

## Prevalence of Poultry Diseases in Bangladesh

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**Abstract :** The postmortem and serological investigations of poultry diseases were conducted in different farms of Bangladesh. A total numbers of 1653 either dead or sick birds were examined. The incidence of aflatoxicosis was highest (27.59%) followed by nutritional deficiency (12.40%), infectious bursal disease (11.80%), chronic respiratory disease (8.11%) newcastle disease (7.50%) salmonellosis (5.56%) colibacillosis (4.42%), fowl cholera (3.08%) were found. 5.32% cases remain undiagnosed due to lack of diagnostic facilities or autolysis of the bird. In sero-evaluation, commercial and native birds were found 93-97, 80 -55, 56-12, 60-73, 67-61 and 22-3% sero-positive for newcastle disease, infectious bursal disease, pullorum, *M. galisepticum*, *M. synoviae* and chicken infectious anemia respectively.

**Key words:** Prevalence, poultry diseases, Bangladesh

### Introduction

The poultry production in Bangladesh is characterized predominantly by the backyard type small-scale operation for a long time. They rear traditionally their native birds as scavenging system with very small profit. Almost all-rural household has some poultry and women are the raisers of these chickens. Poultry keeping are one of the most appropriate incomes generating activities for rural women. During the last few years commercial poultry farming become one of the profitable industries in Bangladesh. Many farmers change their traditional rearing system and become a modern commercial poultry rearer. A small-scale poultry rearing has become a beneficial occupation for the women and young generation of the country. Government of Bangladesh is trying to increase commercial poultry production for alleviation of poverty and creation of employment opportunity to improve national health status. But mortality of chicken due to various fatal infectious and non-infectious diseases is one of the major constrains for the profitable poultry rearing. In Bangladesh, farmers face a wide range of poultry diseases, which reduce the optimal production of the flock. Ali (1994) has reported about 30% mortality of chickens in Bangladesh every year due to outbreaks of several diseases. Newcastle disease was the earliest economically important infectious disease for native and commercial poultry (Islam et al., 1998) where as infectious bursal disease was first reported in 1992 with high morbidity (Rahman et al., 1996). They also reported that this disease was one of the serious threats to the poultry industry in this country. Among bacterial diseases salmonellosis in poultry shows more than 10% mortality and reduce egg production and hatch ability for up to 20-30% (Fehervari, 1994; Haque et al., 1997). During last few years several emerging diseases like IBD, aflatoxicosis, chicken anemia virus and egg drop syndrome and some unknown cause threat the poultry industry and causes huge damage to the farmers. Therefore, poultry industry of this country will be lying behind unless the practitioners know the causes of such mortality. Sometimes field veterinarians are confused to diagnose the fatal diseases and cannot suggest the farmers to take necessary measures. The present study was undertaken to investigate (postmortem) the causes of mortality in poultry in Bangladesh.

### Materials and Methods

A total number of 1653 dead or sick birds of different ages were received from all over the country at the Pathology section of Animal Health Research Division and Avian Disease Diagnosis Laboratory of Bangladesh Livestock Research Institute, Saver, Dhaka from the year January, 1999 to December, 2000. In most of the cases a presumptive diagnosis was made on the basis of history, clinical signs and symptoms, characteristics necropsy findings etc. In some cases isolation and identification of pathogens as well as response to treatment. ELISA test was also conducted in some cases especially in case of gumboro and chicken anemia.

For sero-evaluation, a total of 1496 blood samples, where 300 samples from 30 commercial farms and 196 samples of native

chicken from 30 villages of different parts of Bangladesh were collected in the year 2000. Haemagglutination inhibition (HI) test for Newcastle disease, enzyme linked immunosorbant assay (ELISA) for gumboro and chicken infectious anemia and agglutination test for Mycoplasma and Pullorum disease were performed.

### Results and Discussion

During the last two years, a total of 1653 dead or sick birds were examined where 1067 in the year 1999 and 586 in the year 2000. Table 1 shows the prevalence of poultry disease in Bangladesh. Highest incidence was observed in case of aflatoxicosis (27.59%). It was observed that the incidence of aflatoxicosis was higher (32.61%) in 1999 than year 2000 (18.43%). In postmortem lesions liver was found swollen, fragile, haemorrhagic with yellowish discoloration, spleen becomes enlarged and haemorrhagic, kidney becomes swollen with the deposition of urates, which ultimately cause failure of kidney function. It was observed that change of feed, medicating the affected flock with vitamin AD<sub>3</sub>E and B complex, liver tonic showed good response. In the year 1999, Bangladesh faced the longest duration flood of the last century, which favors the growth of fungi *Aspergillus flavus* in poultry feeds due to poor storage facilities. Finally *Aspergillus flavus* produce aflatoxin in the feed. Poultry feed from several feed makers, shops and farmer's stocks also shows the high level of this toxin in this year (BLRI report, 2001). The environmental factors of Bangladesh like heavy rainfall, flood, high humidity, poor storage parameters and inadequate knowledge about pre and post harvesting management technology encourage the growth, multiplication and production of *Aspergillus flavus* in feed. This observation was supported by Galhotra (1991), who observed heavy fungal infestation in 58 out of 90 and 44 out of 70 poultry feeds in India (Punjab) and also reported huge number of mortality among poultry. Nutritional deficiency (12.40%) was the second highest problem in commercial poultry farming in both the years. Talha (1999) also reported 9% deficiency disorder from several poultry farms of Mymensingh district. Of all infectious diseases, infectious bursal disease was found highest (11.80%) followed by chronic respiratory disease (8.11%), Newcastle disease (7.50%), Salmonellosis (5.56%), Colibacillosis (4.42%) and Fowl cholera (3.08%). These findings are agreed with the findings of Bhattacharjee et al. (1996) who reported from central disease investigation laboratory, Dhaka, Bangladesh.

Parasitic diseases were found very few in number except coccidiosis (3.87%), which was found in both the year (4.22 and 3.24%), more or less same percentage. Sarker (1976) also reported similar observation. Sporadic incidence of fowl pox, avian leukosis, staphylococcosis, fowl typhoid, egg drop syndrome, hydropericardium-hepatitis syndrome, chicken anemia infection were also recorded during the study period. Due to autolysis and lack of diagnostic facilities 5.32% cases were remain undiagnosed. It was found that most of the infectious diseases affect same percent in layer and broiler except salmonellosis and fowl cholera where incidence were found higher in layer birds than broiler in

Giasuddin *et al.*: Prevalence, poultry diseases, Bangladesh

Table 1: Prevalence of poultry diseases in Bangladesh during the period of January 1999 to December 2000

Name of the diseases	1999	2000	Total
Aflatoxicosis	32.61 (348)	18.43 (108)	27.59 (456)
IBD	11.15 (119)	12.97 (76)	11.80 (195)
Newcastle disease	06.47 (69)	09.39 (55)	07.50 (124)
Salmonellosis	02.72 (29)	10.75 (63)	05.57 (92.67)
Fowl cholera	01.87 (20)	05.29 (31)	03.09 (51)
CRD	07.87 (84)	10.24 (60)	08.71 (144)
Colibacillosis	03.84 (41)	05.46 (32)	04.42 (73)
Coccidiosis	04.22 (45)	03.24 (19)	03.87 (64)
Nutritional deficiency	13.31 (142)	10.75 (63)	12.40 (205)
Others	09.28 (99)	10.58 (62)	09.74 (161)
Unidentified cases	06.65 (71)	02.90 (17)	05.32 (88)
Total number	1067	586	1653

\*Others: Fowl pox, Avian leukosis, parasitic diseases, staphylococcosis, eggs drop syndrome, hydropericardium-hepatitis syndrome, chicken anemia infection etc. IBD = Infections Bursal Disease, CRD = Chronic Respiratory disease

Table 2: Distribution of poultry diseases during the period of January 1999 to December 2000

Name of the diseases	1999		2000	
	Layer	Broiler	Layer	Broiler
Aflatoxicosis	26.27 (145)	39.42 (203)	12.61 (42)	26.09 (66)
IBD	09.24 (51)	13.20 (68)	09.00 (30)	18.18 (46)
Newcastle disease	06.52 (36)	06.41 (33)	09.31 (31)	09.49 (24)
Salmonellosis	05.07 (28)	00.19 (1)	17.12 (57)	02.37 (6)
Fowl cholera	03.62 (20)	00.00 (00)	08.11 (27)	01.58 (4)
CRD	09.96 (55)	05.63 (29)	10.81 (36)	09.49 (24)
Colibacillosis	04.17 (23)	03.49 (18)	04.50 (15)	06.72 (17)
Coccidiosis	04.53 (25)	03.88 (20)	04.80 (16)	01.18 (3)
Nutritional deficiency	13.59 (75)	13.00 (67)	11.41 (38)	09.88 (25)
Others	08.15 (45)	10.48 (54)	09.31 (31)	12.25 (31)
Unidentified cases	08.88 (49)	04.27 (22)	03.00 (10)	02.77 (7)
Total number	552	515	333	253

\*Others: Fowl pox, avian leukosis, parasitic diseases, staphylococcosis, eggs drop syndrome, hydro-pericarditis, chicken anemia infection etc.

Table 3: Sero-prevalence of poultry diseases in Bangladesh from January 1999 to December 2000

Type	Newcastle disease (%)	IBD (%)	<i>Salmonella pullorum</i> (%)	<i>Mycoplasma</i>		Chicken infectious anemia %
				<i>Gallisepticum</i> (%)	<i>Synoviae</i> (%)	
Commercial (300)	92.67 (278)	79.67 (239)	56.33 (169)	60.33 (181)	67.33 (202)	22.33 (67)
Native (196)	97.45 (191)	55.61 (109)	11.73 (23)	72.96 (143)	60.71 (119)	03.06 (6)

Note: Figure in the parentheses indicates total number.

both the year (Table 2). Aflatoxicosis was observed higher in broiler than layer. This may be due to high feed consumption in a short time by the broilers. This finding agreed with the findings of Galhota (1991) who reported 15% mortality in layer and 35% mortality in broiler chickens in India.

Highest 92.67 and 97.45% sero-positive reaction was observed against Newcastle disease in commercial and native chicken respectively (Table 3). 79.67 and 55.61% sero-positive reaction was observed against infectious bursal disease in commercial and native birds respectively. There was no report of vaccination and infection in the native chicken against IBD. Sero-positive may be due to natural exposure of chicken to IBD virus. In plate agglutination test *Salmonella pullorum* was found 56.33% in commercial chicken and 11.73% in native chicken. Hoque *et al.* (1997) reported 10% sero-positive reaction against *Salmonella* from different commercial birds in Bangladesh, which is less than findings of this study. Prevalence of *Mycoplasma gallisepticum* and *Mycoplasma synoviae* infection was observed 60.33 and 67.33% in commercial farm and 72.96 and 60.71% in native chicken respectively. Prodhon *et al.* (2000) reported 77% *M. gallisepticum*, which is agreed with this observation. Serological study of chicken infectious anemia was done by ELISA test and sero-positive reaction was observed 22.33% in commercial chicken and 3.06% in native chicken.

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