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Mortality pattern in Anand commercial layer chicken

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Abstract

A study was undertaken to ascertain the causes of mortality pattern in 201 poultry birds. The data were collected over of total six years (2012 to 2018). The post mortem examination were carried out at Department of Veterinary Pathology, College of Veterinary Science and Animal Husbandry, Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar. Fatty liver hemorrhagic syndrome (17.41%) found to be primary cause of death along with heat stroke (9.95%), necrotic hepatitis (9.45%), fatty liver (8.45%), nephritis (6.96%), autolysis (5.47%), hepatitis (3.98%), pneumonia (3.48%), gout (2.48%), visceral gout (2.48%), yolk sac infection (1.49%) and septicemia (1.49%). Age wise incidence of the disease revealed that Layers (>20wks) were more susceptible to fatty liver haemorrhagic syndrome (16.41%), fatty liver (6.96%), heat stroke (6.96%), necrotic hepatitis (4.97%), nephritis (2.98%). Mortality in growers were due to Nephritis (3.98%), necrotic hepatitis (2.98%), autolysis (1.99%), septicemia (1.49%) followed by enteritis (1.49%) and granulomatous pneumonia with enteritis (0.99%). Mortality in chicks phase was due to nephritis (3.98%), necrotic hepatitis (3.48%), autolysis (2.48), enteritis (1.99%), yolk sac infection (1.49%). Seasonal influences on mortality in layer type chickens showed significantly ($p < 0.01$) highest mortality during summer (58.70%) followed by monsoon (27.86%) and winter (13.43%) months. Liver associated diseases like fatty liver haemorrhagic syndrome and fatty liver were found to be highest.

Keywords: anand commercial layer, mortality, age, season, fatty liver haemorrhagic syndrome.

Introduction

Poultry is one of the fastest growing segments in the agricultural sector in India today, while production of agricultural crop has been rising at the rate of 1.5 to 2% per annum; over the past 2-3 decades poultry production has been rising @ rate of 8-10% per annum. This rapid growth of the poultry industry to supplement their income with the fast development of the poultry industry, the occurrence of diseases has increased many folds which remain the major problem affecting its economy as a result disease play a vital role to better understand the status and pattern of diseases. High incidence of poultry diseases play a major role in the reduction of the productivity of poultry rearing. The main reason for the reluctance of farmers invest in poultry production is not only lack of resources but also the risk of uncontrolled diseases (Bessei, 1988) [1].

Mortality records in a poultry farm are of immense importance to know the prevalence of diseases and for adopting preventive and control measures. Information regarding the mortality pattern of poultry and the causes under local condition of Gujarat is inadequate.

Considering the importance of poultry for the livelihood of the Gujarat people and its role in providing supplementary income to the rural farmers, the study was undertaken to find out the causes and pattern of poultry mortality under agro climatic conditions in Gujarat. This study was carried out at the Department of Livestock Production and Management, Sardarkrushinagar Dantiwada Agriculture University.

Materials and Methods

Total 201 dead poultry birds of different age groups from six years (2012 to 2018) were died at the Department of Livestock Production and Management, Sardarkrushinagar, Dantiwada Agriculture University. The birds were classified according to their age into three groups viz. 0-8 weeks (Starter), 9-18 weeks (Grower) and 19 weeks and above (layer). Seasonal influences on mortality in layer type chickens showed significantly ($p < 0.01$) highest mortality during

summer (58.70%) followed by monsoon (27.86%) and winter (13.43%) months. This study was carried out in different age group of dead poultry birds received from the poultry demonstration unit, Department of Livestock Production and Management, Sardarkrushinagar Agriculture University.

Post mortem examination

Necropsy examinations were conducted at the Department of Veterinary Pathology, College of Veterinary Science and Animal Husbandry, Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar. Laboratory tests were conducted to confirm specific cause of deaths as and when required. A total of 201 birds were subjected to gross post-mortem examination.

Results and Discussion

The causes and mortality pattern of poultry birds are shown in the Table.1. were fatty liver haemorrhagic syndrome caused highest mortality (17.41%) heat stroke was observed to be the second major causes of mortality (9.95%) followed by necrotic hepatitis (9.45%), fatty liver (8.45%), nephritis (6.96%), followed by autolysis (5.47%), hepatitis (3.98%), pneumonia (3.48%), gout (2.48%), visceral gout (2.48%), yolk sac infection (1.49%) and septicemia (1.49%).

Age wise incidence of the disease revealed that Mortality in chick phase was due to nephritis (3.98%), necrotic hepatitis (3.48%), autolysis (2.48), enteritis (1.99%), and yolk sac infection (1.49%). Mortality in Layers (>20wks) were more

susceptible to fatty liver haemorrhagic syndrome (16.41%), fatty liver (6.96%), heat stroke (6.96%), necrotic hepatitis (4.97%), nephritis (2.98%). Mortality in growers was due to Nephritis (3.98%), necrotic hepatitis (2.98%), autolysis (1.99%), septicemia (1.49%) followed by enteritis (1.49%) and granulomatous pneumonia with enteritis (0.99%).

Higher incidence of nephritis (3.98%) might signify the poor quality of day old chick. Ghodasara *et al.*, (1992) [3] also stated that the nephritis (2.98%) were the major causes of chick mortality in chickens. Khan *et al.*, (2002) also reported that the fatty liver hemorrhagic syndrome, heat stroke, necrotic hepatitis, fatty liver and nephritis is considered as an important cause of death in chicken as well as in guinea fowl, duck, turkey, quail and goose. Other factors which may contribute include post hatch starvation, type of initial feed, brooding temperature, prolonged exposure to hatcher environment and size of birds.

Seasonal influences on mortality in layer type chickens showed significantly ($p < 0.01$) highest mortality during summer (58.70%) followed by monsoon (27.86%) and winter (13.43%) months. Liver associated diseases like fatty liver haemorrhagic syndrome and fatty liver were highest among the dead birds.

Season wise highest mortality due to a fatty liver haemorrhagic syndrome (17.41%), in summer season mortality due to a fatty liver hemorrhagic syndrome was 9.45%, in monsoon and winter season mortality due to a fatty liver hemorrhagic syndrome was similar and that was 3.98%.

Table 1: Disease and category wise mortality percentage (%) in poultry birds

Disease	(Chick) >3 to 8 weeks	(Grower) >8 to 20 weeks	Layers (>20 weeks)	Total mortality %
Fatty liver haemorrhagic syndrome	0.497%	0.497%	16.41%	17.41%
Heat stroke	0.99%	1.99%	6.96%	9.95%
Coccidiosis	2.35%	1.98%	0.99%	5.32%
Necrotic hepatitis	3.48%	0.99%	4.97%	9.45%
Nephritis	3.98%	0.00%	2.98%	6.96%
Fatty liver	0.99%	0.49%	6.96%	8.45%

Rahman and Samad (2003) [7] reported highest case fatality in growers (43.33%), followed by adult layers (18.52%) reared in litter system.

Coccidiosis, caused by *Eimeria* spp. is the only recorded protozoan disease in chickens, which is characterized by blood tinged feces, ruffled feathers, loss of appetite, poor growth and reduced egg production (Karim and Trees, 1990; Mosleuddin *et al.*, 1993; Samad and Chakraborty, 1993) [8]. This study recorded 1.98% mortality rate in growers supports the report of Sil *et al.*, (2002) [9] who reported 2.29% mortality among 8 to 20 weeks old cockerels. The reason for decreasing the morbidity and mortality rates caused by coccidiosis could be due to improve hygienic management in cage system and routine use of coccidiostats in their flocks.

Egg yolk peritonitis (2.48%) was the major cause of death in layer birds. It is an inflammatory response caused by the presence of yolk material in the peritoneum from a ruptured egg or a retained egg in oviduct. It is often seen in combination with salpingitis and may develop in response to infections. Egg bound condition is a condition in which an egg is lodged in the vagina but cannot be laid. It may be due to inflammation of the oviduct, partial paralysis of the muscles of the oviduct or production of a large egg that is difficult to lay. Young pullets laying an unusually large egg are more prone to the problem. When impaction occurs in the uterus or vagina, egg enclosed by shell membranes may be

found in the abdominal cavity. This indicates that eggs continued to form but were refluxed back into the peritoneal cavity. Mortality due to this disorder was occurring in layer chickens. Mortality due to the egg peritonitis was recorded as 0.99% layer chicken.

A study was undertaken to assess the causes of mortality of poultry birds of different age groups. The major causes of mortality in starters birds were nephritis, necrotic hepatitis, autolysis, enteritis, yolk sac infection. Mortality in growers was due to Nephritis, necrotic hepatitis, autolysis, septicemia followed by enteritis and granulomatous pneumonia with enteritis. Incidence of haemorrhagic syndrome, fatty liver, heat stroke, necrotic hepatitis, nephritis found to be highest in layers. Seasonal influences on mortality in layer type chickens showed significantly ($p < 0.01$) highest mortality during summer (58.70%) followed by monsoon (27.86%) and winter (13.43%) season.

Conclusion

The results indicate that the he fatty liver hemorrhagic syndrome (FLHS) is a widely prevalent sporadic disease mainly among commercial layers. The FLHS outbreaks are often associated with hot weather and a period of extensive egg-laying. The use of lipotropic agents such as vitamin E, vitamin B12 and choline chloride gives conflicting results and avoidance of heat stress and moulded forages could be also

helpful for prevention of FLHS in layers.

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