

The epidemiology and economic importance of poultry coccidiosis in Oyo State Nigeria

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RÉSUMÉ

Epidémiologie et importance économique de la coccidiose des volailles dans l'Etat d'Oyo, en Nigeria

Les recherches épidémiologiques ont montré que les oocystes de coccidies étaient extrêmement basses (0,03 p. 100) chez les volailles élevées en batterie et très élevées (près de 82 p. 100) chez celles entretenues sur litière épaisse. Ce parasitisme est le plus souvent mixte, de deux à quatre espèces d'*Eimeria* pouvant alors intervenir.

L'importance économique de la maladie est élevée surtout dans les élevages sur litière épaisse où ce sont plus particulièrement les jeunes sujets qui sont atteints avec comme incidences fâcheuses du retard dans leur croissance, de trop faibles gains de poids et une ponte insuffisante, alors que l'éleveur doit assurer de coûteux frais de traitement.

INTRODUCTION

According to the F. A. O. report of 1966, an adult Nigerian requires 65-75 g of protein daily, out of which 35 p. 100 should be derived from animal sources. However 4.5 g or 9.7 p. 100 of the daily intake of protein was derived from animal sources compared to about 60 p. 100 in United Kingdom (3). As a result of these production and consumption disparities, the F. A. O. in 1975 (4) recommended an increase in the productivity of animals with less emphasis on numbers. In view of this low protein intake, the Federal Government of Nigeria made a strong appeal to the nation to help in revitalizing the agriculture thereby increasing animal production. Less is known about coccidiosis of poultry than those of any other livestock in Nigeria despite the fact that coccidiosis constitutes a problem in poultry enterprises in Nigeria. Important role of hygiene and the economic importance of coccidiosis are highlighted in this paper.

MATERIALS AND METHODS

200 poultry farms in Ibadan, Oyo, Ile-Ife and Oshogbo towns of Oyo State, Nigeria were visited between June 1978 and October 1979. 500 fresh faecal samples were collected from poultry houses containing birds ranging from day old to 14 weeks of age maintained on deep litter and battery cages respectively. Coccidia oocysts were recovered using direct method and saline floatation technique. LEVINE (7). Autopsy was performed on dead carcasses as well as suspected birds. Identification of the coccidia oocysts was based on the previous studies of BECKER (1); EDGAR and SEIBOLD (2), JOYNER and LONG (6) and TYZZER (8).

RESULTS

430 (86 p. 100) out of 500 faecal samples were positive for coccidia oocysts. The chickens passed watery, brownish faeces which pasted the vents. The adult birds appear clinically

healthy. The species of *Eimeria* encountered are recorded in table I. Multiple infections of

Table II relates the incidence of coccidia oocysts to ages of different birds kept in deep litter.

TABLE I

Species and percentage incidence *Eimeria* occurring in poultry in Oyo state, Nigeria

Species	Percentage incidence deep litter	Percentage incidence battery cage
1. <i>Eimeria tenella</i>	35,72	0.10
2. <i>E. necatrix</i>	12,25	-
3. <i>E. acervulina</i>	30,66	1,52
4. <i>E. maxima</i>	20,25	0.10
5. <i>E. brunetti</i>	18,75	-
6. <i>E. mitis</i>	15,25	-
7. <i>E. mivati</i>	9,25	-

2-4 species of *Eimeria* are predominant. Oocysts of *Eimeria tenella*, *E. necatrix*, *E. acervulina* and *E. maxima* are predominant in most faecal samples. Incidence of coccidiosis is extremely lower in most highly managed and hygienic farms than poorly maintained deep litter houses. A larger percentage of oocysts were recovered from litter houses containing younger birds than older birds.

TABLE II

Age of birds (weeks)	N° of oocysts/gm faecal sample	Species of <i>Eimeria</i> predominant
1 - 2	25	<i>E. tenella</i> <i>E. maxima</i> <i>E. acervulina</i>
2 - 4	100	<i>E. tenella</i> <i>E. brunetti</i> <i>E. acervulina</i> <i>E. maxima</i>
4 - 6	400	<i>E. tenella</i> <i>E. brunetti</i> <i>E. acervulina</i> <i>E. necatrix</i>
6 - 8	300	<i>E. acervulina</i> <i>E. tenella</i> <i>E. maxima</i>
8 - 10	190	<i>E. acervulina</i> <i>E. brunetti</i> <i>E. maxima</i> <i>E. mitis</i>
10 - 12	100	<i>E. acervulina</i> <i>E. maxima</i> <i>E. mitis</i>
12 - 14	80	<i>E. acervulina</i> <i>E. maxima</i> <i>E. mitis</i> <i>E. mivati</i>

DISCUSSION

Poultry coccidiosis is a common problem in Nigeria. Heavy mortalities (80 p. 100) of young chicks have been associated with coccidiosis. Indiscriminate use of coccidiostats and the type of poultry management practised by most poultry farmers have enhanced the rate of mortality in young susceptible chickens as well as influencing the incidence of different species of *Eimeria*. Most farmers recorded heavy mortalities among young chickens between the 4th and 6th week of life. Acute coccidiosis in young chicks often resulted in death while chronic forms especially in layers causes setback and unthriftiness, rendering birds unprofitable to raise or produce egg. This survey revealed high mortality among younger chickens maintained in poultry farms where standard of management in terms of hygiene and sanitation was extremely poor.

Acute coccidiosis is rare to nil in birds kept in battery cages since chances of infesting sporulated oocysts is highly reduced than the birds kept in damp deep litter where sporulated oocysts abound in massive number.

Irrespective of any control measures that may be embarked upon, environmental hygiene, sanitation and good animal husbandry are of importance. Overcrowding of birds, poor ventilation, poor maintenance of feed troughs and water drinkers are some of the factors enhancing the proliferation and survival of coccidia oocysts. Coccidiosis constitutes a permanent hazard to poultry production and profitability of poultry industries in Nigeria. Farmers spend huge amount of money on management and drugs so as to contain any outbreak of coccidiosis. Diminishing returns in the economic production of eggs and poor weight gains also contribute to the gross economic loss.

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SUMMARY

86 p. 100 of the total faecal samples analysed were positive for coccidia oocysts. Multiple infections consisting of 2-4 species of *Eimeria* were predominant. The incidence of coccidiosis is extremely low (0.03 p. 100) in most birds kept in battery cages. However, the incidence is very high (82 p. 100) in young susceptible birds maintained on deep litter.

The economic importance of coccidiosis in poultry is also highlighted.

RESUMEN

Epidemiología e importancia económica de la coccidiosis de las aves de corral en el Estado de Oyo, en Nigeria

Las investigaciones epidemiológicas mostraron que el número de los oocistos de coccidios era muy bajo (0,03 p. 100) en las aves de corral criadas en cerradas y muy elevado (cerca de 82 p. 100) en las mantenidas sobre cama de paja espesa. La mayoría de las veces dicho parasitismo es mixto, dos a cuatro especies de *Eimeria* pudiendo ocurrir entonces.

Este parasitismo tiene una importancia económica elevada sobretudo en las crías sobre cama de paja espesa donde las jóvenes aves son las particularmente atacadas ; lo que provoca en consecuencia un retraso de su crecimiento, demasiado reducidos aumentos de peso y una puesta insuficiente mientras el criador debe asegurar gastos importantes de tratamiento.

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