MORTALITY PATTERN OF TURKEYS IN AN ORGANIZED POULTRY FARM

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ABSTRACT

The present study was carried out in turkey birds maintained at Institute of Poultry Production and Management, TANUVAS, Chennai, spread over 3 years (2009-2010 to 2011-2012). Causative agents were listed and per cent mortality was calculated during different seasons. There are four seasons, viz. winter, summer, southwest monsoon and northeast monsoon. Brooder and grower turkey (0-20 weeks) and adult turkey (21-68 weeks) were reared in deep litter system of management. The overall mortality pattern during brooder and grower period (0-20 weeks) revealed that in southwest monsoon the mortality was the highest (53.81 %), followed by 22.39 % during summer, 17.93% in northeast monsoon and the lowest (5.86%) in winter. The overall mortality due to omphalitis was high (28.71%) and significantly (P<0.05) influenced by season. Colibacillosis, hepatitis and turkey pox incidences were also significantly (P<0.05) influenced by season and the overall per cent mortality incidences were 18.88, 17.23 and 5.81 respectively. Debility and non specific causes for mortality were 15.15 and 14.18 per cent respectively. The causes of mortality in layer turkey observed were hepatitis (40.56 %), Staphylococcal infection (18.56%), pneumonia (6.21%) and non specific (34.66%) in that order from high to low. The mortality during laying period due to hepatitis was higher during winter (67.30%) and southwest monsoon (46.96%). The incidences of pneumonia and Staphylococcal infections were observed only in monsoon.

Keywords: Turkey, Mortality Pattern, Season.

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INTRODUCTION

The turkey (*Meleagris gallopavo*) a well known bird in western countries, is yet to be established on commercial point of view in the rest of the world especially in developing countries. Commercial turkey farming is becoming popular in India and farmers started to show interest in rearing turkey birds. The bird is quite suitable for socio-economical improvement of small and marginal farmers as it can be easily reared with little investment for housing, equipment and management. Since the economy of the poultry farm depends on livability of birds, the mortality records in a poultry farm are of immense importance to know the prevalence of diseases and for adopting preventive and control measures (Buragohain and Kalita, 2010). Information regarding mortality pattern of turkeys and the causes under local condition of Tamil Nadu is inadequate. Considering the importance of proper documentation of turkey diseases, which help in the analysis of occurrence of the diseases and finding out the etiological agent for taking appropriate disease control measures, the study was undertaken to assess the causes and pattern of mortality in turkeys under tropical humid climate of Tamil Nadu.

MATERIALS AND METHODS

The present study was carried out in turkey birds maintained at Institute of Poultry Production and Management, Tamil Nadu Veterinary and Animal Sciences University, Chennai, spread over 3 years (2009-2010 to 2011-2012). Causative agents were listed and per cent mortality was calculated during different seasons. The four seasons of Tamil Nadu are, winter (December, January and February), summer (March, April and May), southwest monsoon (June, July and August) and northeast monsoon (September, October and November). Birds were reared under standard managemental conditions.

Brooder and grower turkeys (0-20 weeks of age) and layer turkeys (21- 68 weeks of age) were reared in deep litter system. Mortality was recorded throughout the rearing period and post-mortem examination of all the 977 birds died was done. The data were analysed as per standard statistical procedure described by Snedecor and Cochran (1994).

RESULTS AND DISCUSSION

Brooder and grower mortality (0-20 weeks of age)

The incidence of turkey brooder and grower mortality is presented in Table.1. The overall mortality pattern during brooder and grower period (0-20 weeks) revealed that in southwest monsoon the mortality was the highest (53.81%), followed by 22.39 % during summer, 17.93 % in northeast monsoon and in winter the lowest (5.86 %). Maximum turkey poults were hatched out at southwest monsoon and marketing was carried out at above 16 weeks of age mainly in Christmas and New

Year occasions and this could be the reason for higher mortality. Apart from this, 22.39 per cent of mortality observed in summer may be due to stressors like high temperature with high humidity during which predispose bacterial, parasitic and other diseases. Behera *et al*. (2012) reported an overall brooding mortality in broiler chicken as 64, 24.5 and 11 per cent in summer, winter and rainy seasons respectively.

In the present study, mortality in turkey brooder and grower was attributed to omphalitis, colibacillosis, hepatitis, debility, non specific causes and turkey pox in that order from high to low. The highest mortality due to omphalitis was observed in summer (39.26 %) followed by winter (30.78%), southwest monsoon (26.14 %) and lowest in northeast monsoon (18.67 %) season. Highest mortality incidence due to omphalitis in summer followed by winter might be the reason of bacterial contamination such as E.Coli, staphylococcus, streptococcus and proteus contamination, which will be predominant in summer as well as winter. Terregino *et al*. (2000) found that the commonest causes of mortality in chicken at the first week were omphalitis, yolk sac infection and septicemia. Sharma *et al.* (2005) reported higher deaths due to omphalitis, weaklings, colibacillosis and pneumonia during first week in broilers. The incidence of colibacillosis in turkey brooder and grower period in different season ranged from a low 7 % during northeast monsoon and a high 30.35 % during summer. The season had significant (P<0.01) influence on the incidence of colibacillosis. More incidences of colobacillosis in summer might be the reason of low water level leads to contamination. Hepatitis incidence was also influenced significantly (P<0.01) by season in this study up to 20 weeks of age with the value ranging from a low 1.95 % in southwest monsoon to a high 39.71% in northeast monsoon. Feed toxicity due to high humidity in monsoon season might be a possible reason. Incidence of turkey pox mortality (23.25%) was observed only in northeast monsoon. Debility and non-specific causes were found to be significantly (P<0.05) higher in southwest monsoon (23.95 % and 26.14 % respectively) and lower (4.07% and 7.27% respectively) in northeast monsoon.

Layer mortality (21- 68 weeks of age)

The incidence of turkey layer house mortality is presented in Table.2. The causes of mortality observed were hepatitis, non specific causes, Staphylococcal infection and pneumonia in that order from high to low in winter and southwest monsoon. The overall mortality pattern during laying period (21-68 weeks) revealed that in winter the mortality was the highest (36.29 %), followed by 25.80 % during southwest monsoon, 25.00 % in northeast monsoon and in summer the lowest (12.90 %). The overall mean mortality of 40.56 % due to hepatitis was observed with a low incidence of 22.22 % in summer and as high as 67.30 % in winter season, the difference during different seasons was significant (P<0.05). The season had significant (P<0.01) influence on the incidence of hepatitis. Feed toxicity due to high

humidity in monsoon season might be a possible reason. The incidence of pneumonia (24.84%) and Staphylococcal infection (74.24%) were observed only in southwest and northeast monsoon respectively. The overall mean mortality of 34.66 % due to non-specific causes was observed with a incidence of 28.18 % in southwest monsoon and as high as 77.77 % in summer, the difference during different seasons was significant (P<0.01).

CONCLUSSION

It is concluded that the mortality in turkeys during brooder and grower periods was due to omphalitis, colibacillosis, hepatitis, turkey pox, debility and other non-specific incidence which were significantly influenced by season while, incidence of omphalitis and colibacillosis were highest in summer and hepatitis was highest in northeast monsoon. Debility and nonspecific causes of mortality were higher in southwest monsoon while, turkey pox incidence was observed only in northeast monsoon. Similarly during laying period the mortality due to hepatitis was higher in winter and mortality due to non-specific causes was higher in summer. Pneumonia and Staphylococcal infections were observed only in monsoon season.

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Table 1:

Per cent mortality of turkey birds during brooder and grower periods (0-20 weeks of age).

Season	Season wise mortality (%)	Diseases wise mortality (%)					
		Omphalitis**	Colibacillosis **	Hepatitis**	Turkey pox**	Debility**	Non specific causes**
Winter	5.86 (50)	30.78^{b}±1.62 (15)	16.38^{b}±2.16 (09)	22.03^{b}±4.42 (11)	0.00^{b}	18.47^{b}±0.97 (09)	12.31^{b}±0.64 (06)
Summer	22.39 (191)	39.26^{a}±0.20 (75)	30.35^{a}±0.89 (58)	5.23b^{c}±0.50 (10)	0.00^{b}	14.13^{b}±0.90 (27)	11.00^{b}±1.59 (21)
Southwest Monsoon	53.81 (459)	26.14^{b}±0.16 (120)	21.80^{b}±2.25 (100)	1.95^{c}±0.63 (09)	0.00^{b}	23.95^{a}±2.11 (110)	26.14^{a}±1.69 (120)
Northeast Monsoon	17.93 (153)	18.67^{b}±3.9 (27)	7.00^{c}±1.11 (11)	39.71^{a}±8.12 (64)	23.25^{a}±4.19 (34)	4.07^{c}±0.59 (06)	7.27^{c}±0.35 (11)
Overall mean	24.99	28.71±2.42 (853)	18.88±2.65	17.23±4.95	5.81±3.16	15.15±2.26	14.18±2.18

Values provided in the round parentheses indicate the number of mortality observed.

Means bearing different superscript in the same column differ significantly (P<0.05)

**Significant (P<0.01)

Table 2:

Per cent mortality of turkey birds during laying period (21-68 weeks of age)

Season	Season wise mortality (%)	Diseases wise mortality (%)			
		Hepatitis **	*Pneumonia***	*Staphylococcal* infection**	Non specific causes**
Winter	36.29 (45)	67.30^{a}±4.80 (30)	0.00^{b}	0.00^{b}	32.69^{b}±4.80 (15)
Summer	12.90 (16)	22.22^{b}±11.11 (04)	0.00^{b}	0.00^{b}	77.77^{a}±11.11 (12)
Southwest Monsoon	25.80 (32)	46.96^{a}±1.51 (15)	24.84^{a}±2.42 (08)	0.00^{b}	28.18^{b}±0.90 (09)
Northeast Monsoon	25.00 (31)	25.75^{b}±0.75 (08)	0.00^{b}	74.24^{a}±0.75 (23)	0.00^{b}
Overall mean	24.99 (124)	40.56±6.05	6.21±3.2	18.56±9.69	34.66±8.79

Values provided in the round parentheses indicate the number of mortality observed.

Means bearing different superscript in the same column differ significantly (P<0.05)

** Significant (P<0.01)