

COMMON LEG ALIMENT OF POULTRY IN PLATEAU STATE, NIGERIA

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ABSTRACT

A study was carried out to investigate the occurrence and causes of leg ailment in poultry through questionnaire survey and farm visitation. Post mortem and laboratory examination were also conducted. The results showed that different species of poultry were affected with various types of leg ailments; out of which local chickens had the highest incidence 175(30.49 %), followed by broilers and commercial laying chickens 153(26.67 %) and least in ostrich 16(6.75 %). Swollen legs were recorded thus: local chickens 65(36.72 %), commercial layer chicken 51(28.81 %) and broilers 33(18.64 %). Incoordination, another common leg ailment were observed in broilers 40(33.33%), layer chickens 39(32.50 %), local chickens 24(20.0 %), and turkeys 4(14.81 %). Physical injuries due to trauma, burns, trampling (smothering) and accidents were recorded in broilers 28(30.77 %), commercial laying chickens 25(27.47 %), local chickens 21(23.08 %), cockerels 17(18.68 %), guinea fowls 15(39.47 %) and ostriches 2(5.26 %). Curled toes, mange, Newcastle disease, Mareks disease and Clostridia infections resulting in leg ailments were also observed.

Keywords: Leg ailments, Poultry, Implication, Plateau State

INTRODUCTION

In Nigeria, the rearing of poultry such as domestic chickens, guinea fowls, ducks, and turkeys and of recent quails and ostriches is well known. Most of these species of birds are managed either in the traditional (extensive) or the semi-intensive and intensive systems of management (Smith, 2001 and Nwagu, 2002).

However, irrespective of the management system practiced, the production of poultry in Nigeria is constrained by a number of factors among which are infectious diseases, parasitic infestations, poor nutrition and some physical injuries which may have direct or indirect effects on musculoskeletal system and consequently restrict movement or locomotion of the affected bird. Thus, leading to poor feed intake, growth retardation, decline in production, death and carcass condemnation. Abdu and Saidu (2002), stated that Newcastle disease in susceptible birds was associated with nervous signs such as incoordination, paralysis of the legs and wings, circling, backward movement, twisting of the neck, star gazing and somersaulting. Ayo and Minka (2004) from the study of some major constraints on ostrich

productivity in Northern Nigeria also reported that the most common cause of ostrich chick mortality is lower limb deformity (LLD), which affected up to 36.7 % of the chicks hatched.

However, the cause of leg ailments may be multifactor in nature, including nutrition, genetics, over feeding, lack of exercise and trauma to the lower limbs (Ritchie *et al*, 1994; Ayo and Minka, 2004). The implications of leg problems and their causes in poultry production cannot be over emphasized. Thus, this study surveys the common leg ailments of poultry in Plateau State, Nigeria.

MATERIALS AND METHODS

Farm records and visitations to serve questionnaires and to obtain photograph of cases of leg problems in some randomly selected poultry farms and households in Jos, Plateau State and other places were used for the study. The questionnaire covers types of birds kept by the farmers, flock size, age of birds, type of management system (deep litter or battery cage), type of feed, type of leg problem, clinical signs observed, number sick and number dead. Post mortem and laboratory

analysis were also conducted using dead birds and bacterial culture of leg lesions seen. Data obtained were presented in simple descriptive form and also statistically analyzed using percentage and chi-square (Olawuyi, 1996).

RESULTS AND DISCUSSION

Tables 1 and 2 showed the different types of leg ailments in the different species of poultry. Leg ailments occurs most commonly in local chickens 175 (30.49 %), followed by broilers and commercial laying chickens 153 (26.66 %) and least in cocks 93 (16.20 %) as shown in Table 1.

Table 1: Occurrence of leg ailments in different types of chicken

Problems	Local Chicken Number (%)	Broilers number (%)	Layers Number (%)	Cocks Number (%)
Swollen legs	65 (36.7)	33 (18.6)	51 (28.8)	28 (15.8)
Incoordination.	24 (20.0)	40 (33.3)	39 (32.5)	17 (14.2)
Curled toes	18 (32.4)	11 (19.6)	9 (16.1)	18 (32.1)
Paralysis/lameness	4 (37.7)	39 (34.2)	21 (18.4)	11 (9.7)
Physical injuries	21 (23.1)	28 (30.8)	25 (27.5)	17 (18.7)
Mange /mites.	4 (25.0)	2 (12.5)	8 (50.0)	2 (12.5)
Total	175	153	153	93

Swollen leg has the highest occurrence of 65 (36.72 %) in local chickens, followed by commercial laying chickens 51 (28.81 %) and broilers 33 (18.64 %) while incoordination was highest in broilers 40 (33.33 %), followed by laying chickens 39 (32.50 %). Curled toes were common in local chickens and cocks 18 (32.14 %) and paralysis/lameness was more in local chickens 43 (37.72 %) and broilers 39 (34.21 %) than any other type of poultry. The higher occurrence of leg ailments in local chickens may be due to their free-range nature of management, which exposes them to many hazards. Though, feed was not analyzed in this study, but Ritchie *et al* (1994) as well as Ayo and Minka (2004) reported that the cause of leg ailment may be multifactor in nature, including nutrition, genetics, over feeding, lack of exercise and trauma to the lower limbs. Furthermore, vitamin B₂ deficiency can cause curled toe paralysis while deficiencies in some minerals

such as potassium, phosphorus, choline, manganese and zinc has been reported to cause rickets, joint enlargement and other forms of bone deformities (McDonald *et al*, 1988; Ritchie *et al*, 1994; McDonald *et al*, 1995; Abdu and Saidu, 2002).

The high incidence of physical injuries due to trauma and burns in broilers 28 (30.77 %) and commercial layer chickens 25 (27.47 %) than in local chickens 21 (23.08 %) and cockerels 17 (18.68 %) may be due to their tender skin nature and the high stocking density under intensive system of management. Parasitic mange (mites) infestation had higher occurrence in commercial laying chickens 8 (50.00 %) and least occurrence in broilers and cocks 2 (12.50%). The higher incidence of mange parasites in commercial laying chickens may be due to their intensive nature of management, which concentrates the parasites and encourages their rapid multiplication.

Table 2 showed that leg ailments were high in ducks, turkeys, guinea fowls and ostrich. Paralysis/lameness and swollen leg had higher occurrences in ducks (32 and 27) and turkeys (23 and 15), representing about 48.5% and 34.8 %, respectively. In ostriches (Figure 1), tibia dyschondroplasia does occur as a result of bone deformities leading to death of the affected birds (Ritchie *et al*, 1994). Nutritional imbalances particularly protein and mineral deficiencies have been reported to be the cause of the bone problems in ostriches (Ritchie *et al*, 1994).

Table 2: Occurrence of leg ailments in turkeys, ducks, ostrich and guinea fowls

Problems	Turkeys Number (%)	Ducks number (%)	Ostrich Number (%)	G/fowl Number (%)
Swollen legs	15 (25.0)	27 (45.0)	4 (6.7)	14 (23.3)
Incoordination	4 (14.8)	11 (40.7)	6 (22.2)	6 (22.2)
Curled toes	12 (34.3)	14 (40.0)	3 (8.6)	6 (17.1)
Paralysis/lameness	23 (34.9)	32 (48.5)	1 (1.5)	10 (15.2)
Physical injuries	12 (31.6)	9 (23.7)	2 (5.3)	15 (39.5)
Mange /mites	6 (54.6)	5 (45.5)	0 (0.0)	0 (0.0)
Total	72	98	16	51

The absence of mange/mites in ostriches and guinea fowls may be due to the small number that are usually kept and the lack of attention given vis-à-vis external parasites investigation in these species of birds. Ectoparasite infestation such as burrowing mites or scaly leg mites (*Cnemidocoptes mutans*) can cause excessive scalliness of skin of the legs

leading to thickening and deformation of the legs (Merck, 1991).



Figure 1: Swollen leg disease in ostrich

Our result further revealed isolation of *Clostridium perfringens* from leg lesions of ostrich (Table 3). Generally, infectious diseases that can affect the legs of birds include infectious synovitis (*Mycoplasma synoviae*, *Staphylococcus aureus*), Newcastle disease, Mareks disease, fungal disease, Fowl cholera (*Pasteurella multocida*), and Clostridial infections (*Clostridium botulinum*). These conditions usually lead to swelling, abscesses, paralysis of affected legs and consequently lameness (Merck, 1991; Jensen and Skeeles, 1998; Anon, 1998; Abdu and Saidu, 2002).

Table 3: Post mortem lesion and bacterial organisms isolated

Type of poultry	Post mortem lesions observed	Microorganism isolated
Local chickens	Swollen leg (joint), curled toes, physical injury (e.g. wound, burn)	NA
Broilers	Swollen leg (joint), curled toes, physical injury (e.g. wound, mange)	NA
Layers	As above	NA
Cocks	As above	NA
Turkeys	As above	NA
Ducks	As above	NA
Ostriches	Swollen leg (hock joint), wound	<i>Clostridium perfringens</i>
Guinea fowls	As above	NA

Key: NA = Not Applicable (not tested)

Although, there was no sex restriction as to the occurrence of leg ailments in different species of poultry in this study, it was observed that most of the leg ailments occurred in the adults than young birds. Statistical analysis using Chi-square showed calculated value (47.31 and 35.12) greater than the tabulated

value (27.5). It was therefore concluded that significant difference exist between the four groups of chickens and other poultry species in relation to occurrence of leg ailments ($P < 0.05$)

Conclusion: Based on our results we conclude that the incidence of leg ailments is high in poultry species. The overall economic implication associated with these problems in poultry can add up to a huge loss of Naira. Strategies for the prevention and control of problems associated with leg ailments in poultry production are therefore necessary.

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