

## Prevalence of clinical diseases/disorders reported at upazila Veterinary hospital at Pirganj, Thakurgaon district

Md. Asaduzzaman Rimon<sup>1</sup>, \*Mst. Soaiba Akhter<sup>2</sup>, Yousuf Ali Sarker<sup>3</sup>, Md. Ariful Alam<sup>4</sup>, Modhan Kumar Ray<sup>5</sup> and Md. Abul Kalam Azad<sup>5</sup>

<sup>1</sup>Department of Surgery and Obstetrics, Faculty of Veterinary Science, Bangladesh Agricultural University, Mymensingh-2202; <sup>2</sup>Department of Dairy and Poultry Science, Faculty of Veterinary and Animal Science, Hajee Mohammad Danesh Science and Technology University, Dinajpur- 5200; <sup>3</sup>Department of Pharmacology, Faculty of Veterinary Science, Bangladesh Agricultural University, Mymensingh-2202; <sup>4</sup>Faculty of Veterinary and Animal Science, Hajee Mohammad Danesh Science and Technology University, Dinajpur- 5200; <sup>5</sup>Upazila Livestock Office, Pirganj, Thakurgaon- 5110, Department of Livestock Services, Bangladesh

### Abstract

**Context:** Retrospective study gives a comprehensive idea about the disease problems in animal upazila level under the DLS.

**Objective:** The study was conducted to determine diseases/disorders based on age, system affected, case type and season variation.

**Materials and Methods:** A retrospective study was undertaken in dairy cattle to identify the health disturbances that affect the growth and production at Upazila Livestock Office, Pirganj, Thakurgaon, Bangladesh from January 2013 to December 2015.

**Results:** Out of 4618 cases, 48.42% and 6.37% diseases/disorders were found in heifer and calf respectively. Digestive system was mostly affected (31.14%) followed by reproductive system (16.85%), musculo-integument system (14.45%) and lowest in cardiovascular system (0.78%). The most common general and systemic diseases/disorders were parasitic infection (18.67%), anorexia (11.34%) and fever (9.15%). The predominant production and reproductive diseases were repeat breeding (35.22%), anestrus (19.54%), dystocia (12.34%) and retained placenta (9.43%). The most common surgical interventions were myiasis (27.88%), hernia (21.36%) navel ill (13.65%) and fracture (11.87%). Among the congenital anomalies, atresia ani (81.23%) was mostly reported. Statistically significant variation of diseases in different seasons was also noted and rainy season (37.02%) ranked top. All animals reported at Upazila Livestock Office, Pirganj, Thakurgaon were reared under integral farming system within the owner households. Parasitic infestation becomes high due to 65% of the owner did not follow anthelmintic schedule properly. Under the reproductive diseases repeat breeding and anestrus mainly occurred due to nutritional deficiency (45.23%). Artificial insemination (85%) was practiced but 27% respondents complained heifer/cow fail to conceive due to poor semen quality or faulty techniques of insemination.

**Conclusion:** Percentages of occurrence of diseases were higher in heifer and digestive system is mostly affected reported at Upazila Livestock Office, Pirganj, Thakurgaon.

**Keywords:** Clinical diseases, dairy health, dairy cattle, age and seasonal variation.

### Introduction

Bangladesh is an agricultural country. Livestock is a major portion of agriculture. Agriculture consisting of crop, fisheries, livestock and forest sub sector continues to be the largest sector of Bangladesh economy. Livestock subsector provides new raw material for industry, serves a social security for the rural poor, and provides security against crop failure or damage during draught or cyclone. Livestock sub sector contributes 14.31% to agricultural GDP and 1.60% to National economy (Livestock Economy at a Glance, 2016-17, DLS). Though Bangladesh has one of the highest livestock populations in the world, but characterized by very low productivity, particularly in cattle because of low productivity, inferior genetic material, indiscriminate breeding leading to severe genetic erosion, neglect of animal healthcare and non- existence of an efficient value chain, shortage of feeds and fodder resources and lack of awareness (BIDS, 2012). However, more than 10 million people directly depend on these sectors for their livelihoods (Karim *et al.*, 2010). The management practices of animals and geo-climatic condition of Bangladesh are favorable for the occurrence of various diseases (Onneshan, 2014). Veterinary hospital is an ideal and reliable source of information about animal diseases with their treatment. People from the neighboring areas bring their sick animals to the Veterinary hospital every day. Analysis of the case record gives a

comprehensive idea about the disease problems at local areas. Although some reports on clinical case records from Bangladesh Agricultural University Veterinary Teaching Hospital (Samad, 2001; Samad *et al.*, 2002; Sarker *et al.*, 2013b; Ali *et al.*, 2011; Sarker *et al.*, 2015c), Haluaghat Upazilla Veterinary Hospital, Mymensingh (Sarker *et al.*, 1999a) and 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) are available but no study was performed at Upazilla Livestock Office, Pirganj, Thakurgaon, Bangladesh.

The objectives were to determine diseases/disorders based on age, system affected, case type and season variation from January 2013 to December 2015 in dairy cattle attended in Upazilla Livestock Office, Pirganj, Thakurgaon.

### Materials and Methods

The retrospective epidemiologic study of diseases was done using three (3) years data at Upazilla Livestock Office, Pirganj, Thakurgaon, Bangladesh. The retrospective data of 3 years from January 2013 to December 2015 were collected from patient case record of Upazilla Livestock Office, Pirganj, Thakurgaon, Bangladesh. The data were analyzed retrospectively and interpreted to determine the occurrence of diseases; seasonal pattern and distribution of diseases. The

\*Corresponding author: asadrimon.ar@gmail.com

patient's data were collected from the register book after official permission. During the period of study 8036 diseased animals were attended where 4616 dairy cattle were recorded from patient register.

The data were manually patterned for recording errors or missing data and obvious discrepancies. The potential errors were assessed and corrected. Data with apprehensive values were excluded. Chi-square test was used to know the association between different groups in respective cases. According to age, diseased animals were grouped as based on terminology definition. We considered three seasons according to Ali *et al.* (2011) as summer from March to May, rainy from June to October and Winter from November to February.

Clinical cases were primarily categorized into three major groups. These groups were: (1) Medicinal, (2) Gynaecological and (3) Surgical. In case of multiple system affection two or more systems were affected namely digestive, respiratory and/or integumentary system. Though surgical intervention has never been practiced in Bangladesh (Osmani *et al.*, 2000), the eye diseases which also include corneal opacity were included under medicinal cases.

### Results and Discussion

In total of 4618 cases, 48.42% and 6.37% diseases/disorders were found in heifer and calf respectively. Digestive system was mostly affected (31.14%), reproductive system (16.85%), musculo-integument system (14.45%), and cardiovascular system (0.78%). The most common general and systemic diseases/disorders were parasitic infection (18.67%), anorexia (11.34%), fever (9.15%), among the reproductive diseases repeat breeding (35.22%), anestrus (19.54%), dystocia (12.34%) and retained placenta (9.43%) were predominant. The most common surgical interventions were myiasis (27.88%), hernia (21.36%) navel ill (13.65%) and fracture (11.87%). Among the congenital anomalies, atresia ani (81.23%) was mostly reported. Under the reproductive diseases repeat breeding and anestrus mainly occurred due to nutritional deficiency (45.23%). Artificial insemination (85%) was practiced but 27% respondents complained heifer/cow fail to conceive.

### Age and season wise distribution of diseases and disorders observed in different systems of dairy cattle

The diseases and disorders observed in the different systems of dairy cattle are shown in the Table 1. In the study 8036 animals were studied where dairy cattle were 4618. System wise top 5 diseases were described in the Table 2. In the study it was found that cattle of different aged were suffering from various diseases and disorders, where maximum no. of dairy cattle (432) was affected by parasitic infection. The study also revealed that most of cattle of all aged were affected with digestive diseases (Table 1). Among the reproductive diseases repeat breeding occurred 35.22%. It was exerted from the study that myiasis, hernia navel ill also found in dairy cattle. Table 1 expressed that cattle of 1-3 years ( $A_2$ ) old were mostly affected by diseases and disorders in contrast of cattle of other age group. Likely the trend of age based phenomena; worm infestation was also ranked as the most frequent in case of dairy cattle in the studied areas due to less attention against

preventing measures of worm as described as Rahman *et al.* (2012).

**Table 1.** Systemic distribution of diseases in cattle observed in age, sex and season wise

| Systemsinvolved    | Age group(year) |          |          |           | Season |       |        | Total |
|--------------------|-----------------|----------|----------|-----------|--------|-------|--------|-------|
|                    | 0-1 (A1)        | 1-3 (A2) | 3-8 (A3) | 8-20 (A4) | Summer | Rainy | Winter |       |
| Digestive          | 114             | 686      | 402      | 224       | 478    | 534   | 426    | 1424  |
| Respiratory        | 24              | 150      | 102      | 26        | 100    | 112   | 90     | 302   |
| Reproductive       | 0               | 330      | 278      | 172       | 258    | 290   | 232    | 780   |
| Musculo-Integument | 4               | 358      | 256      | 52        | 222    | 248   | 198    | 668   |
| Integumentary      | 10              | 136      | 20       | 68        | 80     | 86    | 68     | 234   |
| Urinary            | 8               | 50       | 60       | 38        | 52     | 56    | 48     | 156   |
| Hematopoietic      | 14              | 118      | 0        | 38        | 56     | 64    | 50     | 170   |
| Nervous            | 16              | 42       | 14       | 20        | 30     | 34    | 28     | 92    |
| Cardiovascular     | 18              | 18       | 8        | 0         | 12     | 16    | 10     | 38    |
| Multiplesystem     | 0               | 346      | 250      | 46        | 214    | 236   | 192    | 642   |
| CA                 | 04              | 4        | 0        | 0         | 32     | 36    | 30     | 98    |
| Total              | 294             | 2238     | 1402     | 684       | 1534   | 1712  | 1372   | 4618  |

There is statistically significant relation between diseases and ages of cattle ( $\chi^2= 379.701$ ) and disease and season ( $\chi^2= 45.336$ ).

**Table 2.** Top five (5) diseases/disorders in dairy cattle reported at Upazilla Livestock Office, Pirganj, Thakurgaon.

| Name of the disease/disorder      | Total |
|-----------------------------------|-------|
| Rumen and liver flukeinfestations | 702   |
| RepeatBreeding Syndrome           | 274   |
| Ectoparasiticinfestation          | 262   |
| Myiasis                           | 212   |
| Anestrus                          | 152   |
| Total                             | 1602  |

Season wise diseases and disorders in cattle were presented in the Table 1. The results obtained from the study exerted that diseases and disorders of dairy cattle were more prominently occurred in the rainy season (37.02%) than that of summer (33.21%) and winter (29.77%) ones. According to Islam *et al.* (2012b) vectors of different internal and external parasites were more prevalent due to geo-climatic condition of studied area so that parasitic diseases are more prominent. Among the reproductive diseases repeat breeding is more common due to heat detection error and improper timing of AI in cow as described in Khair *et al.* (2013).

### Temporal distribution of diseases

Out of total 4618 cases highest cases were found in March (11.85%) followed by July (11.60%), August (10.25%) and lowest in January (5.02%). Disease frequency was highest in the starting of summer (March- 11.85%) and then rainy season (July-11.60%). Due to climatic changes and presence of vector causes vector- borne diseases; in March occurrence of disease become high. In July because of geographic and temporal cluster disease occurrence also high. Occurrence of diseases and disorder in both month March and July high due to immunological status, travels, community behaviors of animal also similar reported by Samad (2011).

### Managemental practices of dairy cattle

All reported animal reared under smallholder integrated farming system within their owners households. Feed resources and feeding practice: major types of feeds were rice straw, green grass, rice bran, pulses bran, till oil cake and

others. Most of the farmers used mustard oilcake as protein supplement because of availability. One of the advantages of dairy cattle management at farmers level is that they used locally available cattle feed resources. Family members of the farmers are involved in feed processing and offering feed daily of the cattle.

Most of the farmers (65%) did not follow anthelmintic schedule, they administered anthelmintic when clinical signs and symptoms of parasitic infections were appeared.

An artificial insemination service was considered as a significant vehicle to improve the existing reproductive performance of cattle breeds by implementing the cross-breeding (Uddin *et al.* 2010). Although the history of research into artificial insemination (AI) is over two centuries old and its commercial application has now already span 75 years, in Bangladesh (Uddin *et al.*, 2014). However for the better conception rate people are highly motivated to use of AI rather than natural service. 85% farmers were practiced AI from private and government service, but they were satisfied with private AI program rather than government.

#### **Diseases of the reported dairy cattle at Upazila Livestock Office, Pirganj, Thakurgaon, Bangladesh**

Digestive system was mostly affected which was similar with Kabir *et al.* (2010), Ali *et al.* (2011) and Sarker *et al.* (2013a). Among individual diseases the prevalence of parasitic infestation and infection was highest followed by 6 diseases were more prevalent e.g. myiasis, repeat breeding, anorexia, pneumonia and balantidiasis. The prevalence of other diseases was comparatively low. Among diseases of different systems those affecting reproductive system constituted highest occurrence is repeat breeding followed by anestrus. This was due to mainly for nutritional deficiency, infectious diseases, ovarian cyst and failure to heat detection by owners as described by Khair *et al.* (2013). The prevalence of parasitic disease was 18.67 % in the present study. The higher rates 51.50% had been recorded previously (Ali *et al.*, 2011), Sarker *et al.*, (2015c) also reported that the occurrences of parasitic diseases was 33.85%. This occurred due to improper following the anthelmintic schedule by animal owner which also described by Islam *et al.* (2012).

#### **Conclusion**

The authors recommend for undertaking retrospective research focusing on the causes of most predominant general, systemic and reproductive disorders of animals on regular basis which will help to identify risk factors of diseases. Control measure should be initiated to reduce the burden of these diseases/disorders in the study area. This study generated information which is valuable not only for the clinicians, researchers, animal health companies, policy planners, management and control strategy of diseases but also for the academicians to update veterinary curricula.

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