sufficient to shake the prepuce, unsuccessful efforts to urinate, accompanied by straining, grinding of teeth and passage few drop of bloodstained urine. Urinary bladder is distended and retention of urine.

Mia et al., (1967) reported that the prevalence of urolithiasis was found comparatively higher during autumn (11.4%) and winter (13.4%) seasons in the urban areas of Dhaka.

Ali et al., (1987) recorded 2.2% incidence of respiratory disorders in Black Bengal goats.

Koul et al., (1988) reported 24.2% mortality in Bengal goat due to pneumonia.

Nooruddin et al., (1987) reported higher prevalence of skin disease (26.8%) in Black Bengal goats under rural condition of Bangladesh. The prevalence of sheep and goats of Dhaka and Mymensingh district of Bangladesh were studied.

Huq and Mollah (1969) reported that the prevalence of lice on sheep and goats in Mymensingh and Dhaka were found 40.6% in sheep and 36.2% in goats respectively. Both young & adult are equally infested.

Debnath (1995) reported in present conditions goats are affected with a serious exotic killer disease namely Peste des Petits Ruminants (PPR).

Gibbs et al., (1979) reported that Peste des Petits Ruminants (PPR) is a contagious disease of goats and sheep is caused by a morbilli virus of the Paramyxoviridae family.

Alexander et al., (2000) reported that disease (ND), caused by avian paramyxovirus serotype 1 .ND has been a devastating disease of poultry, and in many countries the disease remains one of the major problems affecting existing or developing poultry Industries.

Bruce and Seal (2002) reported that outbreaks of ND occurred in 1926 on the island of Java, Indonesia. Subsequently, an outbreak of the disease was reported in the same year near Newcastle-on-Tyne, which led to its description the following year.

Fabio and Omar (2014) reported that Myiasis is defined as the infestation of live vertebrates (humans and/or animals) with dipterous larvae. In mammals (including humans), dipterous larvae can feed on the host's living or dead tissue, liquid body substance, or ingested food and cause a broad range of infestations depending on the body location and the relationship of the larvae with the host.

Chapter-III

MATERIALS AND METHOD

The study was conducted at Thana Livestock Office, Doublemooring, Chittagong to determine the general clinical prevalence of diseases and disorder in livestock and birds. The study period was 8 weeks starting from May to July, 2013.

The entire sick animals brought for the treatment to this hospital were registered at first in the registered book. The owner complains as well as animals descriptions were recorded in the registered book.

Reference population

All the livestock and birds that were brought in Thana Livestock office were considered to be reference population.

Source of population

Household raising at least one goat, sheep, pigeon, with history and clinical sign of diseases were considered to be the study population.

Study population

174 goat, 23 sheep, 174 pigeon were recorded in that period.

Population and tools used for data collection:

The entire sick animals brought for the treatment to this hospital were registered at first in the registered book. There were two ways of to have attended patients; one was clinic at which farmers willingly came with the patient with their complaints and another was at field where veterinary surgeon along with me went to the field for registration of diseased animals. The age and other clinical history of sick animal were determined by asking the owner.

A total of 371 animals including 174 goat, 23 sheep, 174 pigeon, were available during my internship period and general clinical examination were conducted according to the merit of the cases. Sick animal materials considered significant for the diagnostic purposes were collected.

Registration form:

Type of patient	Address	Species	Sex	Age	Body wt.	Owner's complain	Condition	prognosis	Remarks

Detection of diseases either by clinically or physical examination

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

P.P.R is very common and fatal diseases of goat. The main feature of this disease is high fever (106-107F), necrotic erosion with ulceration on the lips and tongue, oculo- nasal discharge, profuse diarrhea and respiratory distress.

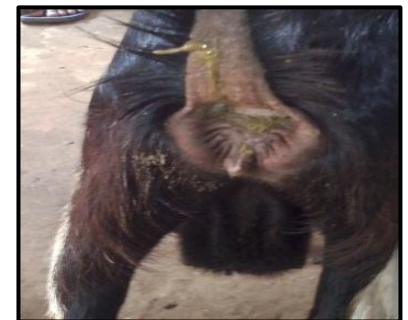


Figure-1: Showing diarrhoea in PPR

2. Urolithiasis

Urolithiasis was diagnosed mainly in castrated goats with history and owner's complaint and is characterized by complete retention of urine, distention of urinary bladder, followed by rupture of urinary bladder.

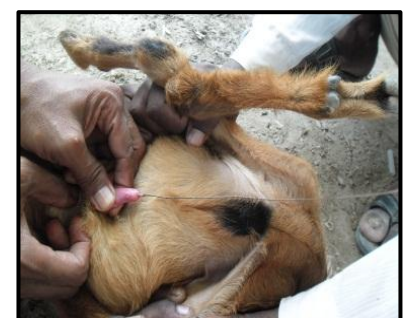


Figure-2: Showing inserting catheter in urethral process

3. Tetanus Tetanus is caused by the toxin *Clostridium tetani* .It is clinically characterized by-Hyperesthesia, Convulsion, Stiff gait, Lock jaw.



Figure-3: Showing stiff gait in Tetanus

4. Retained placenta

Retained placenta most commonly found in cows, buffaloes and goats. Animal was considered to have her placenta retained if she was unable to expel it within 12 hours of parturition

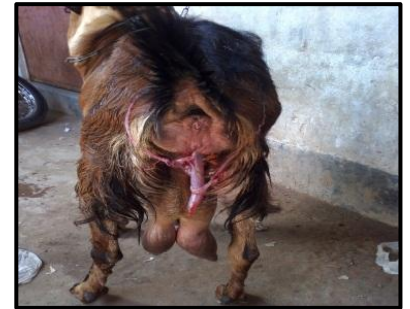


Figure-4: Showing hanging of placenta from vulva in retained placenta

5. Mastitis

Inflammation of mammary gland characterized by-physical/chemical/bacteriological change in milk and pathological change in mammary gland. It is diagnosed by-Anorexia, high fever, curd like consistency in milk, swollen udder.



Figure-5: Showing swollen udder in mastitis

6. ND (Newcastle disease)

It is a viral disease commonly known as angle among the people diagnosed by the high fever, torticollis, and greenish diarrhoea.



Figure-6: Showing torticollis in ND

11. Skin diseases

Different types of discrete and diffuse skin lesion were diagnosed clinically by visual examination, parting of hair.

7. Abscess

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



Figure-7: Showing pus from abscess

8. Coccidiosis

It is a protozoal disease caused by *Eimeria sp.* The main feature of this disease high fever, bloody feces, extremely weak animal.



Figure-8: Showing bloody feces in coccidiosis

10. Respiratory diseases (pneumonia)

Pneumonia was diagnosed on the basis of history, owner's complaint, high fever, coughing, dyspnea and sneezing.

9. Hematoma

Hematoma is the blood collects in the abnormal cavity that clots to form a solid swelling.



Figure-9: Showing clotted blood in hematoma

12. Navel ill

Inflammatory wound/lesion on the umbilicus within three months of age was considered as navel ill. Palpation of the swollen umbilicus revealed pain and draining of purulent materials.

13. Dystocia

Dystocia means difficult birth. It was diagnosed on the basis of clinical history and sign.



Figure-10: Showing traction of fetus in dystocia

15. Fascioliasis:

Fascioliasis is caused by the genera *Fasciola gigantica* is the most common in Bangladesh and the characteristic clinical signs are loss of weight, sub-mandibular edema (bottle-jaw) and paler of the mucosa (anemia) and by the detection of large numbers of characteristics operculated fluke eggs in the feces and was revealed by microscopic examination.

14. Myiasis

Invasion of skin or s/c tissue of living individual by larvae of dipteran fly. It was diagnosed by presence of larvae in pocket, foul odors, scratching, rubbing.



Figure-11: Showing larvae of dipteran fly in myiasis

15. CRD (Chronic Respiratory Disease)

It is mycoplasmas diseases of pigeon caused by *Mycoplasma synoviae* .It was diagnosed by respiratory rales, coughing, nasal discharge, swelling of facial skin and eyelids.

16. Pigeon Pox

It is a viral disease caused by genus Avipox virus under the family Poxviridae. It is highly infectious & highly contagious zoonotic disease of pigeon diagnosed by high fever, swelling firm palpation findings and vesicle.



Figure-12: Showing vesicle in pox

Chapter-IV

RESULT AND DISCUSSION

Clinical and laboratory investigation were conducted to determine the general clinical prevalence of diseases and disorder in livestock, and birds. The study period was 8 weeks starting from May to July, 2013. The number and percentage of cases each of the major groups of diseases with their prevalence rate are presented in table 1, table 2 and table 3.

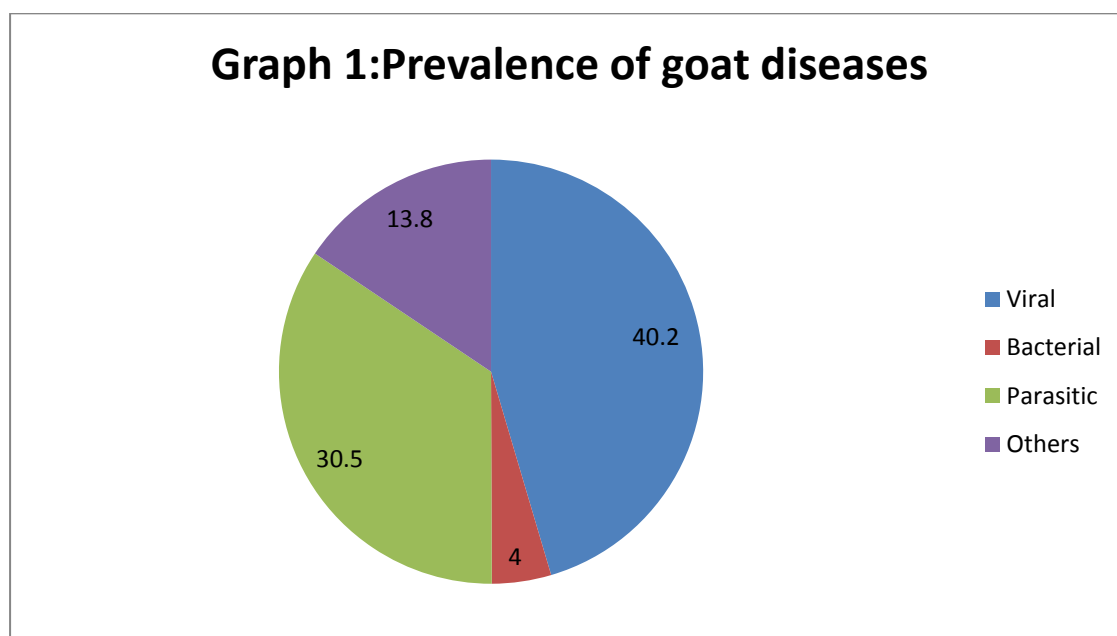
Prevalence of different diseases and disorders in goat:

Sixteen major diseases were recorded among 174 sick goats examined during the period of study and results are presented in table number 1. In table no.1, the result showed that 39.7% (n=69) goats were affected with PPR, 1.1% (n=2) with tetanus, 0.6% (n=1) with urolithiasis, 12.6% (n=22) with myiasis, 0.6% (n=1) with mastitis, 12.1% (n=21) with parasitic infestation, 0.6% (n=1) with pneumonia, 0.6% (n=1) with abscess, 1.1% (n=2) with navel ill, 1.1% (n=2) with vaginitis, 0.6% (n=1) with udder edema, 0.6% (n=1) with contagious ecthyma, 0.6% (n=1) with retained placenta, 2.3% (n=4) with corneal opacity, 0.6% (n=1) with abscess, 8.6% (n=15) with acidosis, 17.2% (n=30) with fascioliasis.

The whole recorded diseases were classified into 4 groups like parasitic, bacterial, viral, and other disease. The prevalence of parasitic diseases is 30.5%, bacterial 4 %, viral 40.2%, and others 13.8%.

Table 1: Prevalence of different diseases and disorders in goat (n=174)

Diseases and disorders	Goat	Frequency (%)
PPR	69	39.6
Tetanus	2	1.1
Urolithiasis	1	0.6
Myiasis	22	12.6
Mastitis	1	0.6
Pneumonia	1	0.6
Vaginitis	2	1.1
Corneal opacity	4	2.3
Navel ill	2	1.1
Abscess	1	0.6
Acidosis	15	8.6
Udder edema	1	0.6
Contagious ecthyma	1	0.6
Retained placenta	1	0.6
Fascioliasis	30	17.2



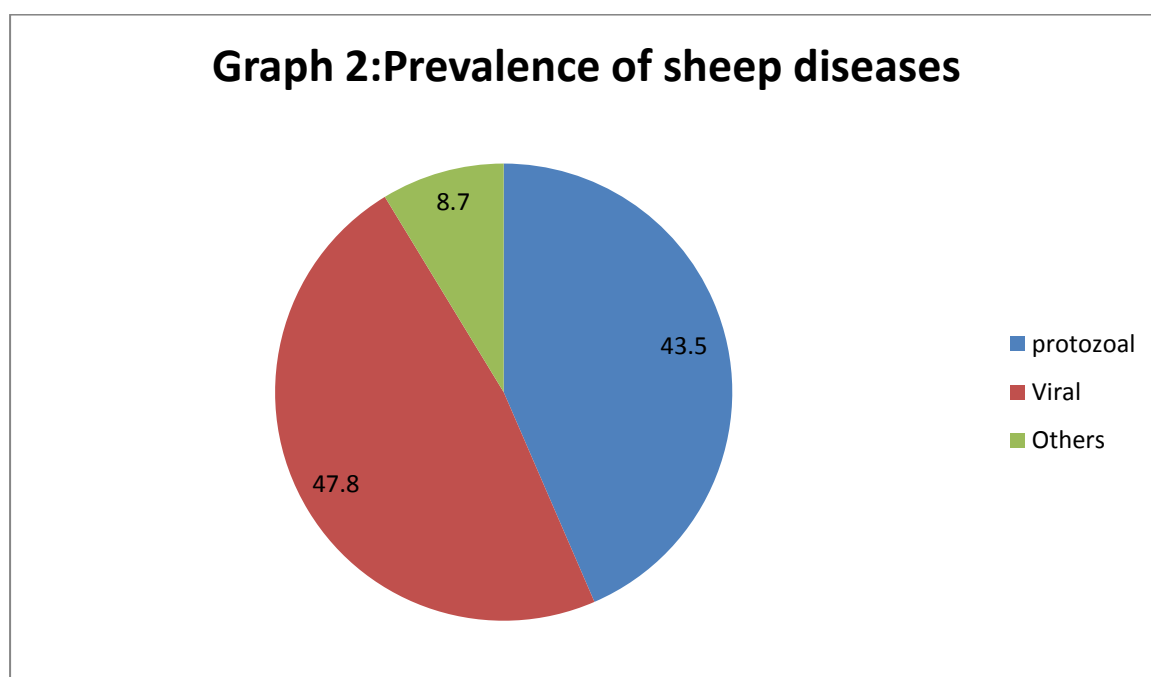
Prevalence of different diseases and disorders in sheep:

Three major diseases were recorded among 23 sick sheep examined during the period of study and results are presented in table number 2. In table 2, it was found that 43.5% (n=10) were affected with coccidiosis, 8.7% (n=2) with dystocia, 47.8% (n=11) with PPR

The whole recorded diseases were classified into 3 groups like protozoal, viral, and other diseases. The prevalence of protozoal diseases is 43.5%, viral 47.8% and others 8.7%.

Table 2: Prevalence of different diseases and disorders in Sheep (n=23)

Diseases and disorders	Sheep	Frequency (%)
Coccidiosis	10	43.5
Dystocia	2	8.7
PPR	11	47.8

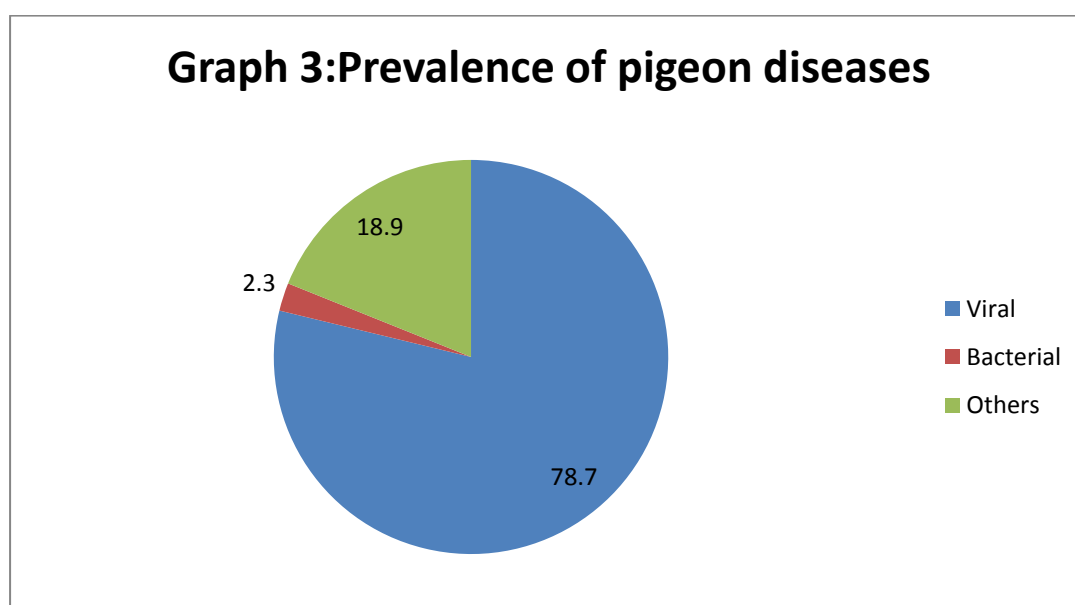


Prevalence of different diseases and disorders in pigeon:

Six major diseases were recorded among 174 sick pigeon examined during the period of study and results are presented in table number 3. In table no.3, the result showed that 66.1% (n=115) were affected with Newcastle disease, 1.1% (n=2) with abscess, 17.8% (n=31) with conjunctivitis, 1.1% (n=2) with CRD, 1.1% (n=2) with hematoma, 12.6% (n=22) with pox. The whole recorded diseases were classified into 3 groups like bacterial, viral, and other disease. The prevalence of bacterial diseases is 2.3%, viral 78.7% and others 18.9%.

Table 3: Prevalence of different diseases and disorders in pigeon (n=174)

Diseases and disorders	Pigeon	Frequency (%)
New castle disease	115	66.1
Abscess	2	1.1
Conjunctivitis	31	17.8
CRD	2	1.1
Hematoma	2	1.1
Pox	22	12.6



Prevalence of different diseases and disorders in animal according to sex:

During the period of study among 174 sick goats, 23 sheep, 174 pigeon sixteen, three, six major diseases and disorders were found, respectively in male and female of goats, sheep and pigeon and the result was showed in table no 4. In goat the result should that 18.9% (n=33) male and 20.7% (n=37) female were affected with PPR, 1.1% (n=2) male with tetanus, 0.6% (n=1) male with urolithiasis, 8.1% (n=14) male and 4.6% (n=8) female with myiasis, 0.6% (n=1) female with mastitis, 8.6% (n=15) male and 3.4% (n=6) with parasitic infestation, 0.6% (n=1) male with pneumonia, 0.6% (n=1) male with abscess, 1.1% (n=2) male with navel ill, 1.1% (n=2) female with vaginitis, 0.6% (n=1) female with udder edema, 0.6% (n=1) female with contagious ecthyma , 0.6% (n=1) female with retained placenta, 0.6% (n=1) male and 1.7% (n=3) female with corneal opacity, 0.6% (n=1) male with abscess, 6.3% (n=11) male and 2.3% (n=4) female with acidosis, 17.2% (n=30) with fascioliasis. In sheep, the result showed that 26.1% (n=16) male and 17.4% (n=4) female were affected with coccidiosis, 8.7% (n=2) female with dystocia, 23.1% (n=3) male and 61.5% (n=8) female with PPR. In pigeon, it was showed that 37.9% (n=66) male and 28.2% (49) female were affected with Newcastle disease, 1.1% (n=2) male with abscess, 10.3% (n=18) male and 7.47% (n=13) female with conjunctivitis, 1.1% (n=2) female with CRD, 1.1% (n=2) male with hematoma, 5.2% (n=9) male and 7.47% (n=13) female with pox.

Table-4: Prevalence of different diseases and disorders in animal according to sex

Diseases and disorders	Goat(174)		Sheep(23)		Pigeon(174)	
	M	F	M	F	M	F
Acidosis	11(6.3)	4(2.3)	-	-	-	-
Abscess	1(0.6)	-	-	-	2(1.1)	-
Urolithiasis	1(0.6)	-	-	-	-	-
Corneal opacity	1(0.6)	3(1.7)	-	-	-	-
Contagious ecthyma	-	1(0.6)	-	-	-	-
Coccidiosis	-	-	6(26.1)	4(17.4)	-	-
Newcastle disease	-	-	-	-	66(37.9)	49(28.2)
Dystocia	-	-	-	2(8.7)	-	-
Pox	-	-	-	-	9(5.2)	13(7.5)
Myiasis	14(8.1)	8(4.6)	-	-	-	-
Mastitis	-	1(0.6)	-	-	-	-
Retained placenta	-	1(0.6)	-	-	-	-
Navel ill	2(1.1)	-	-	-	-	-
PPR	33(18.9)	36(20.7)	3(23.1)	8(61.5)	-	-
Parasitic infestation	15(8.6)	6(3.4)	-	-	-	-
Tetanus	2(1.1)	-	-	-	-	-
Udder edema	-	1(0.6)	-	-	-	-
Vaginitis	-	2(1.1)	-	-	-	-
CRD	-	-	-	-	-	2(1.1)
Conjunctivities	-	-	-	-	18(10.3)	13(7.5)
Fascioliasis	18(10.3)	12(6.9)	-	-	-	-
Hematoma	-	-	-	-	2(1.1)	-
Pneumonia	1(0.6)	-	-	-	-	-

M= Male F= Female

DISCUSSION

The different clinical examination techniques were used to determine the prevalence of diseases and disorders in goats, sheep and pigeon during this two months period of my internship program at Doublemooring Thana. A total of 174 goats, 23 sheep and 174 pigeon were examined clinically and the samples considered significant for the diagnostic purposes were utilized for laboratory investigation. Among them 16 major diseases and disorders were in goats, 3 in sheep and 6 in pigeon during this two month investigation period. The results of these recorded diseases and disorders are classified into 4 major groups and are discussed as follows:

A. Bacterial diseases:

1. Clinical mastitis: Clinical mastitis was recorded in goats 1 (0.6%) but not in buffaloes and sheep during this 8 weeks investigation period. The clinical occurrences mastitis in cow and goats have been reported from Bangladesh (**Rahman and samad.1984**) but a systemic study on this disease has not yet been in Bangladesh. However, this disease has a great economic importance to the dairy industry. In India, mastitis causes great financial loss and has been estimated at Rs. 52.9 cores of rupees every year (**Sing and Baxi, 1982**). Epidemiological studies on mastitis reveal that mestitogenic agents are widespread on different body sites of cows and goats, milkers hands and milky cows and in the milk samples. Moreover, teat apexes are found to be the most common site from when this organism has been isolated (**Mailhotra and Kapur, 1982**). In USA the losses/cow per year has been estimated to exceed US \$ 100.00. Therefore, research would be required to control this disease in Bangladesh.

2. Tetanus:

Tetanus was recorded in goat 2(1.1%) in this study during my 8 weeks period. However, this disease occurs in all farm animals all over the world mainly as individual sporadic cases although outbreaks are occasionally reported in sheep (**Rao et al. 1978**). *Clostridium tetani* spores require anaerobic condition at the wound site of germination. Local tissue necrosis may help for the establishment of vegetative infection (Smith and Maciver,1979).Toxigenic strains of (*Clostridium tetani*) causative agent of tetanus have been isolated from the soil samples collected from different districts of west Bengals (**Das et al. 1976**). It is a very fatal disease, so it should be controlled.

3. Navel-ill:

Navel-ill was only recorded in goats 2(1.1%) during 8 weeks investigation period. It is very much common in calves rather than other animals and it is occur due to the infection of the umbilicus of newborn, but this disease has not been reported in literature from Bangladesh. However, it is common occur within 2-5 days of calves after birth and characterized by the painful and umbilicus and draining purulent materials as described by **Shearer (1986)**.

4. Abscess:

Abscess was recorded only 2 (1.1%) in pigeon and 1 (0.6%) in goat but not in other animal during my study period. There seems to be no published in land reports on the incidence of abscess in animals, though it is commonly encountered in veterinary practices in Bangladesh. However, both subcutaneous and internal abscesses have been reported in animals elsewhere (**Ramakrishna et al., 1982 Singh et al., 1988**).

B. Parasitic Diseases:

1. Fascioliasis (liver fluke):

Fascioliasis was recorded in adult goats 30 (17.2%), but not in other animal during my 8 weeks study period. at Thana veterinary hospital. The clinical occurrence of fascioliasis is association with diarrhoea. In ruminants have been reported from Mymensingh (**samad *et al.*, 1979**) at the 21% sub clinical prevalence of fascioliasis in cattle reported by **Howlader *et al.*, (1990)** which is higher than the clinical incidence of 3.4% recorded in cattle in this study. The occurrence of higher rate of a clinical infection of fascioliasis during summer or (May to July) and autumn (August to October) months on both cows and goats are in conformity with careless report of **Quadir (1981)** who reported the peak infection period of fasciola infection during July to September.

2. Gastro-intestinal nematodiasis:

It is a very common disease to all class of ruminants. About 10.9% diarrheic goat had one or more groups of nematode infection, **Amin and Samad (1987)**. A definitive diagnosis is made on the microscopic examination of the fecal sample to detect the characteristics nematode eggs.

C. Viral diseases:

1. Peste des Petitis Rumnants (PPR):

39.7% goat was recorded with PPR during that period. It is highly acute contagious disease of small ruminants. Muddy floor and poor drainage system are the most vulnerable risk factor to occur the disease. Rainy season is most susceptible to occur the disease accompanied with dry season (**Islam *et al.*, 2001**). In PPR decrease percentage of lymphocyte because the virus has affinity to the lymphoid tissue and destroy lymphocytes.

According to area the proportionate prevalence of major viral disease occurred at Thana Livestock Office, Doublemooring. Out of 174 goats, 69 were affected with viral diseases and among these 39.7% were PPR.

2. ND (Newcastle diseases):

Two poultry diseases are considered to be sufficiently serious to be included in List A of the Office International des Epizooties (OIE), namely: highly pathogenic avian influenza (HPAI) and Newcastle disease (ND). While HPAI occurs relatively rarely, ND is enzootic in some areas of the world and a constant threat to most birds reared domestically. The clinical signs seen in birds infected with NDV vary widely and are dependent on factors such as the virus, host species, age of host, infection with other organisms, environmental stress and immune status. In some circumstances, infection with the extremely virulent viruses may result in sudden, high mortality with comparatively few clinical signs.

3. Pigeon Pox:

Avian pox is a well-recognized infectious disease in birds caused by a family of viruses collectively known as avipox viruses. These viruses are antigenically and immunologically distinguishable from each other, but cross-relationships strain identification and the actual number of species or strains of avian poxvirus are not known. Although fowl, pigeon, quail, canary, turkeys are among some of the identified species. There is evidence of considerable heterogeneity among species of avian poxviruses. Serology has revealed cross-reactivity among several of the viral species, whereas genomic and antigenic characterization has been only moderately useful for identifying differences among strains.

D. Other diseases (Multifactorial):

1. Reproductive diseases:

Retained placenta was recorded in only 1(0.6%) in goat during the study period. However, the highest incidence rate of 24.2% and 39.1% retained placenta has been reported in Savar Dairy cows complicated with brucellosis

(**Dewan and Rahman, 1987**), (**Samad et al., 1989**). It is also associated with infections of hormones, vitamin and trace elements (**Jooster et al., 1988**).

2. Urolithiasis

Urolithiasis was only recorded in 4 (1.4%) goats but not in other animals during my study period. The clinical occurrence of urinary obstruction due to urolithiasis in castrated rate of urolithiasis in fatty goats in urban areas in Dhaka might be due to stall feeding with excessive wheat bran which is rich in phosphate (**Blood et al., 1989**).

3. Respiratory disease

Pneumonia was recognized as the major respiratory disease of goats and it was recorded as 23 (8.1%) in goat during my study period. It was recorded with or without fever though pneumonia was recorded in all season but highest prevalence were observed during winter season (**Ali et al., 1987**), recorded 2.17 incidence of respiratory disorders in Black-Bengal goats and (**Loel et al., 1988**) recorded 24.24% mortality in Black-Bengal goats due to pneumonia.

4. Hematoma

A hematoma is a collection of blood, usually clotted, outside of a blood vessel that may happen because of a wound to the wall of a blood vessel permitting blood to leak out into tissues where it does not belong. Although, the distinction occasionally is not clear as some hematomas enlarge over time as active bleeding can add to the mass of the hematoma. Trauma is the general cause of a hematoma. Blood vessels that are fragile may assist to hematoma formation. Occasionally, infections may happen that reduce the number of platelets in the blood stream or their ability to function. The platelets are the cells that help start blood clot and fibrin formation.

5. Myiasis:

Myiasis, a noun derived from Greek (mya, or fly), was first proposed by Hope to define diseases of humans caused by dipterous larvae, as opposed to those

caused by insect larvae in general. Myiasis has since been defined as the infestation of live vertebrates (humans and/or animals) with dipterous larvae. Recognized in ancient times, flies causing myiasis are still some of the world's most devastating insects, responsible for severe losses in animal husbandry, with significant economic losses, including reduced milk production, weight and fertility issues, and reduced hide quality.

Chapter-V

CONCLUSIONS

In summary, it can be concluded that the parasitic infestation of goat was very high during study period. Similarly, sheep also suffer mainly by parasitic diseases whereas the PPR was the major viral diseases in goat and sheep. Among the bacterial diseases, clinical mastitis was more common in goats but for the multi-factorial diseases for all species. The prevalence of these parasitic, bacterial, viral and multi-factorial diseases occurs due to the lack of deworming. The knowledge of proper husbandry, awareness of vaccination and practices of proper hygienic management is malignant to reduce the frequency of different diseases for maintaining the productivity. The present result showed that pigeon was more susceptible with ND in the study area.

ACKNOWLEDGEMENTS

At the beginning, I wish to acknowledge the immeasurable grace and profound kindness of the Allah, the supreme ruler of universe without whose blessings I could not accomplish this report. It is my great privilege to express my deep sense of gratitude and profound regards to my honorable Supervisor Professor Dr. Mohammad Rashedul Alam, Dept. of Physiology, Biochemistry and Pharmacology, Chittagong Veterinary and Animal Sciences University, Chittagong, who has involved during every steps of this report from its inception to completion.

I wish to acknowledge DR. Supan Nandy, Veterinary Surgeon, Thana Livestock Office, Doublemooring and others staff for their kind cooperation in my study period.

The Author

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