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Assessment of Management and Health Practices in Some Selected Poultry Establishments in Ilorin, Kwara State, Nigeria

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Abstract: A descriptive cross sectional study was carried out to assess certain management and health practices in some selected poultry establishments in Ilorin, Kwara state with the view to improving poultry production. Structured questionnaires were distributed via the Poultry Association of Nigeria (PAN), Kwara state chapter. The mean age of respondents was 47.93(±12.397) years. Majority (60.5%) of the respondents were large holder farmers with greater than 200 birds; Deep litter (48.7%) was the most practiced management system. Almost half 48.5% of the respondents administered all the recommended vaccines. Commercial feed was the most widely used (68.4%). Veterinarian (39.5%) and Retail Vendors (39.5%) were the source of poultry stock. About 35.1% did not use any form of protective clothing on farms. About 36.8% of respondents disposed waste by use as manure. 42.1% of respondents routinely consulted Veterinarian. Coccidiosis reported by about one third (33.3%) of respondent was identified as the most common disease outbreak followed by IBD (24.2%) and NCD (21.2%). Veterinary clinic (35.1%) and fellow farmer (32%) were the most important source of information on poultry. The Chi-square analysis revealed management system ($p<0.0001$) and number of birds kept ($p<0.006$) significantly determined the method of waste disposal while age ($p<0.0001$), Length of being in profession ($p<0.03$) and Number of birds kept ($p<0.0001$) determined the reasons for Veterinary consultation. The study gave an overview of the type of management system in Ilorin. Recommendations are therefore made for strengthening of PAN as well as improve biosecurity as a means of disease prevention.

Key words: Management, health, practices, poultry, Ilorin

INTRODUCTION

The poultry sub-sector is the most commercialized of Nigeria 's agricultural subsector. Nigeria 's chicken population is about 150.682 million of which 25% are commercially farmed, 15% semi-commercially and 60% in backyards (AICP, 2007).

Poultry keeping is an important contribution to the livelihood of most vulnerable rural households in developing countries and they make significant contribution to meeting the rapidly growing demand for poultry products (FAO, 2011). During the last decade, the consumption of poultry products in developing countries has grown by 5.8% per year, according to the FAO.

There appears to be no comprehensive information on the Nigeria poultry subsector. However studies from the sub-regions could be a step towards improving poultry production in the country.

Considering the numerous often inaccessible foci of rural poultry in Nigeria, special consideration is required for the effective control of diseases to minimize the implication for the economy and public health.

The Objectives of the survey therefore was to assess the current practices and ways to improve poultry production in Ilorin as a template for the country.

MATERIALS AND METHODS

This study was conducted between May-December 2011 in Ilorin LGA of Kwara state located in North central Nigeria between parallels 8° and 10° N Latitude and 3° and 6° E Longitudes with natural vegetation predominantly rainforest and wooded savannah (Kwara State, 2010).

One hundred (100) structured questionnaires were distributed via the Poultry Association of Nigeria (PAN), Kwara. Information on socio-demographic, management, biosecurity as well as health practices were sought from the respondents. Data generated was entered into SPSS version 16 and analyzed using descriptive statistics with emphasis on absolute distribution and percentages and chi square values by cross tabulation. Level of significance was set at $p<0.05$.

RESULTS

Socio-demographic characteristics: Out of the 100 questionnaires distributed, 78% responded. The mean age of respondents was 47.93(±12.397) years with the majority (55.1%) within the range of 31-50 years. The mean length of being in poultry profession was 8.81 years with the least having spent only a few months and

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highest up to 30 years. A greater percentage (41.7%) of the respondents had spent between 6-10 years as poultry farmers.

Management practice: Majority (60.5%) of the respondent were large holder farmers of greater than 200 birds while 34.2% and 5.3% made up the medium and small scale farmers respectively. The result also showed that majority (51.3%) of the farmers kept mixed birds that included both broilers, layers some also cockerel as well as turkeys, 41.0% kept mainly layers and 7.7% kept mainly broilers. Deep litter system was the most practiced management system (48.7%) closely followed by battery cage with 35.9%. A few percentage (15.4%) of the respondents practiced both deep litter and battery cage. About 48.5% of the respondents practiced all the recommended vaccination of their birds against the preventable diseases of Newcastle Disease (NCD), Infectious Bursal Disease (IBD), Fowl Cholera, and Fowl pox. The remaining either vaccinated with at least one of NCD (12.1%); IBD (15.2%) Others (3.0%) like Egg Drop Syndrome.

Commercial feed was the most widely used (68.4%) feed as only 23.7% self compounded their feed. Veterinarian (39.5%) and Retail Vendors (39.5%) were the source of poultry stock while about 18.4% sourced directly from Hatcheries.

Biosecurity practice: Greater than one third (35.1%) of respondents did not use any form of protective clothing on their farms while 29.7% used outer clothing like overall in their farms. Also 18.9% used hand gloves as a form of protective clothing. Daily cleaning of drinkers (73.7%) was most practiced while 23.7% practiced weekly cleaning. Almost half (44.7%) of the respondents change their poultry litter weekly and the remaining changed their litter biweekly (15.8%), every two weeks (23.7%) or monthly (15.8%). 36.8% of respondents disposed waste by use as manure, 18.4% by burial, 15.8% by burning while the remaining 10.5% disposed by other means such as use as piggery feeds (Table 1).

Health practice: 42.1% of respondents routinely consulted Veterinarians while other reason for Vet consultation ranged from Vaccination (15.8%), Death of Birds (15.8%), Low production (5.3%) and the remaining 15.8% consulted a Veterinarian for more than one of the above mentioned reasons. The ratio of death of birds to Vet Consultation was 62.9% for death of birds less than 5; 28.6% for 5-10 and 8.6% for death of birds greater than 10. The major primary indicator of health problem in stock was reduced egg production (29.7%) as well as loss of appetite (27.0%). Veterinary consultation (56.8%) was identified as the major action taken in the case of significant disease event. While about 18.9% isolated the sick birds and only 2.7% slaughtered their birds in the case of any significant disease event.

Table 1: Method of waste disposal by respondents

Method of waste disposal	No. of respondents	Percentage %
Burial	14	18.9
Burning	22	29.7
Manure	6	8.1
Others	6	8.1
More than one method above	26	35.1
Total	74	100.0

Table 2: The various sources of information about poultry

Most important source of information about poultry	No. of respondents	Percentage %
Vet clinic	26	35.1
TV/radio	2	2.7
Workshop	6	8.1
Fellow farmer	24	32.4
More than one source above	10	13.5
Internet	4	5.4
All of the above	2	2.7
Total	74	100.0

Coccidiosis reported by about one third (33.3%) of respondent was identified as the most common disease outbreak in farms, followed by IBD (24.2%) and NCD (21.2%). A few (6.1%) of the respondents reported a combination of NCD and Coccidiosis as the most common disease occurrence. The Veterinary clinic (35.1%) was the most important source of information about poultry followed closely by fellow farmer (32.4%). TV/Radio constituted only 2.7% of source of information. Some respondents reported internet (5.4%) as well as workshop (8.1%) as an important source of information about poultry (Table 2).

Table 3 and 4 show the result of the chi-square analysis in which the type of management system ($p<0.0001$) and the number of birds kept ($p<0.006$) significantly determined the method of waste disposal while Age of respondent ($p<0.0001$), Length of being in poultry profession ($p<0.03$) and Number of birds kept ($p<0.0001$) determined the reasons for Veterinary consultation among respondents.

DISCUSSION

The problems associated with poultry production in Nigeria are low egg production, diseases and pests, low and poor performing breeds, poor weight gain/feed conversion, feeding and management problems and lack of capital (Apantaku, 2006). The solutions to these problems can only be found through appropriate research.

The poultry farms were classified based on the USAID 2006 classification. The result showed that majority were large holder farmers in Ilorin as against a study by Akidarju *et al.* (2010) carried out in Borno state that reported small holder farming. This may be attributed to the respondents who are bigger producer, being more active members of the Poultry Association of Nigeria

Table 3: Factors that determine the method of waste disposal

	Method of waste disposal							
Variable	Burial	Burning	Manure	Other method	More than one method	Total	Chi^2	Sig. (p)
Age (years)								
21-30	2	2	2	0	0	6		
31-40	2	4	2	0	2	10		
41-50	4	4	4	6	4	22	19.196	0.259
51-60	4	0	4	2	2	12		
>60	2	0	2	4	0	8		
Length of profession								
<1-2 years	2	6	8	4	2	22		
3-5 years	10	6	16	10	6	48	8.749	0.364
>6	2	0	4	0	0	6		
Number of birds kept								
<50	0	0	2	2	0	4		
50-100	4	0	4	0	0	8	27.956	0.006
100-200	6	4	0	4	4	18		
>200	4	6	22	8	4	44		
Managent system								
Deep litter	8	12	10	6	2	38		
Battery cage	2	0	16	6	2	26	29.586	0.0001
Both	4	0	2	2	4	12		

Table 4: Factors that determine the reasons for veterinary consultation

	Reasons for veterinary consultation								
Variable	Routine	Vacc.	DOB	LP	AOAR	MTORA	Total	Chi^2	Sig. (p)
Age (years)									
21-30	0	2	2	0	2	0	6		
31-40	4	0	2	0	2	2	10		
41-50	14	2	2	2	0	0	20	46.013	0.001
51-60	10	0	0	0	0	2	12		
>60	2	2	0	0	0	4	8		
Length of profession									
<1-2 years	6	6	4	2	2	4	24		
3-5 years	24	4	8	0	2	8	46	21.53	0.018
>6	2	2	0	2	0	0	6		
Number of birds kept									
<50	0	2	2	0	0	0	4		
50-100	2	4	0	2	0	0	8	52.201	0.0001
100-200	14	0	2	0	0	0	16		
>200	16	6	8	0	4	12	46		
Managent system									
Deep litter	16	6	6	4	4	2	38		
Battery cage	10	6	4	0	0	6	26	16.918	0.096
Both	6	0	2	0	0	4	12		

Vacc. = Vaccination; DOB = Death of Birds; LP = Low Production; AOAR = All of Above Reason; MTORA = More than One Reason above

where the questionnaires were distributed. However in another study by Ja'afar-Furo and Gabdo (2010) in Adamawa state, Nigeria, medium scale farmers were the majority. Mixed farming was also reportedly more widely practiced.

This study conducted in the North central part of the country confirms with other studies from various part of the country that deep litter system is more popular as was reported by (Omeke 1990 in Anambra state; agrees with Akidarju *et al*. 2010 in Maiduguri, Borno state, Ja'afar-Furo and Gabdo 2010 in Adamawa state and Ahmed *et al*. 2011 in Kano state). This may not be unconnected to the high cost of battery cages compared to deep litter and the ease of management of deep litter system (Ahmed *et al*., 2011).

It is interesting to note that most of the respondents rely on Veterinary Advice and comply with scheduled vaccination schedule. This confirms that large holder farms rely on veterinary clinic as an important source of advice about poultry management. Also most farmers rely on commercial feeds for their birds which suggests need for quality control of commercial feed/feed mills. A previous study by Carew *et al*. (2005) revealed evidence of poor commercial poultry feed in Nigerian market due of inadequacies in some of the feed contents with the resultant low feed intake hence slow growth. With the

evidence of heavy reliance on commercial feed and possibility of poor feed content, this could adversely affect production with resultant economic loss.

This study also revealed poor biosecurity practice which would encourage disease spread within and between birds. This is significant because of the importance of biosecurity as a first line of defense in entry and spread of diseases (AICP, 2009). Preventive practices like wearing of gloves and overall after handling of sick and dead birds were not applied as may be due to ignorance on the importance of biosecurity practices in disease prevention. This is especially important as the majority of the respondents were large holder farmers whom it is assumed to be able to afford the cost of instituting biosecurity practice in their farms but however do not practice it. This finding in this study suggests the need for more enlightenment on biosecurity by Veterinarians who have been found to be the most important source of information to farmers.

Waste disposal practice by use as manure should be discouraged as these could contribute to foci of re infection as well as constituting a public health problem. This corroborates earlier findings by Ameji *et al*. (2012) carried out in Kogi state also north central that dumping of dead birds in refuse dumps as a means of disposal. For example NCD virus can spread by poultry waste (Guittet *et al*., 1997) as poultry waste constitutes another pathway for pathogens to exit poultry houses (PPLPI, 2006).

Furthermore the respondents reported to make use of Veterinary facilities in case of significant disease occurrence in their farms. This good practice would improve health of birds and encourage report of disease outbreaks that may constitute an economic and public health risk. However this practice may not be unconnected with the fact that the respondents are large holder farmers that have invested money not willing to risk heavy losses from disease events. It can be fairly said that number of birds kept, encourage the use of Veterinary facilities and generally improve management practice.

Coccidiosis reported by more than one third of respondents as the most common parasitic disease reported, this corroborates earlier studies by Ambali *et al*. (2003). Outbreaks of coccidiosis may not be unconnected to the deep litter system of management which was the most practiced. The rotation and shuttle system (Ontario Ministry of Agriculture, Food and Rural Affairs, 2011) as recommended by the Canadian ministry of Agriculture, food and rural affairs could be looked into. In which, management system designed to prevent development of resistance to anti-coccidials resulting in better gut health is recommended.

However NCD and IBD are vaccine preventable diseases that were reported by respondents, this is against the overall adherence to Vaccination schedule by farmers. This agrees with earlier studies by Omeke (1990), Ambali *et al*. (2003) and Nwanta *et al*. (2006), that identified NCD as the most prevalent viral disease of poultry and Coccidiosis was the most common parasitic disease in Nigeria. It is therefore suggested that there is need to improve on the type and quality, of vaccine as well as the cold chain process so that the vaccines can better protect the birds against the reported diseases.

Conclusion: Poultry Association of Nigeria as an important association could be strengthened to demand high quality of commercialized feeds as well as other benefits to farmers as a step in improvement of poultry production. Also to encourage small holder farmers to join the association as it could serve as an important tool in disseminating pertinent information from the Government and Veterinarians in ways that poultry farming could be improved upon. This could be achieved by reducing the annual dues for small holder farms. Since disease outbreak knows no boundary, if it affects a farm irrespective of its size could constitute an epidemic.

Veterinary Extension services should be strengthened to reach all categories of farmers because the survey revealed that the farmers rely on Veterinarians for advice, source of stock as well as other relevant information on biosecurity and vaccination.

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