Correlation Analysis of Socio – Economic Factors Influencing Adoption of Improved Poultry Management Practices Among Farmers in Mando, Igabi Local Government Area of Kaduna State

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***Abstract*:-The study investigated the adoption of improved poultry management practise in Mando in Igabi Local Government Area of Kaduna State. Data were collected randomly through the use of well structured questionnaire from 57 poultry farmers. Descriptive statistics such as mean, percentage, frequency and correlation coefficient were used to analyze the data. The findings indicated that 71.93%of the respondents were male, while 60% of the farmers were between the age of 30-50 years. Keeping of daily poultry records had the highest adoption level (68.40%,) adoption level was also high in the use of vaccines, antibiotics (61.40%,) improve feeding and improved battery cage adoption rate were both 59.70%, and identification technique of sexing stood at 47.40%. Age, flock size and contact with extension agents were the three factors that correlated positively with adoption and therefore significantly influenced the adoption of improved poultry management practices in the study area. The study therefore recommends that government should engaged extension workers to adequately train poultry farmers to be technically competent to handle modern poultry management practices since contact with extension agents is one of the factors that greatly influenced the decision of the farmers to adopt new technologies and innovations.**

***Keywords*: Adoption, Poultry, Farmers, Management Practices, Correlation Analysis**

I.INTRODUCTION

The role of poultry in alleviating the problem of under nutrition and malnourishment in a high proportion of Nigerians cannot be emphasized. Poultry egg which is one of the major products of poultry production is one of the most nutritious and complete foods known to man. Chicken egg proteins have biological value of 1.0 and so shares with human protein the distinction of being a perfect protein (Orji *et.al*., 1981) Poultry holds the potential of increasing per output protein intake in Nigeria. Aderinto and Adisa (2006) noted that poultry has become an important sector of livestock industry in Nigeria. Poultry production in large and small scales have proved invaluable source of employment, income and food security to a large segment of the population. Grace(2002) reported that 85% of rural families keep several species and breeds of indigenous poultry types as means of ensuring the much needed income and protein for the family.

In Nigeria, poultry production contributes to the nation's Gross Domestic Product (GDP) as a source of gainful employment and income for a sizable proportion of the population. GDP has been increasing over years. Contribution of the livestock share of the GDP increased from 27% in 1999 to 35% in 2000 (CBN,,2000). The significant improvement in poultry production has been sustained by availability of improved vaccine, which curtailed mortality rates in birds reduction the tariff on imported day chicks and parent stock (CBN,2000) and the relative ease of compounding efficient feed using easily available local feed stuff.

Adoption of improved poultry management practices is regarded as a decision to make full use of an innovation or technology (Rogers, 1995). An innovation is an idea, method, object or practice, which is regarded, as new by individuals but which may not always be the result of recent research. Also, Ewuola (1985), notes that adoption is synonymous to transfer of technology. He defines transfer of technology as that which embraces all efforts to make sure that the farmers adopt new technology. Before any technology is adopted, it must pass through a process of adoption, which involved awareness stage (when an individual's first heard about improved practice/innovation): the interest stage (an individual start having interest in the new practice, hence gathering more information about it); evaluation stage (an individual's start judgement, normally on small scale) and adoption stage (an individual decide to continue the full use of the new practice (Rogers and Shoemaker, 1971). The process of making a decision is not an instantaneous one but rather occurs over a period of time and does not always follow the sequence in practice. The objective of this study is to evaluate the relationship between level of adoption of improved poultry practices and some selected socio-economic characteristics of farmers in study area using correlation analysis.

II. METHODOLOGY

A. Study Area

The study was conducted in Mando Igabi Local Government Area of Kaduna State which is located in guinea savannah zone of Nigeria on latitude 10°37'N and longitude 7° 17]E (Otegbeye *et. al.,* 2001). Annual rainfall is about 1000mm-1500mm per annum. Igabi Local Government Area of Kaduna State consists of three tribes Hausa, Fulani and Gbagi. The major crop produce in the area are maize, millet, yam and cassava and livestock/animals that are reared in the Local Government Area are poultry, cattle, goat and sheep

B. Sampling Techniques

The poultry farmers in Mando, Igabi Local Government area constituted the sampling population. Random sampling technique was used to select a total of sixty poultry farmer from the study area. However fifty seven poultry farmers were used for the study because three questionnaires were discarded.

C. Data Collection

Primary data was used for the study. The primary data were obtained from poultry farmers in the study area with aid of well structured questionnaire. The questionnaire was designed to collect information on socio-economic characteristics, level of adoption, constraints to the adoption of improved poultry management technique that have been developed and disseminated to poultry farmers.

D. Analytical Tools

The following under listed analytical tools were used to analyze the data generated

1. Descriptive statistic
2. Correlation coefficient analysis

*1). Descriptive Statistics :*Descriptive statistics such as percentage, frequency distribution, table and mean were used to describe the socio economic characteristics of the farmers, level of adoption and constraints affecting rate of adoption.

2). Correlation Coefficient Analysis: Correlation coefficient analysis was used to evaluate how some selected socio economic characteristics influences the level of adoption of improved poultry management practices among the farmers . The equation used for the correlation coefficient is given as:

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

Where

Y = Number of poultry Management practices adopted by farmers (Number)

X_1 = Gender (Male = 1, Female = 2)

X_2 = Age (Years)

X_3 = Education Level
- No Formal Educ. = 1
- Primary Sch. Ed. = 2
- Secondary Sch. Ed. = 3
- Post Secondary Sch. Ed. = 4

X_4 = Farming Experience (Years)

X_5 = Flock Size (Number)

X_6 = Contact with extension agent (Number)

The hypothetical equation for the correlation is given as

$$r = \frac{\sum XY}{\sqrt{(\sum X^2)\ (\sum Y^2)}}$$

Where

X = $(X_1 - X_6)$ as stated above

Y = Number of Poultry Management adopted by farmers

r = Coefficient of correlation

r can take any value between - 1 and + 1

if r = 0, there is no relationship between X and Y

r = -1, there is poor correlation between X and Y

r = +1, there is strong correlation between X and Y

III. RESULTS AND DISCUSSION

E. Socio-Economic Characteristics of Poultry Farmers in the Study Area.

*Ta*ble 1 shows that 71.93% of the poultry farmers are male while 28.07% were female. This implies that men dominate the poultry sector in the study area. This is in line with the finding of Aphunu and Akpobasa (2009) in the study of adoption of improved poultry management practices in Ughelli in which males also dominated poultry sector The result in Table1 also indicates that 33.33 % of the respondents fall within the age of 30-39 years old while 26.32% fall within 40-49 years old, 24.56% where above 50 years old and 15.79 % of the respondents are within 20 -29 years old. The result showed that about 60% of the respondents were between the age of 30-50 years which implies that majority of the respondent belong to the young and middle-aged group, that is, working class group that favour the learning of new technologies which in-turn will encourage greater adoption. Table 1 show that 49.12% of the respondents are post-secondary education, 35.09% have secondary school certificate, 8.77% have no formal education and about 7.02% have primary school education. This implies that 49.12% of the respondent has post secondary school education 35.09% of the respondent had secondary education, while 7.02% of the

respondent has primary education and about 8.77% had no formal education. It is very important to know the level of literate farmers since it variable influences the ability to properly comprehensive new techniques and method required to bring about positive changes in knowledge, attitude skills and aspiration of the poultry farmer. 50.88% of respondent are married, 29.82% are single while 12.28% are divorce and 7.02% are widows . It means married men/women are actively involves in the adoption practice than single, widow and divorce. The result in Table 1 also shows that 33.33% of respondents had 0-9 years of experience in poultry farming experience. 21.1% of respondents have 10-19 years, 17.54% had 40-49 years of experience, 14.00% of respondents had between 20-29 while 8.77% had 30-39 years of experience and about 5.26% has above 50 years of experience. This means that all the respondents had experience in poultry farming which implies that majority of the poultry farmer had reasonable period of keeping experience. Agwu (2004) noted that long period of farming experience could increase farmers level of acceptance of new ideas as a means of overcoming their production constraints and hence an advantage for increase production.

Table 1: Socio-Economic Characteristics of the Poultry Farmers

Socio-economic Variables	Frequency N = 57	Percentage (%)
Sex		
Male	41	71.93
Female	16	28.07
Age		
20-29years	9	15.79
30-39 years	19	33.33
40-49 years	15	26.32
50 years Above	14	24.56
Level of Education		
No formal education	5	8.77
Primary	4	7.02
Secondary	20	35.09
Tertiary	28	49.12
Marital Status		
Single	17	29.82
Married	29	50.88
Widow	4	7.02
Divorcee	7	12.28
Household size		
1-5	30	52.63
6-10	19	33.33
> 10	8	14.04
Years of Experience		
0-9	19	33.33
10- 19	12	21.10
20 - 29	8	14.00
30 – 39	5	8.77
40 – 49	10	17.54
50 and Above	3	5.26

F. Flock Size

The result of the number of poultry birds possessed by the farmers is presented in Table 2. The table revealed that 29.82 % of the farmers possessed 200 birds and above, 22.81 % have a range of 150 -199 birds, 17.54 % have 50 -99 birds, 15.79 % have less than 50 birds and 14.04 % have 100 -149 birds. The result implies that most or majority of the farmers in the study area are small scale producers.

G. Contact with Extension Agent

Table 3 shows that 12.3% has contact on weekly basis, 15.8% had contact with extension agents on once in two weeks, 19.3 of poultry farmer had contact on monthly basis while 22.8% and 28.0% had contact with extension agent once in two months and once in a year and also 7.0% has never had contact with extension agent. It is evident that dissemination of poultry farm innovation was fair in the study area.

H. Level of Adoption of Improved Poultry Management Practices

Result in Table 4 shows that poultry farmer have adopted and were using a number of improved management practices. The adoption level were high for keeping daily poultry record (68.40%), application of vaccine/vitamin antibiotic (61.40%), improved feeding (59.70%), improved battery cage (59.70%) and identification techniques of sexing (47.4%). Therefore the high adoption rate listed above could be attributed to high education level and reasonable years of experience in poultry farming of the respondents.

I. Socio-Economic Characteristic of Farmers Influencing Adoption of Improved Poultry Management Practices.

The correlation analysis result in Table5 indicates that only three variables (Age, Flock size and Contact with extension agent) significantly influenced adoption of improved poultry management practices. This was in agreement with the finding of Aphunu and Akpobasa (2009) in which age and contacts with extension agent were the only two variables that correlate with adoption of poultry management practices. By implication increase in age, flock size and contact with extension agent would influence the level of adoption by farmer. The result also shows that gender, educational level and year of experience had no significant influence on the adoption of improved poultry management practices. This was in agreement with the finding of Aphunu and Akpobasa (2009) in which age and contact with extension agent were the only variable that correlate with adoption of poultry management practices. By implication, increase in age flock size and contact with extension agent would influence the level of adoption by farmer. The result also shows that gender, educational level and years of experience had no significance influence on the adoption of improved poultry management practices. But studies of Agwu (2004), Osuji (1993) shows that educational qualification, farm size and farming experience significantly influenced adoption.

However the difference between both results might be the type of technologies studied.

IV. CONCLUSION

The findings revealed that majority of the poultry farmers in Mando, Igabi Local Government Area were male (71.93%).. The study also revealed that poultry farmers in the study area has adopted and were using some improved poultry management practices such as keeping daily poultry record (68.40%), application of vaccine/vitamin antibiotic (61.40%), improved feeding (59.70%), improved battery cage (59.70%) and identification techniques of sexing (47.4%). The correlation analysis result in indicates that only three variables (age, flock size and contact with extension agents) significantly influenced adoption of improved poultry management practices. The study therefore recommends that government should engaged extension workers to adequately train poultry farmers to be technically competent to handle modern poultry management practices since contact with extension agents is one of the factors that greatly influenced the decision of the farmers to adopt new technologies and innovations.

Table 2. Frequency Distribution of Respondents Based on Flock Size

Flock Size	Frequency	Percentage (%)
Below 50	9	15.79
50 – 99	10	17.54
100 -149	8	14.04
150 – 199	13	22.81
200 birds and above	17	29.82
Total	57	100.00

Table 3. Frequency Distribution of Respondents Based on Contact with Extension Agent.

Contact with extension Agent	Frequency	Percentage %
Weekly	7	12.3
Once in two weeks	9	15.8
Monthly	11	19.3
Once in two months	13	22.8
Once in a year	13	22.8
Other specify (NIL)	4	7.1
Total	57	100

Table 4: Percentage Distribution Level Based on Level of Adoption of Improved Poultry Management Practices (n-57)

Improved Management Practice	Tried (%)	Adopted (%)	Non Adopted (%)
Improved feeding	36.8	59.70	3.50
Keeping daily poultry record	15.8	68.4	15.80
Vaccine/vitamins/antibiotics	21.1	61.4	17.50
Identification techniques of sexing	15.8	47.40	36.80
Improved battery cage	36.3	59.70	3.50

Table 5: Correlation Analysis on the Influence of Socio-Economic Characteristic of the Adoption of Improved Poultry Management Practices

Socio-Economic Characteristic	Correlation Coefficient (r)	P value
Gender	0.17	0.23
Age	0.231	0.09
Educational level	0.08	0.59
Farming experience	-0.05	0.72
Flock size	0.24*	0.09
Contact with extension agent	0.302	0.03

*Significance at 10%
** Significant at 5%
Critical r = 0.17

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