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Assessment of Some Poultry Management Practices in Kaduna State, Nigeria

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ABSTRACT [ENGLISH/ANGLAIS]

The biosecurity as well as other preventive measures carried out on 50 poultry farms that kept Layers in Kaduna State, Nigeria was assessed using structured questionnaire. Information sought from the farms included system of management, source of birds, number of birds, age of birds, week-in-lay, percentage production, source of feed, inclusion of additives, source of drinking water, presence of foot bath, disposal of dead birds, presence of pests, other animals on the farm, record of disease outbreak and control measures to prevent disease outbreaks. The results of the questionnaire showed that there was low level of biosecurity in farms within the study area and that transmission and spread of pathogenic microorganisms in the poultry farms is possible.

Keywords: Poultry, biosecurity, infections, birds

RÉSUMÉ [FRANÇAIS/FRENCH]

La biosécurité ainsi que d'autres mesures de prévention menées sur 50 élevages de volailles qui ont gardé les calques dans l'Etat de Kaduna, au Nigeria a été évaluée en utilisant questionnaire structuré. L'information recherchée dans les fermes système de gestion, la source d'oiseaux, nombre d'oiseaux, l'âge des oiseaux, la semaine en laïque, la production de pourcentage, source d'alimentation, l'inclusion d'additifs, source d'eau potable, la présence d'un bain de pieds, l'élimination inclus des oiseaux morts, la présence de parasites, d'autres animaux de la ferme, record de l'éclosion et de contrôle des maladies des mesures pour prévenir les flambées de maladies. Les résultats du questionnaire ont montré qu'il y avait un faible niveau de biosécurité dans les exploitations situées dans la zone d'étude et que la transmission et la propagation de micro-organismes pathogènes dans les élevages de volailles est possible.

Mots-clés: Volaille, biosécurité, les infections, les oiseaux

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INTRODUCTION

Livestock production is an important component of the agricultural economy in developing countries and it is an instrument of socio-economic change, improved income and quality of rural life in Nigeria [1]. Poultry occupies a prominent position in livestock production as it accounts for 36.5% of total protein intake and 25% of local meat production in Nigeria [2].

It has been reported that most Nigerian diets are deficient in animal protein, which results in poor and stunted growth as well as increase in spread of diseases [3]. Poultry products mainly meat and eggs represent important food for improving the nutritional status particularly of the most vulnerable populations namely, children and pregnant women. The problems

confronting the poultry industry in Nigeria include low egg production, poor chick quality, poor and low performing breeds, poor weight gain, inadequate access to and high cost of veterinary services, feed conversion, feeding and management problems, and lack of capital [3, 4]. Sources of economic losses in poultry business include lack of technical know-how, poor quality feed, poor housing, mismanagement and disease outbreaks, which had received and continue to receive tremendous attention [5, 6]. The present study was carried out therefore to ascertain management practices observed in some poultry farms in Kaduna State, Nigeria in order to understand problems of poultry production in the area.

MATERIALS AND METHODS

Structured questionnaires were administered to 50 randomly selected farms within Kaduna North, Kaduna South, Sabon Gari and Zaria Local Government Areas of Kaduna State, Nigeria. Information sought from the farms included system of management, source of birds, number of birds, age of birds, week-in-lay, percentage production, source of feed, inclusion of additives, source of drinking water, availability of foot bath, disposal of dead birds, presence of pests, other animals on the farm, record of disease outbreak and control measures to prevent outbreak.

RESULTS

The distribution of management systems practiced by the poultry farmers, sources of birds and number of birds are provided in Table 1. A total of 41 of the 50 farms (82%) visited practiced deep litter system, while 9 (18%) of the farms practiced battery cage system. All but one (49) (98%) of the farms obtained their birds from commercial hatcheries, while only 1(2%) got their birds from a different farm at point of lay. Thirty-nine (78%) of the farms visited had less than 2500 birds, while 7(14%) farms had 2500 - 5000 birds on their farms, 2(4%) farms had 5000 -7500 birds on their farms, and 2(4%) farms had 7500-10000 birds on their farms.

Table 1: This table shows management system practiced, sources and number of birds in the farms surveyed

Description	Frequency	Percent (%)
System of management		
Deep litter	41	82.0
Battery cage	9	18.0
Total	50	100.0
Source of birds		
Bought at point of lay	1	2.0
Commercially hatched	49	98.0
Total	50	100.0
Number of birds		
1-2500	39	78.0
2500-5000	7	14.0
5000-7500	2	4.0
7500-10,000	2	4.0
Total	50	100.0

The age of birds, number of weeks-in-lay and the percentage production are provided in Table 2. It was found that 5 (10%) of farms had birds within the age range of 20-40 weeks old, while 33(66%) of the farms had

birds within the age range of 40-60 weeks old and 12(24%) farms had birds within the age range of 60-80 weeks old. Also 6(12%) of the farms were within 10-20 weeks in lay, 18(36%) were within 20-30 weeks in lay, 15(30%) of the farms were within 30-40 weeks in lay, 7(14%) of the farms were within 40-50 weeks in lay and 4(8%) of the farms were within 50-60 weeks in lay. About 29(58%) of the farms had layers that were producing below 70%, 14(28%) of the farms were producing about 70-80% and 7(14%) of the farms were producing more than 80%.

Table 2: This table shows distribution of birds by age, weeks-in-lay and percentage production

Description	Frequency	Percent (%)
Age of birds (Weeks)		
20-40	5	10.0
40-60	33	66.0
60-80	12	24.0
Total	50	100.0
Weeks-in-lay		
10-20	6	12.0
20-30	18	36.0
30-40	15	30.0
40-50	7	14.0
50-60	4	8.0
Total	50	100.0
Percentage production		
60-70	29	58.0
70-80	14	28.0
80-90	7	14.0
Total	50	100.0

The sources of feeds, inclusion of feed additives and sources of drinking water for the farms are shown in Table 3. About 30(60%) of the farms placed their birds on commercial feeds, while 20(40%) of the farms compounded their feeds. Twelve (24%) of the farms included additives in the feeds, while there was no additives used in 38(76%) of the farms; 29(58%) of the farms used bore-hole as their source of drinking water, 12(24%) used pipe-borne water while the remaining 9(18%) used well water. The use of foot bath, report of disease outbreak, various methods of disposal of dead birds, presence of pests and other animals on the farms is shown in Table 4. The data showed that 33(66%) of the farms used foot bath on their farms while 17(34%) did not use foot bath on their farms; 13(26%) of the farms reported disease outbreaks while 37(74%) did not report any disease outbreak; 18(36%) of the farms burnt their

dead birds, 26(52%) buried dead birds around the farm and 6(12%) of the farms prepared dead birds for guard dogs. The results also showed that 33(66%) of the farms had pests and 17 (34%) did not have pests on their farms; 22 (44%) of the farms kept other animals, while 28 (56%) did not have other animals on the farms.

Table 3: This table shows distribution of sources of feed, drinking water and inclusion of feed additives.

Description	Frequency	Percent (%)
Source of feed		
Locally compounded	20	40.0
Commercial	30	60.0
Total	50	100.0
Inclusion of additives		
Yes	12	24.0
No	38	76.0
Total	50	100.0
Source of drinking water		
Well	9	18.0
Bore-hole	29	58.0
Pipe-borne	12	24.0
Total	50	100.0

Table 4: This table shows use of foot-bath, report of disease outbreak, disposal method of dead birds, presence of pest and other animals on the farm

Description	Frequency	Percent (%)
Present of Footbath		
Yes	33	66.0
No	17	34.0
Total	50	100.0
Disease outbreak		
Yes	13	26.0
No	37	74.0
Total	50	100.0
Disposal of dead birds		
Burning	18	36.0
Burying	26	52.0
Prepared for dogs	6	12.0
Total	50	100.0
Presence of pest		
Yes	33	66.0
No	17	34.0
Total	50	100.0
Other animals		
Yes	22	44.0
No	28	56.0
Total	50	100.0

DISCUSSION

Majority of the farms surveyed were small to medium scale and the management system commonly practiced was deep litter type. This is a reflection of the predominance of small to medium sized flocks within the Nigerian poultry production system [7]. Similar findings were reported by Akidarju *et al.* [8] in Maiduguri who reported that 82.7% of farms practiced deep litter system and Ovwigho *et al.* [9] in Delta state who noted that very few farms practiced battery cage system. Generally large scale farms were found to practice strict biosecurity measures and were reluctant to allow access to their farms. Small scale farms are characterized by low levels of biosecurity and are more prone to the introduction of infectious agents [8]. There was low level of biosecurity in most of the farms surveyed in this study as most farms indicated that litter was not changed frequently, some farms buried dead carcasses around the farm, and most of the personnel in the farms did not use protective clothing. Some of the farms compounded their feed locally; which could also be a possible source of infection in poultry. The majority of farms (66%) reported pests such as rodents and lizards within the premises; rodents have been reported previously to be mechanical transmitters of pathogenic microorganisms in poultry farms [10]. The low level of biosecurity observed is characterized by poor hygiene and unclean environment and utensils that would allow rapid spread of infection once introduced. Rapid spread could occur through drinkers contaminated with faecal material from infected birds [11, 12]. It has been reported that contamination of water could occur indirectly from contaminated litter [13]. In conclusion, data in this study provides information on the level of biosecurity in poultry farms within the study area and it is recommended therefore that awareness program be put in place by the state government to encourage poultry farmers on the need to improve on biosecurity measures to avoid disease outbreaks.

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REFERENCES

- [1] Okumadewa FO. Livestock industry as a tool for poverty alleviation. *Trp J Anim Sci* 1999; 2: 21-30.
- [2] Okunlola JO, Olofinsawe A. Effects of extension activities on poultry production in Ondo State, South Western Nigeria. *Agr J* 2007;2:559-63.
- [3] Apantaku SO, Omotayo AM, Oyesola AB. Poultry Farmers' willingness to participate in Nigerian agricultural insurance scheme in Ogun state, Nigeia. In: Oduguwa OO, Fanimio AO, Osinwo OA (Eds). *Proceedings of the Silver Anniversary Conference, Nigerian Society for Animal Production.*, Gateway Hotel, Abeokuta, 21-26 March 1998: 542.
- [4] Ojo SO. Productivity and technical efficiency of poultry egg production in Nigeria. *Int J Poult Sci* 2003; 2: 459-64.
- [5] Adekunmisi AA, Olusanya AT, Abioye AD. Pilferage in Poultry Enterprises, In: Adedoyin S F, Adefuye BO (Eds). *Pilferage on farms, Bane of Food Security in Nigeria.* Samfad Farm Foundation Publication Division 1996:35-8.
- [6] Torimiro DO, Lawal BO, Agbelemoge A. Comparative study of cooperative and non-cooperative poultry farmers in Ijebu Division of Ogun State, Nigeria. *Nig J Rural Sociol* 2002; 3: 33-42.
- [7] FAO. *Nigeria Poultry Sector Country Review.* FAO and Agriculture Organization of the united nations, Rome. 2006.
- [8] Akidarju MS, Onyemaechi EG, Dauda MG. An assessment of some poultry management practices and disease recognition by poultry farmers in Maiduguri arid zone, Nigeria. *Wrld Poult Sci J* 2010; 66:285-96.
- [9] Ovwigho BO, Bratte L, Isikweru J. Chicken management systems and egg production in Delta State, Nigeria. *Int J Poult Sci* 2009;8:21-4.
- [10] Annette B, Claes F. Rodents in pig and chicken farms- a potential threat to human and animal health. *Infect ecol epidemiol* 2012;2:17093-17101.
- [11] Jafari, RA, Fazlara A, Govahi M. An Investigation into Salmonella and fecal coliform contamination of drinking water in broiler farms in Iran. *Int J Poult Sci* 2006;5:491-3.
- [12] Babiker, MA, Tawfeig A, Yahia K, Noura K . Mortality and disease status in layer chicken flocks reared in traditional farms in Khartoum-Sudan. *Int J Poult Sci* 2009;8: 264-9.
- [13] Sasipreeyajan J, Jemgklinchan J, Koowatananukul C, Saitanu K. Prevalence of Salmonellae in broiler and breeder flocks in Thailand. *Trp Anim Health Prd* 1996;28:174-80.

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CONFLICT OF INTEREST

No conflicts of interests were declared by authors.

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