# A study on prevalence of various diseases of cattle at Zilla Sadar, Rangamati district, Bangladesh


## Abstract

The study was conducted at Zilla Veterinary Hospital of Rangamati district to determine the different diseases of cattle over two months period starting from 13th January 2015 to 15th March, 2015.A total of 147 cases were recorded where the number of cattle(calves, cows and bulls) were respectively. The animal diseases were categorized into four classes namely digestive, respiratory, urogenital and integumentary system on the basis of parasitic, bacterial, viral and others.. The diseases were diagnosed tentatively using anamnesis. Parasitic infestations were predominant for all species followed by multi-factorial (others), bacterial diseases respectively. The high prevalence of parasitic infection reported in cattle was 27.89% (41) whereas the malnutrition 13.61%(20),bloat 9.52%(14) and tick infestation 8.84%(13) respectively. Frequency of diseases according to age and sex elaborate that on the below 6 month are digestive (13), respiratory (8), urogenital (37) and integumentary(15) with the value of p(0.02,0.042) respectively.



**Key words:** Prevalence, Parasitic infection, Malnutrition, Bloat, Tick infestation

## Chapter-I

# Introduction

Bangladesh is an agriculture based country in the world where Livestock has been an important part of the various farming system practiced in Bangladesh. Livestock plays an important role in the agricultural 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 2.92%, which was 17.2% of agriculture and forestry rector in FY- 2005-2006. The share of this sector is projected at 2.95% 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 22.90 million cattle 1.26 million buffaloes, 21.56 million goats, 2.78 million sheep, 212.47 million chickens, 39.84 million duck in our country (Anon, 2009). In recent year, this sector has been playing an increasingly important in the economy uplift effort 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 & productivity, through the death or slaughter of the animals, reduce production of milk, meat & reduce productive capacity. Afazuddin (1985), estimated. TK. 1,08067.75 as an annual economic loss due to various parasitic diseases at Savar military farm. Parasitism claims to be the mail obstructer in livestock rearing in Bangladesh (Jabber and Green, 1983).

Besides, parasitic disease, some other important infection diseases live FMD, PPR, mastitis and non-infectious diseases like milk fever, dystocia, acidosis, Pregnancy toxemia etc. causes a great loss in the economy of Bangladesh.

Indirect impact includes lass of export market, effect on human health, effect on social status etc.

Rangamati district is one of the important sites for livestock population and the most of the common livestock diseases are frequently found in this region. This study was conducted at the Zilla Sadar for two months during internship training program with the following objectives:

i) To determine the prevalence of different diseases and disorders of livestock (calves, cows and bulls).

ii) To study the infection with different demographic variable (age, sex etc.).

## Chapter-II

# Materials and Methods

The study was conducted at Zilla Veterinary Hospital of Rangamati district to determine the general clinical prevalence of diseases and disorders in cattle (calves, cows and bulls). The period of study was taken standing from 13th January 2015 to 15th March, 2015 at about 8 weeks.

### 1.1 Reference population:

All the cattle (calves, cows and bulls) that were brought in Zilla Veterinary Hospital were considered to be reference population.

### 1.2: Source and study population:

Cattle with history and clinical sign of diseases were considered to be the study population at the time of my internship program at Rangamati. Cattle (calves, cows and bulls) were recorded during that period. All the sick animals are brought to this hospital for the treatment and registered in the patient registered book. There are two ways of to have attended patients; one was hospital at which farmers eagerly came with the patients 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 147 cattle (calves, cows and bulls) were available during my internship period and the general clinical examinations were conducted according to the merit of the cases.

### 1.3: Statistical analysis:

All the collected data were inputted to the Microsoft Office Excel-2010 and transferred to the software STATA/IC-11 for analysis. Descriptive statistics was done by using the STATA software and expressed as percentage for different variables. To estimate the association between a categorical explanatory variable with outcome, Chi square ($\chi 2$) test was performed. An association was regarded as significant if $p \leq 0.05$.

**Registration form**:

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

## Chapter-III

# Results

Clinical investigations were conducted to determine the general clinical prevalence of diseases in cattle(calves, cows and bulls) at 13th January 2015 to 15th March, 2015. The number and percentage of cases each of the major groups of diseases with their prevalence rate are presented here (Table-1 to table-3).

**3.1 Prevalence of clinical diseases and disorders in cattle**:

25 diseases were recorded among 147 sick cattle examined during the period of study and results are presented in table number 1.It is evident that 1.36%(n=2)cattle were affected with Bebesiosis,0.68% (n=1) with Dystocia, 4.76% (n=7) with HS, 13.61% (n=20)with Malnutrition,4.08% (n=6) with pneumonia,0.68%(n=1)accordingly with wound, abscess, castration, colic, dystocia ,hump sore, joint ill, mastitis, metritis, myasis,pain,3.40% (n=5) with allergy, 4.76% (n=7) with anestrus,9.52%(n=14) with bloat,7.48%(n=11)with diarrhoea,2.04%(n=3)with foot rot,27.89%(n=41) with parasitic infection,2.04%(n=3) with retained placenta,8.84%(n=13) with tick infestation and 2.04%(n=2) with uterine prolapse.

**Table-1: Prevalence of different diseases and disorder in cattle:**

| SL no | DISEASES | Frequency N=147 | Percent (%) |
|---|---|---|---|
| 1 | Bebesiosis | 2 | 1.36 |
| 2 | Dystocia | 1 | 0.68 |
| 3 | HS | 7 | 4.76 |
| 4 | Malnutrition | 20 | 13.61 |
| 5 | Pneumonia | 6 | 4.08 |
| 6 | Wound | 1 | 0.68 |
| 7 | abscess | 1 | 0.68 |
| 8 | allergy | 5 | 3.40 |
| 9 | anestrus | 7 | 4.76 |
| 10 | bloat | 14 | 9.52 |
| 11 | castration | 1 | 0.68 |
| 12 | colic | 1 | 0.68 |
| 13 | diarrhoea | 11 | 7.48 |
| 14 | dystocia | 1 | 0.68 |
| 15 | foot rot | 3 | 2.04 |

| | | | |
|---|---|---|---|
| 16 | hump sore | 1 | 0.68 |
| 17 | joint ill | 1 | 0.68 |
| 18 | mastitis | 1 | 0.68 |
| 19 | metritis | 1 | 0.68 |
| 20 | myasis | 1 | 0.68 |
| 21 | pain | 1 | 0.68 |
| 22 | parasitic infection | 41 | 27.89 |
| 23 | retained placenta | 3 | 2.04 |
| 24 | tick infestation | 13 | 8.84 |
| 25 | uterine prolapse | 3 | 2.04 |
| | | | |
| Total No.= | | 147 | 99.98 |

### 3.2Frequency of diseases affected according to various system of cattle:

The whole recorded diseases were classified into 4 groups like Digestive, Respiratory, Urogenital, and integumentary systems which were treated with antibiotic, anthelmintic, nutritional and others. The prevalence of antibiotics used in digestive system is (14), respiratory system(15),urogenital system(9),integumentary system(6), anthelmintic used in digestive system(10), respiratory system(0), urogenital system(30), integumentary system(15), Nutritional drugs used in digestive system is (5), respiratory system(0),urogenital system(6),integumentary system(1), and others used in digestive system is (18), respiratory system(2),urogenital system(14),integumentary system(2).

**Table2: Frequency of diseases affected according to various system of cattle:**

| **Affected system** | **Antibiotics** | **Anthelmintic** | **Nutritional** | **Others** |
|---|---|---|---|---|
| Digestive | 14 | 10 | 5 | 18 |
| Respiratory | 15 | 0 | 0 | 2 |
| Urogenital | 9 | 30 | 6 | 14 |
| integumentary | 6 | 15 | 1 | 2 |
| **Total** | **44** | **55** | **12** | **36** |

### 3.3 Frequency of diseases according to age

Here, the relationship between age and sex was significantly associated as the p value of chi square test was 0.002 and 0.042 (p> 0.05).

**Table-3: Frequency of diseases according to age:**

| Variables | Variable Category | Affected systems | | | | *p value* |
|---|---|---|---|---|---|---|
| | | Digestive | Respiratory | Urogenital | Integumentary | |
| Age | <6m | 13 | 8 | 37 | 15 | *0.002* |
| | >6m-2y | 4 | 4 | 6 | 4 | |
| | >2y | 29 | 5 | 16 | 6 | |
| Sex | Male | 14 | 7 | 34 | 13 | *0.042* |
| | Female | 32 | 10 | 25 | 12 | |

1

Anesthesia before castration

2

Performing castration

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The Author

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## Chapter-IV

# Discussion

The different clinical examination techniques and methods were used to determine the prevalence of diseases and disorders in cattle (Calves, Cows, bulls) during this two months period of my internship program at Zilla Veterinary Hospital, a total no of 147 were examined clinically and the samples considered significant for the diagnostic purposes were utilized for laboratory investigation. The results of these recorded diseases and disorders are discussed as follows:-

**A. Bacterial diseases:**

1. **Clinical mastitis**: Clinical mastitis was recorded in cows 1 (0.68%) during this 8 weeks investigation period. The clinical occurrences of mastitis in cow and goats have been reported form Bangladesh (Rahman and samad, 1984) but a systemic study on this disease has not yet been in Bangladesh.. In India, mastitis causes great financial loss and has been estimated as Rs. 52.9 cores of rupees every year (Singh and Baxi, 1982). Epidemiological studies on mastitis reveal that mastitogenic agents are widespread on different body sites of cows and goats, milks hands, milking cows and in the milk samples. Moreover, teat apices the most common site from when these organisms have been isolated (Malhotca and kapur, 1982). The losses/cow per year has been estimated to exceed US $ 100.00 In USA Therefore To control this disease in Bangladesh research would be needed.
2. **Hemorrhagic Septicemia (HS):** HS was recorded 0nly in cattle 7 (4.76%). It is a acute epidemic disease caused by *Pasteurella multocida* usually following some form of stress like driving, transporting shipping to feed lots etc. The organism which remain in the tonsiller and nasopharyngeal mucosal assume the pathogenic role and set up clinical diseases (Blood *et al*., 1983). The disease has great economic importance and the annual loss in India is estimated to be 40,000 cattle and buffaloes (Rau and Govt (1950). and Dhanda *et al*., (1956).

**B. Parasitic Diseases:**

Out of 147 animals most of the animals were affected with parasitic diseases, 41(27.89%).

**1. Gastro-intestinal infection:**

Gastro-intestinal infection including nematodes, trematode and cystodes in cattle calves, cows and bulls) 41(27.89%). .

It is a very common disease to all class of ruminants. About 10.98% diarrheic cattle had one or more groups of nematode infection, Amin and Samad (1987).

**2. Babesiosis:**

Babesiosis was recorded in only 2(1.36%) cattle during my study period. It is a protozoan disease and caused by *Babesia bigemina*. However, comparatively lower prevalence rate (0.16%) of clinical Babesiosis in cattle has been reported from other pasts of Bangladesh by Samad (1988 b). The clinical Prevalence of Babesiosis in cattle had been recorded in all four seasons of the year in this study but comparatively higher prevalence rates recorded during summer and autumn (1.23%) in comparison to winter (1.02%) and Spring (1.10%) months. These finding are in conformity with the easier report of Samad and Shahidullah (1984) who reported highest prevalence of clinical Babesiosis in cattle during summer and lowest in winter season correlates with the prevalence of large number of ticks in Summer and less in winter months.

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**C. Other diseases(Multifactorial):**

**1. Reproductive diseases:**

Retained placenta was recorded in only 3 (2.04%) cows, during the study period. However, the highest incidence rate of 24.23% and 39.15% retained placenta has been reported in Savar Dairy cows complicated with brucellosis (Dewan and Rahman, 1987), (Samad *et al*., 1989). It is usually associated with infections of hormones, vitamin and trace elements (Jooster *et al*., 1988).

Uterine prolepses were recorded only in 3 (2.04%) cows. However, the incidence of 14.30% utero-vaginal prolapses in cow (Mayeed *et al*., 1988), 3.35% in cows (Shekla and pasekh, 1987). It is one of the major reproductive disease causing great economic loss in farm animals.

**2. Respiratory diseases:** Pneumonia was recognized as the major respiratory disease of cattle was recorded as 6 (4.08%) in cattle (calves, cows and bulls) during my study

period. It was recorded though pneumonia was recorded in all season but highest prevalence were obsessed during winter season (Ali *et al.,* 1987), recorded 2.17 incidence of respiratory disorders in Black- Bengal goats and (Leoul *et al*., 1988) recorded 24.24% mortality in Black –Bengal goats due to pneumonia.

**3. Foot diseases:** It was recorded in (2.04%) in cattle (calves, cows and bulls). It causes the lameness of the farm animal. Saikia *et al*., (1992) reposted 13. 96% incidence rate of foot disease in bovine in Assar and Das *et al*., (1992) reported 24.40% foot diseases in bovine from west Bengal. It is occurring due to booth infectious and non-infectious sources.

**4. Abscess:** Abscess was recorded only in 1 (0.68%) calves. There is no published report on the incidence of abscess in animals, though it is commonly encountered in veterinary practices in Bangladesh. However, both subcutaneous and internal abscesses hare been reported in animals elsewhere (Ramakrishna *et al*., 1982 Singh *et al*., 1988).

**Chapter-V**

# Conclusion

From the above discussion, it can be concluded that the parasitic infestation in cattle was very high in the study period (13th January 2015 to 15th March, 2015.). Cattle are also suffered from malnutrition, bloat and diarrhea whereas the HS was the major bacterial diseases in cattle. Among the bacterial diseases, clinical mastitis was more common in both cows but for the multi-factorial diseases, tick infestation is common. 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.

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## LIST OF ABBREVIATION:

| Symbols | Elaborations |
|---|---|
| % | Percentage |
| > | Greater than |
| < | Less than |
| et al. | Et alii (And others) |
| FVM | Faculty of Veterinary Medicine |
| CVASU | Chittagong Veterinary and Animal Sciences University |