

Research Article

STUDIES ON PARASITES AND DISEASES OF POULTRY IN EKITI STATE, NIGERIA

Adewole, S.O.¹, Agunbiade, R.O.¹, Ayeni, S.K.² and Omonijo, A.O.^{2*}

¹University of Ado-Ekiti, Department of Zoology, Faculty of Science,
P.M.B. 5363, Ado Ekiti, Ekiti State, Nigeria.

²Federal University, Oye, Department of Animal and Environmental Biology,
Oye-Ekiti, Ekiti State, Nigeria.

Article History: Received 7th January 2015; Accepted 9th May 2015; Published 9th July 2015

ABSTRACT

Record of cases of coccidiosis infection in Ekiti State were collected from the Ministry of Agriculture and Natural Resources, Veterinary Division, Ekiti State, from 2007- 2009. In 2007, of the 14 cases of coccidiosis infection reported, January had the highest percentage of 71.4% while the least percentage of 7.1% was recorded in May. In 2008, there were 34 cases of coccidiosis reported, October had the highest percentage of 47.1% and the least percentage of 2.9% was recorded in February and July. Also, in 2009 there were 35 cases reported with October having the highest percentage of 40% while April recorded the least percentage of 5.7%. There was no significant difference ($t = 0.256$; $P > 0.05$) in the percentages of occurrence of coccidiosis between 2007 and 2008. Similarly, the percentage of occurrence of coccidiosis between 2008 and 2009 was not significant ($t = 0.374$; $P > 0.05$). Measures aimed at eradicating the disease are highlighted.

Keywords: Parasite, Infection, Disease, Coccidiosis, Chicken(s), Poultry.

INTRODUCTION

Coccidiosis is a poultry disease caused by protozoan parasite belonging to the class Apicomplexa. Coccidiosis causes the poultry industry to suffer a considerable economic loss especially in the production of broiler chickens. Coccidiosis can also cause severe losses in poultry meat and egg productions (Farr, 2000).

Coccidiosis is transmitted by direct and indirect contact with the droppings of infected birds. Coccidiosis could also be spread between birds by the consumption of food or drinking water contaminated by faeces containing the infective stage of the coccidia which are known as oocysts (Chapman, 2002). Chickens are susceptible to nine coccidian (*Eimeria*) species. *Eimeria sp* are very host specific, sites of development (intestine) and cell types (epithelial cells of the intestinal villi or cells of the crypts) (Varghese, 2004). The parasites invade the lining of the intestine and cause tissue damage, lowered

feed intake, poor absorption of nutrients from the feed, dehydration, and blood loss (Fabiya, 2000). The most easily recognized clinical sign of severe caecal coccidiosis is the presence of bloody droppings. The dearth of information on coccidiosis in this part of the country occasioned this study. Therefore, the study would provide baseline information for planning control strategies for the elimination of the disease.

MATERIAL AND METHODS

The Study Area : The study was carried out in Ekiti State located on latitude 7° 15' North and longitude 4° 45' and 5° 45' East of the Greenwich meridian. The inhabitants of Ekiti State are mainly farmers, civil servants, petty traders with farming activities. The temperature of Ekiti State ranges between 21°C and 28°C with high relative humidity between 65-75%. The State enjoys tropical climate with two seasons, namely rainy season (April-October) and dry season (November-March).

*Corresponding author e-mail: agunbiade.rasaq@yahoo.com

DATA COLLECTION

The data used for this research work were collected from the Ministry of Agriculture and Natural Resources, veterinary Division, Ado-Ekiti, Ekiti State, Nigeria. Cases of coccidiosis infection for three years were collected from the Veterinary Division records with the assistance of veterinary officer. A total of 83 cases were collected between 2007 and 2009. Data were later analyzed using descriptive statistics.

RESULTS

The results showed a tremendous increased from 2007-2009. In 2007, January recorded the

highest percentage of coccidiosis occurrence representing 71.4% while the least percentage of 7.1% was recorded in May. In 2008, October recorded the highest percentage of coccidiosis occurrence with 47.1% while February and July recorded the least percentage prevalence of 2.9%. Also in 2009, the highest percentage of coccidiosis infection (40%) was recorded in September and the least percentage of 5.7% was recorded for April. (Table 1)

The percentages of occurrence of coccidiosis between 2007 and 2008 was not significant ($t = 0.256$; $P > 0.05$). Similarly, there was no significant difference ($t = 0.374$; $P > 0.05$) in the percentages of occurrence of coccidiosis between 2008 and 2009.

Table 1: Monthly cases of coccidiosis infection in Ekiti state from 2007-2009.

Months	2007		2008		2009	
	No of Cases Positive	% Positive	No of Cases Positive	% Positive	No of Cases Positive	% Positive
January	10	71.4	6	17.6	-	-
February	3	21.4	1	2.9	-	-
March	-	-	8	23.5	3	8.6
April	-	-	-	-	2	5.7
May	1	7.1	-	-	-	-
June	-	-	-	-	-	-
July	-	-	1	2.9	-	-
August	-	-	-	-	3	8.6
September	-	-	2	5.8	14	40
October	-	-	16	47.1	13	37
November	-	-	-	-	-	-
December	-	-	-	-	-	-
Total	14	-	34	-	35	-

DISCUSSION

Coccidiosis causes the poultry industry to suffer a great economic loss, especially in the production of broiler chickens. The importance of poultry production cannot be over-emphasised, apart from producing employment, the much needed high quality proteins, considerable amount of combined phosphorus and other element necessary for the maintenance of a healthy body for the populace (Haider *et al.*, 2003).

Coccidiosis has been identified world-wide and nation-wide to be the most virulent disease in poultry industry. The effects are made more

serious in poor management and maintenance of deep litter and nutritional status of the host. Incidentally, the result obtained for the prevalence of coccidiosis infection in Ekiti State showed increasing trend of infection. The study revealed a high prevalence of coccidiosis which may be due to poor sanitary conditions around the poultry, lack of safe water supply for the chickens, putting too many birds in a little space, allowing the chickens to move freely on contaminated field, which increase the rate of infection (Muazu, 2008).

The high prevalence of coccidiosis infection may also be attributed to poor hygiene, exposure

of chickens to wet litter and lack of poultry equipment. The result obtained in this study in which the trend of infection increases yearly conforms with the work of Seibold (2000) who reported that coccidiosis infection once noticed in a poultry farm, if not properly control will be increasing at an alarming rate. The tremendous increase in the coccidiosis infection may be due to the degree of or high precipitation in the State. This is because, the oocysts that cause coccidiosis infection thrive well in wet surroundings, with plenty of moisture, environmental conditions such as temperature of 32°C and availability of oxygen affected the rate of oocysts sporulation (Varghese, 2003). Also, condensation occurred in buildings with un insulated roofs and walls and contributed to litter moisture which enhanced the rapid sporulation of oocysts that contributed greatly to high prevalence of coccidiosis infection in the state.

Finally, the high prevalence of coccidiosis infection recorded in this study may be attributed to direct and indirect contact of chickens with the droppings of infected chickens, when chickens are placed on a site that has been previously contaminated and they ingest oocysts, the mature oocysts are shed in their droppings and when unaffected chickens pick up the droppings, they become infected, hence high prevalence of coccidiosis infection (Majaro and Dipeolu, 2000).

In view of high prevalence of coccidiosis infection in Ekiti State, there is urgent need to initiate affordable control programmes aimed at eradicating the disease, at Local Government level, State level and Federal Level in general.

ACKNOWLEDGEMENT

The technical assistance of Mr. A.K. Fatunla and Mr. O. Ajibade (Veterinary Officer) are mostly appreciated.

REFERENCES

- Chapman D., 2002. Sustainable coccidiosis control in poultry production. The role of live vaccine. *Int. J. Parasitol.*, 32: 617-620.
- Fabiyi, T.B., 2000. Coccidiosis in poultry in Ibadan, Nigeria. *Trop. Animal Health Prod.*, 13: 155-159.
- Farr, M.M., 2000. Survival of *Eimeria Acervulina*, *Eimeria tenella* and *Eimeria maxima*. Oocysts on soil under various field conditions. *Annu Acad. Sci.*, 52: 468-472.
- Halder, D.P., Ray, S.K. and Mandal, R.K., 2003. A new Coccidiosis -*Eimeria mania* sp, from an Indian passovine bird. *Archiv Poarotrystenkunde*, 126: 217-219.
- Majaro, O.M. and Dipeolu, O.O., 2000. The seasonal incidence of poultry coccidia infection in Nigeria. *Veterinary Quarterly*, 3: 85-90.
- Muazu, A.A., 2008. Diseases, history and pathogenicity of *Eimeria* sp. *International J. Poultry Sci.*, 9: 917-919.
- Seibold, S.A. 2000. The effect of experimental infection of coccidian, *Eimeria tenella* on chickens. *J. Parasitol.*, 37: 12-15.
- Varghese, T., 2003. Endoparasites of birds of paradise in papua, New Guinea. *Veterinary Parasitol.*, 26: 131-144.
- Varghese, T., 2004. *Eimeria paradisae* sp. n. and *isospora ragglara* sp.n. from the Ragyiana birds of paradise (*Paradisaea raggiana sciates*) from papua New Guinea. *J. Parasitol.*, 63: 887-889.