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Analysis of Communication Sources Used by Farmers in Handling Poultry Diseases in Ughelli North Local Government Area of Delta State, Nigeria

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Abstract

This study examined the communication sources used by farmers in handling poultry diseases. Using random and stratified sampling techniques, 8 villages and 80 farmers were used for this study. Structured questionnaire and interview schedule were used to collect data. Data were analysed through use of percentages, mean scores and regression analysis. It was found that veterinary officers, friends and contact farmers were the major sources of communication used by the farmers in handling poultry diseases. Regulated movement of unauthorized persons, use of foot bath at entrance of poultry house, and battery cages for good litter management were the least techniques adopted by the farmers for poultry disease prevention. On the other hand, the techniques mostly adopted for disease prevention were good ventilation and hygiene, vaccination of birds and application of antibiotics in drinking water and feed. The result of regression analysis showed that veterinary officers, agricultural extension workers and friends made significant contribution to adoption of poultry disease prevention techniques. Broadcast media programmes on livestock production should be initiated and aired twice a week to provide critical information on poultry disease management to farmers.

Keywords: Communication sources, poultry diseases, livestock production

Introduction

Poultry meat and eggs constitute major animal protein sources in Nigeria. They are rich in essential amino acids. Oluyemi and Roberts (2000) defined poultry as domesticated birds raised by humans and can be classified into chickens, ducks, turkeys, geese, guinea fowls, swans, quails, pigeons and ostriches. Chickens or what we generally call fowls are by far the most common form of poultry in Nigeria. The poultry industry in Ughelli North Local Government Area of Delta State has undergone significant

transformation since the early 1980s, from a backyard and peasant household oriented husbandry of local fowls to commercial oriented, modern and large scale poultry production involving the use of improved breeds of fowls. Agbamu (2005) stated that poultry enterprise yields the quickest returns on investment in comparison to the production of other animals. This economic factor has largely accounted for expansion of poultry enterprise in the study area.

Apart from the huge costs associated with housing, equipment and feeding, the prevalence of diseases is one of the key constraints facing the poultry industry in Delta State of Nigeria. Associated with

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disease prevalence is the challenge of how to handle poultry diseases and taking disease prevention measures by poultry farmers. Anything that affects the health of poultry birds negatively usually result in huge loss of profit for farmers. Adequate information for farmers in handling poultry diseases becomes imperative for successful poultry production. Of equal importance is the array of communication sources which the poultry farmers depend on for enhancing their knowledge on animal health management. Ofuoku and Ajieh (2005) noted that no matter the kind of poultry enterprise, health information is needed by the farmers if they must improve their production and raise their income.

Generally, the sources of information which farmers in developing countries use is dependent on their education level, age, the kind of information sources available in given communities, the kind of agricultural innovation in question and the extent of modernization in a locality. So the stage of development a society has reached plays a role in the farm information sources that farmers use at different stages of innovation adoption (Agbamu, 2006). It should be noted that certain agricultural innovations are more likely to reach a farming audience through agricultural extension workers and other interpersonal sources, while some other innovations are likely to reach farmers through the mass media during awareness and other adoption stages.

This study seeks to ascertain the extent of use of communication sources by farmers in dealing with poultry diseases; it also seeks to determine the communication factors that could contribute to adoption of poultry disease prevention practices. In a nutshell, the three major objectives of this study are to: (1) identify the various poultry disease prevention techniques used by farmers; (2) ascertain the sources of communication mostly used by farmers in handling poultry diseases; and (3) determine those communication factors that significantly

contributed to adoption of poultry disease prevention techniques.

Methodology

Ughelli North Local Government Area is situated in the Central Zone of Delta State in Nigeria. It has a total land area of 71,255 sq. km (MANR, 2002). It has a population of 321,023 people (Nat. Population Commission, 2006). The study area is located within the tropical rainforest belt of Nigeria. It is characterized by heavy rain fall, high temperature, prevalence of tall trees and luxuriant plants. The predominant agricultural activities in this area are crop production, animal husbandry, artisanal fishing and aquaculture. Poultry, goats and pigs are the main animals reared in this area.

Simple random sampling technique was used to select four clans from the seven clans that exist in Ughelli North Local Government Area. The four clans are Ughelli, Orogun, Agbarho and Agbarha. Two villages were randomly selected from each of the four clans, giving rise to 8 villages. Stratified sampling technique was used for the selection of farmers. Poultry farmers were stratified into small, medium and large scale farmers. Holders of 100 to 1000 birds are small scale, 1001 to 3000 birds are medium scale, while holders of 3001 to 6000 birds are large scale farmers. Following the population of farmers in each stratum, 5 farmers were selected from small scale stratum, 3 farmers from medium scale stratum and 2 farmers from large scale stratum. These stratified samplings gave a total of 10 poultry farmers from each of the 8 villages earlier selected. The sample size was therefore 80 poultry farmers from the three strata.

Data for this study were collected through the use of questionnaire. Data on socioeconomic characteristics of the respondents included gender, age in years, education level, income level, farming experience in years, type of birds reared in terms of layers or broilers or both, number of birds reared, and frequency

of contact with extension workers. Data were also collected on adoption level of poultry disease prevention techniques and the extent of use of communication sources. A Likert-type scale was used to measure extent of use of communication sources; never used, seldom, often and very often were categories that were scored 0, 1, 2 and 3 points respectively.

Data were analysed through use of percentages, mean scores and multiple regression analysis. Percentage was used to convert frequency counts associated with various socioeconomic characteristics of the farmers. Having used a scaling technique to obtain total scores for extent of use of communication sources, the total score for each communication source was divided by number of respondents to arrive at a mean score. Thereafter, the communication sources were ranked in order to indicate those mostly used by poultry farmers and those that were rarely used. The communication factors which significantly contributed to adoption of poultry disease prevention techniques were determined by use of multiple regression analysis. Linear, semi-log and double-log functional forms of regression were used. The lead equation was chosen based on the function with the highest R^2 value, the highest F_{cal} value and the function that had more significant variables. The implicit regression model used is given as:

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, e)$$

where

Y = adoption level

X_1 = use of extension workers

X_2 = contact farmers

X_3 = use of friends

X_4 = use of veterinary officers

X_5 = opinion leaders

X_6 = radio

E = random error

Results and discussion

Socioeconomic characteristics of respondents

This study found that majority of the poultry farmers (70%) are males. The average age of the farmers is 38 years. Unlike most crop farmers, poultry farmers are generally educated persons. In Ughelli North Local Government Area, 47.5% of the poultry farmers have secondary education, while 38.8% of them have tertiary education. The average income of the respondents is N133, 418.33 per month or ₦1.6 million per annum (\$10,126.58/annum). The average number of birds reared per farmer is 2,254 birds. The farming experience of respondents averaged 9.1 years. It was found that 52.5% of the farmers rarely had contact with agricultural extension agents. While 7.5% of the farmers had 7- 12 contacts/year with agricultural extension agents, 33.7% of the poultry farmers had no contact with extension agents. Table 1 shows the details of the socioeconomic characteristics of the poultry farmers.

Common poultry diseases and type of information desired

The commonest poultry disease found in Ughelli North Local Government Area of Delta State is Newcastle Disease. This disease was identified by 77.5% of the respondents as one of the viral diseases prevalent in the study area, particularly in younger birds. When Newcastle disease infects older chickens, the mortality rate is usually lower but egg production is severely reduced. As shown in Table 2, fowl typhoid which is a bacterial disease is the next commonest disease identified by the poultry farmers. The study found that there was no incidence of bird flu in the study area.

On type of information desired presently by the poultry farmers, it was found that information on administration of drugs to poultry birds (83.8%), how to obtain veterinary services (58.8%), and disease

prevention methods (52.5%) were sort more than others as shown in Table 3.

Table 1: Distribution of respondents' socioeconomic characteristics

Characteristics	Frequency n = 80	Percentage	Average
1 Gender			
Male	56	70.0	
Female	24	30.0	
2 Age range (years)			
27 – 32	21	26.2	38 years
33 – 38	21	26.2	
39 – 44	19	23.8	
45 – 50	11	13.8	
51 – 56	8	10.0	
3 Educational Level			
No formal education	2	2.5	
Primary education	9	11.2	
Secondary education	38	47.5	
Tertiary education	31	38.8	
4 Farming experience (years)			
1 – 5	23	28.8	9.1 years
6 – 10	33	41.2	
11 – 15	13	16.2	
16 – 20	6	7.5	
21 – 25	5	6.3	
5 Type of Birds Reared			
Broilers	20	25.0	
Layers	50	62.5	
Layers and broilers	10	12.5	
6 Number of birds reared			
200 – 1999	44	55.0	2,254 birds/farmer
2000 – 3999	24	30.0	
4000 – 5999	12	15.0	
7 Income per month (N)			
N 21,000 - N 60,999	6	7.5	N133,418.33/month
61,000 - 100,999	12	15.0	
101,000 - 140,999	13	16.2	
141,000 - 180,999	49	61.3	
8 Contact with extension agents			
Zero contact/year (No contact)	27	33.7	
1 – 6 contacts/yr (Rarely)	42	52.5	
7 – 12 contacts/yr (Often)	6	7.5	
13 – 24 contacts/yr (Very often)	5	6.3	

Table 2: Distribution of respondents according to common poultry diseases identified

Common Diseases	Frequency* n = 80	Percentage
Gumboro disease	32	40.0
Newcastle disease	62	77.5
Fowl typhoid	41	51.3
Fowl pox	38	47.5
Bird flu	-	0.0

Chronic respiratory disease	34	42.5
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* Multiple responses

Table 3: Type of poultry information desired

Common Diseases	Frequency* n = 80	Percentage
Disease prevention methods	42	52.5
How to obtain veterinary services	47	58.8
Modern poultry equipment	36	45.0
Administration of drugs	67	83.8
Market information	34	42.5

* Multiple responses

Extent of use of communication sources by poultry farmers

The results in Table 4 show that veterinary officers ($\bar{x} = 2.46$), friends ($\bar{x} = 1.86$) and contact farmers ($\bar{x} = 1.63$) constitute the communication sources mostly used by farmers in handling poultry diseases. It was also found that agricultural extension agents ranked 7th in usage among the various sources of communication. The use of television, radio and newspapers ranked 9th, 10th and 11th respectively.

Television, radio and newspaper were, in most cases, never used by the poultry farmers. These mass media in Delta State do not often carry messages on poultry diseases and farmers are thus less dependent on them for critical information on poultry health management. The poor usage of extension agents can be attributed to the few number of extension agents in this study area and the fact that extension agents lay emphasis on crop production with little attention to livestock production.

Table 4: Degree of use of communication sources, n = 80

Communication Sources	Very often (3)	Often used(2)	Seldom used(1)	Never used(0)	Total Score	\bar{X}	Rank
Veterinary officers	49(147)	22(44)	6(6)	3(0)	197	2.46	1 st
Friends	25(75)	27(54)	20(20)	8(0)	149	1.86	2 nd
Contact farmers	18(54)	26(52)	25(25)	11(0)	131	1.63	3 rd
Salesmen	16(48)	22(44)	24(24)	18(0)	116	1.45	4 th
Neighbours	11(33)	14(28)	23(23)	32(0)	84	1.05	5 th
Opinion leaders	5(15)	22(44)	25(25)	28(0)	84	1.05	5 th
Extension agents	8(24)	10(20)	31(31)	31(0)	75	0.94	7 th
Relatives	6(18)	14(28)	22(22)	38(0)	68	0.85	8 th
Television	7(21)	8(16)	13(13)	52(0)	50	0.63	9 th
Radio	4(12)	7(14)	14(14)	55(0)	40	0.50	10 th
Newspapers	3(9)	1(4)	1(2)	73(0)	15	0.19	11 th

Values which are in parentheses are scores from scaling. The cut-off point which indicates adequate usage is 1.50.

Adoption level of disease prevention techniques

From the results in Table 5, the techniques mostly adopted by farmers for poultry disease prevention are good ventilation, good hygiene and environmental sanitation, vaccination of birds against diseases, and application of

antibiotics in drinking water and feed. Regulated movement of unauthorised persons, use of foot bath at entrance of poultry house, and battery cages for good litter management were the least techniques adopted by farmers for poultry disease prevention.

Table 5: Farmers' adoption of poultry disease prevention techniques

Disease Prevention Techniques*	Number of Adopters	Percentage of Adopters, n = 80
1. Appropriate farm location	71	88.8
2. Well drained poultry house	69	86.3
3. Battery cages for good litter mgt.	58	72.5
4. Good ventilation	80	100.0
5. Good hygiene and sanitation	80	100.0
6. Isolation of sick birds	77	96.3
7. Vaccination of birds	80	100.0
8. Good feeding regime	65	81.3
9. Quarantine for new birds	62	77.5
10. Foot bath at entrance of poultry house	54	67.5
11. Antibiotics in drinking water & feed	80	100.0
12. Regulated movement of unauthorized persons	34	42.5

*Multiple responses

Communication factors that contribute to adoption level

From the results of the multiple regression analysis, linear regression model was chosen as the lead equation based on the criteria earlier stated in the methodology. As shown in Table 6, the three communication variables that made significant contribution to adoption level of poultry disease prevention techniques are agricultural extension officers, use of friends, and veterinary officers as information source. The results showed that all the

variables combined explained 58.6% of the total variation in adoption level of poultry disease prevention techniques. Although agricultural extension agent was rarely used by the poultry farmers in this study, it made significant contribution to adoption of disease prevention techniques. The significant contribution of extension agents could be as a result of the fact that during the few contacts, extension agents dwelt more on poultry health management than other aspects of poultry production.

Table 6: Determinants of communication factors on adoption of poultry disease prevention techniques through linear regression model as lead equation

Variable	Coeff.	Standard Error	t-value
Constant	10.342	0.916	11.291
Extension workers	0.319	0.137	2.328**
Contact farmers	0.134	0.132	1.012
Friends as information source	0.319	0.143	2.230**
Use of veterinary officers	0.413	0.139	2.967**
Opinion leaders	-0.174	0.180	0.962
Radio	0.014	0.144	0.100
R ²	= 0.586		
F-value	= 3.266		

Conclusion and recommendations

The average poultry farmer in Ughelli North Local Government Area of Delta State is predominantly male, has average age of 38 years, well educated, has a flock size of 2,254

birds and rarely had contact with agricultural extension agents. The study revealed that Newcastle Disease is the commonest poultry disease in the study area.

This study revealed that veterinary officers, friends and contact farmers constitute the communication sources mostly used by farmers in handling poultry diseases. It was observed that television, radio and newspaper ranked least in usage. This study found that the techniques mostly adopted for poultry disease prevention are good ventilation, good hygiene, vaccination of birds, and application of antibiotics in drinking water and feed. The result of regression analysis proved that the three communication factors that made significant contribution to adoption of poultry disease prevention techniques are agricultural extension workers, use of friends and veterinary officers.

In order to improve the situation of communication sources depended upon by poultry farmers in dealing with poultry diseases, the following recommendations are made: (1) rather than focus more on crop production, agricultural extension workers should, in addition, ensure increase in their frequency of contact with poultry farmers. (2) Given that 33.7% of the poultry farmers had no contact with extension workers, it has become desirable that Delta State ADP should employ more workers for good coverage of poultry farmers. (3) Since television and radio ranked 9th and 10th in usage, broadcast media programmes on livestock production should be initiated by the state ADP and this could be aired twice a week to provide critical information on poultry disease management to farmers.

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