

# Extension Information Needs of Commercial Poultry Farmers on Environmental Management in Kogi State, Nigeria.

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## ABSTRACT

Poor and inadequate extension information on environmental management has been a major threat to poultry production in Nigeria. Consequence of this is the prevalent increase in environmental pollution problems associated with increases in poultry waste generation. This study assessed the extension information needs of commercial poultry farmers in Kogi State, Nigeria.

A total of 125 respondents were randomly selected for the study. Primary data was collected through the use of a structured questionnaire. Both descriptive and inferential statistics such as Pearson Product Moment Correlation (PPMC) were employed for the study. Results of the analysis show that the mean age of respondents was 48.2 years; average farm size was 662 birds; and poultry farming experience was 11.6 years. Also, majority of respondents were male (84.8%), married (94.4%), had tertiary education (90.4%). Fellow farmers (85.8%), Poultry Farmers Association (64.2%), veterinary officers (63.4%), feed millers (53.7%), radio (53.0 %) and friends (50.7%) were the main sources of information available on poultry environmental management in the study area.

The study identified waste removal (mean=8.73), waste utilization for fish farming (mean=7.63), waste composting and utilization for crop farming (mean=7.42), handling and disposing of dead birds (mean=8.06), noise control (mean=7.84), odour control (mean=8.79), fly control (mean=10.1) and pest and disease control (mean=8.61) as severe extension information needs of commercial poultry farmers on environmental management in the study area. Also, results of Pearson product moment correlation (PPMC) analysis reveal that farming experience ( $r=0.283$ ;  $p=0.000$ ), age of farm ( $r=0.208$ ;  $p=0.001$ ), farm size ( $r=0.194$ ;  $p=0.002$ )

and management type ( $r=0.197$ ;  $p=0.002$ ) were significantly related to the respondents' information needs.

The study concluded that commercial poultry farmers require extension information on various aspects of environmental management in the study area. The study recommends that extension information/ training should be provided for the farmers in the different aspects of environmental management in poultry production in which the farmers indicated incompetence.

(Keywords: poultry farming, agriculture extension information needs, environmental management, environmental pollution, waste management)

## INTRODUCTION

Poultry is a very important subsector of the livestock industry. Poultry, according to Adesiyani (2014), includes a wide variety of winged animal species that are nutritionally and economically useful to man. The genus comprises of chickens, turkeys, ducks, geese, guinea fowl, ostriches, pheasant, peafowl, quails, pigeons, and swans.

The poultry industry according to the Federal Government of Nigeria (2007) is vital to meeting the biological and socio-economic needs and development of the people in Nigeria. As a leading source of high-quality protein in the form of eggs and meat, poultry has been described as a major supplement to farm incomes from crops and other livestock enterprises, thus avoiding total reliance on traditional commodities with inconsistent prices (Lisa and Ruchira, 2015).

Despite the acknowledged importance of poultry production, pollution from poultry wastes has been a global concern and is more serious in places where large concentration of livestock exists with inadequate land where the wastes can

be used as manure (Roderick, et al., 1998). According to Olumayowa and Abiodun (2011), lack of adequate information is responsible for the observed poor environmental management practices among poultry owners, consequently resulting in improper waste disposal and utilization. Moreki and Keaikitse (2013) also reported that inadequate information on poultry waste management remains one of the challenges to effective poultry farm environmental management in Botswana.

According to Meyer (2005), information is significantly crucial in the development of any society. Information is an essential factor for increasing agricultural production and a basis of extension service delivery. Adereti, Fapojuwo, and Onasanya (2006) defined it as useful and meaningful data communicated to recipient in order to make an informed decision. Considering therefore, the roles played by commercial poultry farmers, it is important to provide information to them that will assist them to effectively manage their environment so as to prevent pollution menace and thus ensuring their economic sustainability.

Therefore, this study was conducted to assess the extension information needs of commercial poultry farmers on environmental management in Kogi State, Nigeria with the following specific objectives: (1) describe the socio-economic characteristics of commercial poultry farmers in the study area; (2) identify the sources of information available to poultry farmers on environmental management; (3) determine the frequency of performance of respondents on environmental management practices; (4) ascertain the respondents' perceived level of importance of environmental management practices; and (5) examine the respondents level of perceived difficulty of environmental management practices in the study area.

### **Hypothesis of the Study**

**H<sub>0</sub>**: There is no significant relationship between the farmers' socio-economic characteristics and their extension information needs.

## **METHODOLOGY**

The study was carried out in Kogi State of Nigeria. Kogi State was carved out of Kwara and Benue States on August 27. Its capital is Lokoja. Located in north central Nigeria, Kogi State occupies 29,833 km<sup>2</sup> and lies between latitude

6°30'N and 8°50' N and longitude 5°51'E and 8°00'E.

The seasons Oscillate between the wet and dry, with a daily temperature of between 24°C - 27°C, while annual mean rainfall is between 1250 – 1700mm spreading over eight (8) months. The wet season spans between middle of March and October while the dry season usually occur between the months of November and March.

Kogi State has a land area of about 30,355 km<sup>2</sup>. The majority of the people of the State are farmers. The State is blessed with suitable ecological and climatic conditions for agriculture. It is therefore possible to produce various agricultural products including yam, cassava, soya bean, cocoyam, maize, millet, rice, guinea corn, palm produce, cowpea, and others. The State's rich agricultural endowment is reflected in its capacity to produce cash crops like cocoa, coffee, and cashew. Livestock in the form of cattle rearing, small ruminants, and poultry are predominant in the State.

### **Sampling Procedure and Sample Size**

The population for the study consisted of all the commercial poultry farmers in Kogi State, Nigeria. Sample frame for the study comprised of the lists of 250 registered commercial poultry farmers obtained from Poultry Association of Nigeria (PAN), Kogi State Chapter. Fifty percent of the commercial poultry farmers were randomly selected to make a total sample size of 125 respondents for the study.

### **Instrument for Data Collection**

Data were collected with a structured questionnaire and analyzed using descriptive statistics such as frequency counts, percentages and means. Pearson Product Moment Correlation (PPMC) analysis was used to test the hypothesis of the study.

## **RESULTS AND DISCUSSION**

### **Socio-Economic Characteristics of Commercial Poultry Farmers**

Results from Table 1 shows that the mean age of respondents was 48.2 years. This gives the implication that the majority of the respondents belong to the productive age group of 20-50 years. This age group according to Ibitoye (2013)

possesses the necessary strength to carry out farming operations. The table also reveals that majority (84.8%) of the respondents were male. Table 1 further reveals that majority of the respondents 94.4% were married. A majority (90.4 %) had tertiary education. This implies that the literacy level of the respondents from the study area was very high. Onubuogu, et al. (2013) had opined that higher levels of education determines the quality of skills of farmers, their allocative abilities, efficiency, and how well they are informed of the innovations and technologies around them.

### **Farm Characteristics of Commercial Poultry Farmers**

Results from Table 2 reveal that the mean number of years of farming experience for the respondents was 11.6 years. The implication of this finding is that majority of the respondents had high levels of experience in the poultry farming business. The level of experience has been shown to contribute to the farmer's ability for efficient resource management as well as the acquisition of good skills in the use of any technological innovation. Experience according to Ohajanya (2005) also gives the farmers understanding on how to lessen risk and possible losses since they have become acquainted with them.

Table 2 reveals that poultry farming was the primary occupation of most (68.8%) of the respondents. This implies that a substantial level of commitment and focus is required in order to achieve efficiency and profitability in the poultry business. Table 2 further shows that the largest percent (47.2%) of the respondents reared mixed birds (layers, broilers, and cockerel), respectively. The greater percentage of respondents keeping all the three types of birds may be connected with the rate of returns from the three activities. Both battery and deep litter are the common (35.2%) system of management among the commercial poultry farmers in the study area.

The table further reveals that family labor was the most (44.6%) common type of labor used by the commercial poultry farmers in the study area. Mean farm size for the state was 661.8 birds. Olasunkanmi (2008) classified farms having <1000 birds as small farms, 1000-3000 as medium farms, while those having 3000 and above birds as large farms. This implies therefore that poultry farming in the study area is still at the small- scale level. Higher percentage (78.4 %) of the respondents owned the land used for poultry farming. Finally, average farm age was 9.14 years. This implies that most poultry farms in the study area were still young and in their growing phase.

**Table 1: Socio-Economic Characteristics of Commercial Poultry Farmers.**

<b>Socio-economic Characteristics</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Age (Year)</b>		
Below 30	8	6.4
30-39	18	14.4
40-49	42	33.6
50-59	33	26.4
60 and above	24	19.2
Mean	<b>48.2</b>	
<b>Gender</b>		
Male	106	84.8
Female	19	15.2
<b>Marital Status</b>		
Single	7	5.6
Married	118	94.4
<b>Educational Status</b>		
Non formal	1	0.8
Primary	7	5.6
Secondary	4	3.2
Tertiary	113	90.4

**Source: Field Survey, 2015**

**Table 2:** Farm Characteristics of Commercial Poultry Farmers.

Characteristics	Frequency	Percentage	Mean
<b>Farming Experience</b>			<b>11.6</b>
Below 5	22	17.6	
5-10	50	40	
11-15	27	21.6	
16-20	10	8	
21-25	7	5.6	
26 and above	9	7.2	
<b>Primary Occupation</b>			
Poultry	86.0	68.8	
Others	39.0	31.2	
<b>Types of Birds Reared</b>			
Broiler only	25	20.0	
Layers only	32	25.6	
Cockerel only	9	7.2	
<b>Management Type</b>			
Battery cage	39	31.2	
Deep litter	42	33.6	
Both	44	35.2	
<b>Labor Type</b>			
Self	28	22.4	
Family	56	44.6	
Hired	23	18.4	
Combination	18	14.4	
<b>Farm Size</b>			<b>661.8</b>
1-999	98	78.4	
1000-2999	25	20	
3000 and above	2	1.6	
<b>Ownership of land</b>			
Rented	25	20	
Leased	2	1.6	
Owned	98	78.4	
<b>Age of Farm(year)</b>			<b>9.14</b>
Below 5	40	32	
5-10	55	44	
11-15	12	9.6	
16-20	11	0.8	
21-25	1	0.8	
26 and above	6	4.8	

Source: Field Survey, 2015

### **Sources of Information on Environmental Management among Respondents**

Table 3 reveals the sources of information available to the poultry farmers on environmental management in the study area. Out of the ten (10) sources of information presented to the respondents, six (6) of these sources were readily available to the farmers.

Table 3 shows that fellow farmers (85.8%), Poultry Farmers' Association (64.2%), veterinary officers (63.4%), feed millers (53.7%), radio (53.0%) and friends (50.7%) were the main sources of information available to the

respondents on environmental management practices.

The results show that extension agents and environmental protection agency were indicated by majority of the respondents as less available sources of information to them. This implies that the efficiency of the farmers in managing their environment might be affected due to their poor access to timely extension information.

**Table 3:** Sources of Information on Environmental Management among Respondents.

Sources of Information	Frequency	Percentage	Rank
Fellow farmer	115	85.8	1
Poultry Farmers Association	86	64.2	2
Veterinary Officers	85	63.4	3
Feed Millers	72	53.7	4
Radio	71	53.0	5
Friends	68	50.7	6
Newspaper	51	38.1	7
Customers	43	32.1	8
Environmental Protection Agency	17	12.7	9
Extension Agents	15	11.2	10

### **Extension Information Need Assessment**

Table 4 reveals the result on the extension information needs assessment of commercial poultry farmers on environmental management in the study area. The analysis covers how frequently each practice is performed, the level of importance of such practice and the level of difficulty encountered in carrying out the practice.

The result shows that commercial poultry farmers require training in the following environmental management practices: Waste removal (mean=8.73), Waste utilization for fish farming (mean=7.63), Waste composting and utilization for crop farming (mean=7.42), Handling and disposing of dead birds (mean=8.06), Noise control (mean=7.84), Odour control (mean=8.79), Fly control (mean=10.1), Pest control and Disease control (mean=8.61). The total mean scores of these operations were above the threshold score of 7.41. This implies that farmers carrying out these practices require an appreciable amount of training in order to reduce the overall poultry environmental pollution level while those with mean scores below 7.41, although require no training but will also require some level of improved practices in order to reduce the environmental pollution. This result corroborates the study by Ofuoku (2012) in Delta State of Nigeria who reported the need to encourage farmers to share more information on poultry waste management with other farmers. The report further stressed the need for more extension agents to be trained and employed and that the communication skills of the extension agents and farmers to be sustained.

The Table further shows that poultry farmers in the study area require no training in the following environmental management practices: Waste storage (mean=6.59), Waste collection and

transporting (6.89), Dust control (mean=5.64), Temperature control (mean=6.06), Handling complaints from neighbor (mean=6.26), and Keeping records of environmental pollution control management practices and complaints (mean=6.82).

### **HYPOTHESIS TESTING**

Results of the Pearson Product Moment Correlation (PPMC) Analysis between the socio-economic characteristics of respondents and their extension information needs on environmental management show that main occupation ( $r=0.158$ ,  $p= 0.05$ ), farming experience ( $r=0.283$ ,  $p= 0.01$ ), Age of farm ( $r=0.208$ ,  $p= 0.01$ ), farm size ( $r=0.194$ ,  $p= 0.01$ ) and management type ( $r=0.197$ ,  $p= 0.01$ ) of the respondents were positively related to extension information needs on environmental management. This implies that extension information needs of commercial poultry farmers on environmental management increases with increase in respondents' choice of poultry farming as main occupation, as well as increasing with farming experience, age of farm, size of farms and the management type practiced. The stated null hypothesis was therefore rejected.

Respondents with poultry as the main occupation will naturally tend to be more focused and committed in the choosing profession and thus seek to acquire better information that will assist in improving their environment. Farming experience was also shown to be significantly related to respondents' information needs. This result is in line with Adesiji, et al. (2012) who opined that higher experience enables farmers to acquire better knowledge and information necessary to assist them assess the benefits of any innovation.

**Table 4:** Frequency of Performance, Importance and Difficulties Encountered in Poultry Environmental Management Practice.

Environmental management practices	Frequency of Performance		Level of importance		Level of Difficulties		Mean	Implication
	Mean	Rank	Mean	Rank	Mean	Rank		
Waste removal	3.86	2	3.00	1	1.87	1	8.73	Training required
Waste storage	2.80	6	1.98	13	1.81	13	6.59	Training not required
Waste collection and transporting	2.55	8	2.67	7	1.64	7	6.89	Training not required
Waste utilization for fish farming	1.73	12	2.34	10	3.56	10	7.63	Training required
Waste composting and utilization for crop farming	2.02	11	2.81	4	2.59	4	7.42	Training required
Handling and disposing of dead birds	3.03	4	3.00	1	2.03	1	8.06	Training required
Noise control	3.20	3	1.75	15	2.89	15	7.84	Training required
Odour control	2.24	9	2.90	3	3.65	3	8.79	Training required
Flies control	4.24	1	2.52	8	3.34	8	10.1	Training required
Dust control	1.66	13	2.28	11	1.70	11	5.64	Training not required
Temperature control	1.11	15	1.00	16	3.95	16	6.06	Training not required
Pest and Disease control	2.75	7	2.84	5	3.02	5	8.61	Training required
Erosion control	1.63	14	2.19	12	2.29	12	6.11	Training not required
Farm sanitation /cleaning	2.93	5	2.75	6	1.89	6	6.26	Training not required
Handling complaints from neighbor	2.11	10	1.90	14	2.25	14	6.82	Training not required
Keeping records of environmental pollution control management practices and complains	1.11	15	2.38	9	3.33	9	8.73	
Grand mean							7.43	

Source: Field Survey, 2015

Age of the farm was also shown to be positively related to extension information needs on environmental management. This implies that extension information needs of the farmers on environmental management increases with increasing age of the farm. This result might be due to the experiences acquired over time as the age of the farm increases. Older farms would have understanding and experiences of the various areas of their incompetence by virtue of regular and extended practices over the time. The possible desire of such farms for continuous expansion may influence desire towards information seeking for improved environmental management practices.

Farm size was also shown to be positively related to extension information needs on environmental management. This implies that farmers' extension information needs on environmental management increases with increasing farm size. This result is understandable as the greater the farm size, the

more environmental issues problems that may result due to increased waste generation. Increase waste generation implies the need for effective management of the environment in order to avoid pollution, thus necessitating the need for farmers' interest in seeking more information in being able to effectively manage the environment.

Management type was positively related to the extension information needs of farmers on environmental management. This implies that the extension information needs of farmers increases with increasing management type. Different management types in poultry be it deep litter or battery cage are associated with different pattern and extent of waste generation and invariably different environmental management approaches. Poultry farmers' desire for improved management type could therefore demand for a corresponding increase in extension information needed for coping with ensuing environmental management issues.

**Table 8:** Relationship between the Socio-economic Characteristics of Respondents and their Extension Information Needs on Environmental Management.

Socio economic characteristics / Extension information needs on environmental management	r – value	Significance (P – value)	Decision
Gender	0.065	0.308	Not Significant
Age	0.047	0.459	Not Significant
Marital Status	0.065	0.308	Not Significant
Religion	0.070	0.911	Not Significant
Education	0.078	0.220	Not Significant
Main occupation	0.158**	0.012	Significant
Farming experience	0.283*	0.000	Significant
Age of farm	0.208*	0.001	Significant
Farm size	0.194*	0.002	Significant
Management type	0.197*	0.002	Significant
Labor type	0.059	0.352	Not Significant
Land ownership	0.272*	0.000	Significant

\*\* Correlation is significant at the 0.05 level (2-tailed).

\* Correlation is significant at the 0.01 level (2-tailed).

## CONCLUSIONS

Based on findings in the study, it was concluded that commercial poultry farmers in Kogi State, Nigeria need extension information on various aspects of environmental management. Also, fellow farmers, veterinary officer, radio, friends, newspapers, feed miller and customers were their main sources of information in the study area. In addition, selected socio-economics characteristics of the farmers such as main occupation, farming experience, age of farm, size of farms and the management type were significantly related to their extension information needs.

## RECOMMENDATIONS

Based on the research present above, this study therefore recommends the:

- Need for agricultural extension agents to increase and reinforce their interest in poultry farming environmental management in the study area.
- Adequate information/training should be provided by extension agents to poultry farmers on the different aspects of environmental management where the farmers indicated incompetence. These areas include waste removal, waste utilization for fish farming, waste composting and utilization for crop farming, handling and disposing of dead birds, noise control, odor control, fly control and Pest and disease control, respectively.

- Poultry farmers associations should be organizing training and retraining programs for the farmers regularly, experts should be invited to train them in the areas of environmental management.

## REFERENCES

1. Adereti, F.O., O.E. Fapojuwo, and A.S. Onasanya. 2006. "Information Utilization on Cocoa Production Techniques by Farmers in Oluyole Local Government Area of Oyo State, Nigeria". *European Journal of Social Science*. 3(1):1–7.
2. Adesiji, G.B., K.F. Omotesho, O. Bolarin, and P. Aigbavboa. 2012. "Assessment of Training Needs of Cashew Farmers in Owan East Local Government Area of Edo State, Nigeria". *Agrosearch*. 12(2):184 – 195.
3. Adesiyani, A. 2014. "Technical Efficiency of Poultry Production in Afijio Local Government Area of Oyo State, Nigeria". *Developing Country Studies*. ISSN 2224-607X (Paper) ISSN 2225- 4(20).
4. Chukwu, A.O. 2013. "Farmers' Perception of the Effectiveness of Extension Principles in Extension Delivery in Owerri Agricultural Zone, Imo State, Nigeria". *Inter. Journal of. Applied Research. and Technology*. 2(3):38 – 43.
5. Food and Agriculture Organization (FAO). 1992. *Planning for Effective Training: A Guide to Curriculum Development*. FAO: Rome, Italy.
6. Fetuga, B.L. 1992. "Farmers: A Case Study of Aiyedoto Farm Settlement, Nigeria". *Research Journal of Agricultural Biological Sciences*. 2(6):256-261.

7. Hoag, D.L, and F.M. Roka. 1995. "Environmental Policy and Swine Manure Management: Waste not wants not?". *American Journal of Alternative Agriculture* 10:163–16.
8. Ibitoye, I. 2013. "Survey of the Performance of Agricultural Cooperative Societies in Kogi State, Nigeria". *Eur. Scientific J. (ESJ)*. 8928: 98-114.
9. Idiegbeyan-Ose, J.D.B.M. and U.A. Theresa. 2009. "Information as an Effective Tool in Rural Development". *International Journal of Library and Information Science*. 1.
10. Ironkwe, M.O. and F.O. Ajayi. 2007. "Profitability Analysis of Broiler Production in Oyibo Local Government Area of River State, Nigeria". *Global Journal of Agricultural Science*. 6(2):196-199.
11. Koyenikan, M.J. 2011. "Extension Workers: Access to Climate Information and Sources in Edo State, Nigeria". *Scholars Research Library Archives of Applied Science Research*. 3(4):11-20. Available at: <http://scholarsresearchlibrary.com/archive.html> Accessed on 20th October 2012
12. Lisa , A. and S. Ruchira. 2015. "An Analysis of Opportunities and Challenges in Poultry Sector in Global and Indian Perspectives". *International Journal in Management and Social Science*. 03(01).
13. Matovelo, D.S. 2008. "Enhancing Farmer's Access to and use of Agriculture Information for Empowerment and Improve Livelihoods: A Case of Morogoro region". Thesis presented at University of Dar es Salaam as the requirement of Doctor of Philosophy.
14. Meyer, H.W.J. 2005. "The Nature of Information, and Effective use of Information in Rural Development". *Journal of Information Research* 10 (2). Available at <http://informationr.net/ir/10-2/paper214.html>
15. Mntambo, B.D. 2007. "Socio-Economic, Institutional and Behavioural Determinants of Accessibility and Utilization of Agricultural Information by Women Farmers in Korogwe District". Sokoine University of Agriculture. Unpublished MA in Rural Development Dissertation.
16. Moreki, J.C. and T. Keaikitse. 2013. "Poultry Waste Management Practices in Selected Poultry Operations around Gaborone, Botswana". *International Journal of Current Microbiology and Applied Sciences*. 2(7):240-248.
17. Ofuoku, A.U. 2012. "Urban-Rural Migration Delta State, Nigeria: Implications for Agricultural Extension Service". *Global Journal of Science Frontier Research, Agriculture and Veterinary Sciences*. 12(6):1-5.
18. Ogbe S.E. 2009. "Determinants of Microcredit and Microfinance Outreach to Farmers in Abia State: A Case Study of National Special Programme on Food Security". MSc Thesis, Department of Agricultural Economics, Michael Okpara University of Agriculture, Umudike. 2009; 51.
19. Ohajianya, D.O. 2005. "Economic Efficiency Among Small Scale Poultry Farmers in Imo State, Nigeria". *International Journal of Agricultural Development*.
20. Oladele, O. 2006. "Multilinguality of Farm Broadcast and Agricultural Information Access in Nigeria". *Nordic J. Afr. Studies*. 15(2):199-205.
21. Olaniyi, O.A, O.I. Adesiyani, and R.A. Ayoade. 2008. "Constraints to Utilization of Poultry Production Technology among Farmers in Oyo State, Nigeria". *Journal of Human Ecology*. 24(4): 305-309.
22. Olasunkanmi, M.B. 2008. "Economic Performance of Commercial Poultry Farms in Oyo State Nigeria". *International Journal of Poultry Science*. 7:1117-1121.
23. Olumayowa, O. and O.O. Abiodun. 2011. "Profit Efficiency and Waste Management in Poultry Farming: The Case of Egba Division, Ogun State, Nigeria". *Int. J. Poult. Sci*. 10(2):137-142.

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