



ASSESSMENT OF POULTRY FARMERS AWARENESS ON RECORD KEEPING IN JERE LOCAL GOVERNMENT AREA, BORNO STATE, NIGERIA

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ABSTRACT

The study assessed poultry farmers' awareness on keeping farm record in Jere Local Government Area, Borno State, Nigeria. The research identified the socio-economic characteristics of the poultry farmers, assessed their level of awareness on record-keeping, and determined factors influencing record-keeping among the respondents. The study employed a two-stage sampling technique to select 150 respondents, and data were collected using structured questionnaires. Descriptive statistics such as frequency, percentage, mean, Likert scale, and logistic regression models were employed to analyze the data. The findings revealed that most (46%) of the respondents were aged between 36-51 years with majority (70%) predominantly female, 68% had a mean of 7 persons per household with an average of 7 years of poultry farming experience. Majority (85%) of the respondents had attained one form of education or the other. Additionally, more than 80% earned less than ₦30,000 to ₦90,000 per production cycle. Majority (86.7%) had a flock size of less than 90 birds. Additionally, while 70% of the respondents recognized the importance of record-keeping in ensuring farm profitability. Logistic regression analysis showed that education level, flock size, knowledge of record-keeping, and access to extension services were significant at 1% level each. The recommend that, Extension services should prioritize training programs, particularly for women, who form the majority of the farming population. Training programs should focused on the importance of record keeping and practical methods for maintaining records.

Keywords: Awareness, Poultry Farmers, Record Keeping

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INTRODUCTION

Poultry farming is a vital aspect of agriculture in Nigeria, contributing significantly to food security and the economy. It also plays a significant role in providing affordable protein sources through eggs and meats. Additionally, poultry manure is also a cheap source of income in addition to what they realize from their products contributing to the livelihood of many rural households in Nigeria (Oyeyinka, Raheem, Ayanda and Abioma, 2011). However, despite its

importance, the practice of record keeping is often overlooked or poorly executed (Eniola and Ogunwoye, 2022).

Record keeping is a systematic documentation of all activities and transactions related to the management of a poultry operation, this include tracking details such as number of birds, feed consumption, egg production, mortality rates, vaccinations, health treatments, sales, expenses, and other key metrics. Effective record keeping allows farmers to monitor the performance of their flocks, make informed management decisions, ensure compliance with regulations, and improve the overall efficiency and profitability of the poultry farm (Otu et al., 2024). Record keeping is a crucial component of successful poultry farming, as it aids in monitoring productivity, managing expenses, and making informed decisions. Additionally, it also involves tracking various aspects of the business, such as production levels, feed consumption, vaccination schedules, and financial transactions (Okoroafor et al., 2023).

Proper record keeping is essential for the success and sustainability of poultry farms. In spite of the recognized importance of record keeping in poultry farming, there is paucity of knowledge in Jere Local Government Area on level of awareness of keeping records (Eniola and Ogunwoye, 2022). This study assessed the level of awareness of record keeping among poultry farmers in Jere Local Government, Borno State, Nigeria. The study addressed the following objectives:

- (i) identify the socio-economic characteristics of the poultry farmers;
- (ii) assess the level of awareness of record keeping among the respondents;
- (iii) determine factors that influenced effective record keeping among the respondents

METHODOLOGY Study Area

The study was conducted in Jere Local Government Area of Borno State, Nigeria. It lies between latitudes 110 40" and 120 05" N and longitudes 130 50" and 120 20" E occupying a total landmass of 169,000 km². It has an estimated population of 211,204 (NPC, 2006) projected to 306, 204 by 2023 at 2.4% growth rate and a population density of 386.2/km². The climate is characterized by wet and dry season with minimum temperature ranges between 15 and 20⁰C and maximum range of 37 and 45⁰C. The average annual rainfall of the area is about 600mm with an average humidity of 29%. Agriculture is the mainstay of the economic activity in the area with poultry farming being an important practice among the residents.

Sampling Procedure

Two stage sampling techniques were employed for the study. In the first stage, six wards were purposively selected out of twelve wards these include; Mairi, Gomari, Dala, Old Maiduguri, Gongulong and Alau. They are selected based on prevalence of poultry production. The second stage involved random selection of twenty five respondents from the registered list of chicks and feed suppliers in the selected wards, making a total of 150 respondents as the sample size.

Sources of Data

Primary data was mainly used for the study. The questionnaire was designed to capture information on the farmer's socio-economic characteristics and level of awareness on record keeping. The questionnaire was validated using content validity by 2 panel judges. The

reliability of the instrument was pre-tested using test and re-test method. The r- value was found to be 0.73.

Analytical Techniques

The data collected were analyzed using descriptive statistics, including frequencies, percentages to achieve objective (i), Likert scale (ii) and Logistics regression model (iii).

In estimating factors that influenced farm record keeping logistic regression model was used as employed by Otu *et al.* (2024). This model estimated how each of the independent variables influences the likelihood of a poultry farmer keeping records. The interpretation of (β_i) for ($i = 1, 2, \dots, 6$) would be the change in log-odds of record-keeping associated with a one-unit increase in the corresponding predictor variable (X_1).

The Model is explicitly expressed as:

$$Y = \frac{P}{1 - p} = \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 \dots \dots \dots (1)$$

Where,

Y = dependent variable which takes the value of 1 if a poultry farmer keeps record and 0 if otherwise

B = Parameter estimate

X_1 = Age (years)

X_2 = Educational level (No. of years in formal education) X_3

= Flock size (No. of Birds).

X_4 = Knowledge on record keeping (1= Knowledgeable, 0= Not Knowledgeable)

X_5 = Access to extension services (1= Have access, 0= Have no access)

X_6 = Difficulty in keeping records (1= Have difficulty, 0= Do not have difficulty)

RESULTS AND DISCUSSION Socio-economic Characteristics of the Respondents

Socio-economic characteristics of the respondents were examined with respect to age, sex, marital status, educational level, household size, income, flock size, farming experience, and membership of association. These are presented in Table 1.

Age

The results from Table 1 revealed that a significant proportion (46%) of the respondents fell within the age range of 36-51 years, with a mean age of 39 years and a standard deviation of 15.9. This suggested that most poultry farmers are in their peak productive years. These farmers are likely to be energetic and capable of implementing efficient poultry management practices, including record keeping. This findings is in consistent with a study by Osei *et al.* (2019) who reported that, farmers within this age group are more inclined to adopt modern agricultural practices due to their physical and cognitive abilities.

Sex

The results further showed that, majority (70%) of the respondents were female while the remaining 30% were males. This suggested that, women dominated the poultry farming

industry within the area. Women's involvement in poultry farming suggested that they could benefit greatly from targeted interventions aimed at improving record-keeping practices. According to Kinkingninhoun-Médagbé et al. (2020), women farmers often face unique challenges that affect their productivity, including limited access to information and training, thereby underscoring the importance of keeping records.

Table 1: Distribution of Respondents based on Socio-economic characteristics (n=150)

Socio-economic Variables	Frequency	Percentage (%)	Mean (x)	Standard Deviation (SD)
Age (Years)				
<20	22	14.7		
20 – 35	26	17.3		
36 – 51	69	46	39	15.9
Above 51	33	22		
Total	150	100		
Sex				
Male	45	30		
Female	105	70		
Total	150	100		
Marital Status				
Single	51	34		
Married	99	66		
Total	150	100		
Educational level				
Non formal	23	15.3		
Primary	12	08		
Secondary	75	50		
Tertiary	40	26.7		
Total	150	100		
Household size (No. of Persons)				
1 – 3	18	12		
4 – 6	30	20	6.68	2.09
Above 6	102	68		
Total	150	100		
Income/production cycle				
<₦30,000	84	56		
₦30,000 - ₦60,000	34	22.7	37,933	30,486
₦60,000 - ₦90,000	12	08		
Above ₦90,000	20	13.3		
Total	150	100		
Flock size no of birds <30				
	72	48		
30 – 59	52	34.7	37.0	24.5
60 – 89	18	12		
Above 89	08	5.3		

Total	150	100		
Farming experience (Years)				
<5	93	62		
5 – 10	34	22.7	5.2	3.73
Above 10	23	15.3		
Total	150	100		
Membership of association				
Non-member	105	70		
Member	45	30		
Total	150	100		

Source: Field Survey, 2023

Marital Status

The results also indicated that, majority (66%) of the respondents were married, indicating that, they likely have significant family responsibilities. These responsibilities could impact their ability to maintain comprehensive records for their farming activities, as managing a household and farm simultaneously can be demanding. However, being married could also provide a support system that might contribute to better farm management. A recent study by Mabe et al. (2021) indicated that married farmers often had better access to labor and resources, which can enhance their capacity to implement effective farming practices, including record keeping.

Educational Level

The results also pointed out that, half (50%) of the respondents had completed secondary education, and 26.7% had attained tertiary education. The implication of this finding is that, educational background could be an added advantage to the farmers as it will equip them with the knowledge necessary to understand and apply advanced farming techniques, including the importance of record keeping. Simtowe et al. (2020) found that farmers with higher levels of education are more likely to adopt improved agricultural practices, which can lead to increased productivity and income.

Household Size

Results further reported that majority (68%) of the respondents had households with more than 7 members. This large household size might provide ample labor for poultry farming, but might have a high dependency ratio, which could strain financial resources and hinder the adoption of comprehensive record-keeping practices. A study by Mwambi et al. (2020) supports this, indicating that larger households often face greater financial pressure, which can lead to underinvestment in essential farm management tools and practices.

Income

The income level revealed that, over half (56%) of the respondents earned less than ₦30,000 per production cycle, with an average income of ₦39,032. This low income level is a critical

barrier to the adoption of improved record-keeping practices, as financial constraints may force farmers to prioritize immediate needs over long-term investments in farm management. This finding is consistent with that of Nwafor et al. (2021), who reported that low-income farmers are less likely to invest in record-keeping systems due to the perceived lack of immediate financial returns.

Flock Size

Results found out that, majority (84%) of the respondents manage a flock size of less than 60 birds, indicating that most poultry farmers in the area operate on a small scale. Small-scale operations often do not require detailed record-keeping, but as the flock size increases, the need for meticulous record management becomes essential for tracking production, health, and financial performance. A study by Abubakar et al. (2019) found that as the scale of farming increases, so does the complexity of farm management, necessitating the adoption of systematic record-keeping practices.

Farming Experience

The majority (62%) of respondents had less than 5 years of farming experience, indicating that many were relatively new to poultry farming. This inexperience could mean that these farmers were not yet fully aware of the benefits of maintaining comprehensive records. However, with appropriate training and extension services, they can quickly adopt these practices. Ndlovu et al. (2020) highlighted that farmers with less experience are more open to learning and adopting new practices, provided they receive adequate support and training.

Membership of Associations

Results on membership of association showed that, majority (70%) of the respondents are not members of any farming associations. This lack of association membership may limit their access to resources, information, and collective bargaining power, which are crucial for improving farming practices, including record-keeping. Membership in farmer associations has been shown to enhance access to inputs, markets, and knowledge, which can significantly improve farm productivity. The finding is in agreement with that of Musara et al. (2020) who found out that, farmers who are members of associations are more likely to adopt new technologies and improve their farm management practices, including record keeping.

Awareness on the Importance of keeping Poultry Farm Record

A 3- point likert scale was employed to determine the awareness level regarding the importance of keeping poultry farm records. These are presented in Table 2. The results revealed that, majority of the respondents recognize the critical role of record-keeping in ensuring profitability, evidenced by the highest mean score of 2.52, the results further revealed that, there is less agreement on its importance for monitoring bird performance, with a mean score of 2.03. More concerning is the lack of awareness or agreement on the significance of recordkeeping for monitoring financial transactions, identifying areas for improvement, and assessing past records, which have mean scores of 1.79, 1.58, and 1.33, respectively.

This implies that farmers underscored the importance of keeping farm record in terms of exploring new areas that need improvement and to a lesser extent using past records to manage

the available resources more efficient. This signified that there is a substantial gap in awareness regarding the significance of record-keeping. This lack of awareness could hinder effective farm management and long-term productivity. This is supported by the findings of Kay, Edwards and Duffy (2015) who reported that, comprehensive record-keeping helps in improving decision-making and operational efficiency through financial records which help farmers manage costs and improve profitability. Also performance records are essential for tracking bird health and productivity.

Table 2: Level of awareness on importance of keeping poultry farm records (n=150)

Importance of Keeping Records	SA				
		<u>A</u>	<u>NA</u>	<u>Mean</u> \bar{x}	<u>Rank</u>
		18	27	2.52	1st
Ensures the profitability of poultry farm	105				
Helps monitor bird performance	34	86	30	2.03	2nd
Monitor financial transaction	37	45	68	1.79	3rd
Identify Areas for Improvement	27	33	90	1.58	4th
Assessing past records	10	30	110	1.33	5th

Source: Field Survey; 2023

SA= Strongly Agree, A= Agree, NA= Not Agree

When $\bar{x} > 2 =$ Strongly Agree, $\bar{x} = 2 =$ Agree, $\bar{x} < 2 =$ Not Agree

Factors Influencing Effective Record Keeping among Poultry Farmers

Logistics regression parameter estimates on factors influencing the likelihood of a poultry farmer to keep farm records is presented in Table 3. The interpretation of (β_i) for $(i = 1, 2, \dots, 6)$ would be the change in log-odds of record-keeping associated with a one-unit increase in the corresponding predictor variable (X_1).

Table 3: Logistics Regression Estimate on factors that Influence Farm Record keeping among the Respondents

Variables	Coefficient	Standard Error(SE)	Wald	P-value	Exp (BS)
X_1 (Age)	0.012088	1.298	0.000087	0.9926	1.0122
X_2 (Educational Level)	0.256788	0.0794	10.4594	0.0012***	1.2928
X_3 (Flock Size)	6.67237	2.001	11.1221	0.00085***	790.0
X_4 (Know)	0.14879	0.0383	15.0678	0.00010***	1.1604
X_5 (Access to Extension)	0.141378	0.0374	14.2896	0.00016***	1.1519
X_6 (Difficulty in Keeping Record)	0.01335	0.0405	0.1087	0.7417	1.0134

Source: Computed from Data, 2023

*** $P < 0.001$

Educational Level

Educational level is a crucial determinant in the awareness and practice of effective recordkeeping. The positive coefficient indicated that higher education levels are associated with better record-keeping. The results showed that, educational level is statistically significant

and positive ($p < 0.001$) with a regression coefficient of (0.2568) implying a unit increase in educational level will increase the likelihood of the respondent to keep farm record. The significant impact of education level on record-keeping suggested that more educated poultry farmers are likely to recognize the importance of maintaining accurate records. This aligned with study by Ali et al. (2020) who found that higher educational attainment in farmers leads to better farm management practices, including record-keeping.

Flock Size

Flock size is a critical factor influencing record-keeping effectiveness. The results revealed that flock size is significant and positive at 1% ($P < 0.009$) with a coefficient of 6.672. This relationship is highly significant. The strong relationship between flock size and recordkeeping indicated that farmers managing larger flocks are more inclined to keep detailed records, possibly due to the increased complexity of managing larger operations. This is consistent with findings by Smith et al. (2021), who highlighted that larger farm operations necessitate more sophisticated management practices, including meticulous record-keeping.

Knowledge of Record Keeping

Knowledge of record-keeping is significant and positive at ($P = 0.0001$) with a coefficient of 0.1488. The positive coefficient indicated that greater knowledge about record-keeping practices improves the likelihood of effective record-keeping. The significance of knowledge in improving record-keeping practices underscores the need for continuous education and training for poultry farmers. According to Johnson et al. (2019), providing farmers with the necessary knowledge and tools is crucial in enhancing their operational efficiency and recordkeeping capacity.

Access to Extension Services

Access to extension services is an essential factor in promoting effective record-keeping. The findings revealed that, access to extension is positively related and significant at ($P = 0.0002$) with a coefficient of (0.1414). This signified that, a unit increase of access to extension services will increase the likelihood of a poultry farmer to keep record. The positive effect of access to extension services on record-keeping highlights the role of external support in improving farmers' practices. Extension services provide essential guidance and support, enabling farmers to adopt better management practices (Garcia et al., 2022).

CONCLUSION AND RECOMMENDATIONS

Women dominated the poultry industry with smaller flock sizes in the study area, the study highlights the critical role of record-keeping in poultry farming and revealed the knowledge on level of awareness and practice among poultry farmers. Though, majority of the farmers recognized the critical role of record-keeping in ensuring profitability however, there is less agreement on its importance for monitoring bird performance. The low income levels and limited poultry farming experience poses a challenge to effective poultry farm management as well as adequate record keeping.

Based on the findings of this study, the following recommendations were made;

1. Extension services should prioritize training programs, particularly for women, who formed the majority of the poultry farming population. Training programs should

focused on the importance of record keeping and practical methods for keeping and maintaining records.

2. Awareness campaigns should be organized to educate farmers about the diverse benefits of record-keeping, not just for profitability but for other purposes such as tracking bird health, financial transactions, and other areas that needs improvement within their operations
3. Extension agents should promote the benefits of association membership and provide farmers with better access to resources, information, and collective bargaining power, leading to improved farm management and increased productivity. These associations can also serve as platforms for knowledge sharing and capacity building in recordkeeping and other critical areas of poultry farming.
4. Government agencies, NGOs, and agricultural stakeholders should collaborate to encourage the spirit of self-help and provide poultry farmers with affordable and easy-to-use record-keeping tools such as logbooks, record books or digital tools, mobile apps and templates to facilitate easy record keeping.

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