

Accessibility of Agroforestry Farmers to Credit Facilities on Poultry Egg Production in Oyo State, Nigeria

Abstract

Poultry egg production is an economically viable investment among Agroforestry farmers in Southwestern Nigeria but the paucity of funds and high cost of inputs are major problem in their business operations. This study focused on the effects of accessibility and non-accessibility of Agroforestry farmers to credit on poultry egg production. Data were randomly collected from 120 poultry farmers with a structured questionnaire which comprised of 60 credit beneficiaries and 60 non-credit beneficiaries' Agroforestry farmers. The data were analyzed with mean, percentages, frequency distribution, logit and multiple regression analyses. The results of the analyses indicated that the mean age of the credit accessed and non-credit accessed by Agroforestry farmers were ± 46 years and ± 56 years respectively. The result showed that the majority of the farmers were married. The logit regression analysis result revealed that the age of the respondents had a positive relationship with access to credit at 5% level of significance. Multiple regression model for credit accessed farmers indicated that age, family size, drug quantity are positively related to output and are significant at 10% and 1% level of significance. Multiple regression result for no credit accessed farmers showed that the quantity of drug used is positively related to the egg production output and significant at 1% level. The hypotheses tested showed that there was a significant relationship between socio-economic characteristics and the egg production in the study area, and also there was a significant difference between the output of farmers who are credit beneficiaries and non-credit beneficiaries. The major constraints to Agroforestry production were limited finances, high cost of input, poor quality of day old chicks, scarcity of raw materials, lack of storage facilities and marketing of product. Agroforestry farmers should be mobilized to save to enhance and furnish their access to credit for their business operations. Also, agricultural policies and programmes should focus on optimizing credit utilization on poultry egg production in the country.

Keywords: Agroforestry farmers, accessibility, credit facilities, egg production, logit regression

31 **Introduction**

32 The important of Agroforestry to poultry production cannot be overemphasized as it underpins the
33 complementary benefits that arise from the trees, the soil and the poultry birds in terms of sustainable
34 development. According to Yates *et al.* (2007) the main benefits arising from the use of trees to poultry
35 birds are potential changes to the micro-climate and animal welfare in particular protection and
36 possibly a sense of security from aerial predators. In existing poultry production of egg or meat
37 systems among agroforestry farmers in poultry practice are not usually allowed to range except only
38 few birds range when poultry house needed to be sanitized (Dawkins *et al.* 2003). Moreover, rearing of
39 poultry birds for meat and egg production are usually not meant to be carried out in a noisy
40 environment. This is the essence of agroforestry contribution to poultry egg production with associated
41 benefit that offer welfare and/or environmental benefits. Poultry housing, local climatic conditions and
42 breed differences will also interact with these changes. Despite important economic benefit from this
43 integrated system of poultry production and Agroforestry, poultry practice by Agroforestry farmers
44 still have challenges in egg production due to the problem of access to credit facility. However, Poultry
45 practice has economic value to man as a source of meat, egg and fiber. It is a part of the subsistence
46 agriculture farming system in Nigeria with egg production as one of its major products. Egg production
47 is most vital due to key contributions to the national economy in the spheres of generating employment
48 opportunity, additional income and improving the nutritional level. Egg production involves the use of
49 good layer birds for the purpose of table egg production (Ogunlade and Adebayo, 2009). Eggs are
50 major sources of animal protein in the human diet. According to Oji and Chukwuma (2007) the poultry
51 goes a long way in providing animal protein for the populace because it yields quickest returns and
52 provides for meat and eggs in a very short time. Animal protein is an essential part of human nutrition
53 because of its biological significance. Iwena (2007) reported that proteins are required for the growth
54 of young ones, formation of gametes in reproduction, formation of digestive juices, repair of worn-out
55 tissues or cells, production of anti-bodies as well as enzymes and hormones in the body. Tijani *et al.*
56 (2006) reaffirmed that animal proteins are more “biologically complete” than vegetable proteins with
57 regards to their amino-acid composition. The dearth in the quantity and quality of protein supply in
58 Nigeria is a challenge that is beyond dependence on plant protein alone. According to Fasasi (2006),
59 Nigeria has a total land area of 98.3 million hectares out of which 71.3 million hectares (72.5%) are
60 cultivable, while 34.2 million hectares representing 48% of the cultivable area are actually being
61 cultivated and less than 10% of the arable land is irrigated. It suffices, therefore, to explore quality
62 protein of animal origin of which poultry egg is of prime importance. Nwaru and Onuoha (2010)

63 further observed that when agricultural credit is properly extended and utilized, it encourages
64 diversification which stabilizes and often increases resource productivity, agricultural production,
65 value added and net incomes of farmers. Credit is therefore a necessary input in the various aspects of
66 farm operations. Agricultural production needs to rise at least by some six percent per annum for
67 Africa to be able to meet its food needs and for African agriculture to become a real motor for
68 economic development ((Okuneye, 2001; Enweze, 2006). Nigerian agriculture is abysmally under-
69 financed. Currently agriculture accounts for about 40 percent of the GDP, yet it receives only one
70 percent of total commercial bank loans (Global Agricultural Information Network [GAIN] 2011).

71 Efforts to deliver formal credit and financial services to the poultry farmer in developing countries
72 have failed over the years (Adams, 2009; Otunaiya, 2007). Commercial banks generally do not serve
73 the needs of the poultry because of the perceived high risk and the high transaction costs associated
74 with loans and saving deposits. To fill the void, many governments have tried to deliver formal credit
75 to the farmer by setting up special agricultural banks or directing commercial banks to loan to the
76 borrowers. Despite government initiatives, agricultural credit still seems insufficient. This
77 insufficiency was due to several problems on the side of the financial institution which could be as a
78 result of supervision insufficiency, political interference, etc. (Abedullah, 2009). More so, these
79 programs have almost failed because of political difficulty for governments to enforce loan repayment
80 and often time the relatively wealthy farmers have better access to loan than the poor farmers (Adams,
81 2009). Aother problem includes an increase in default rates of agricultural loans which have made the
82 sector non-viable as it gives a negative margin (NBS, 2006). High default rates were identified as a
83 major reason which makes banks reluctant to give loans to farmers (Akinwunmi, 1988). The study
84 further explained that problems arose from the inability of the credit institution to distinguish lending
85 for urban projects and small scale farming. However, Agricultural loan remains a critical means
86 through many problems confronting poultry farmers can be resolved. Primarily, it assists in breaking
87 the chains of the vicious circles of poverty which has been the main cause of low productivity and low
88 income of the poultry farmers (Bamiro *et al.*, 2012). Unfortunately, the level of credit available to
89 these farmers is grossly inadequate and therefore, limits the realization of their full potentials. Access
90 to formal financial services by the majority of the poultry farmers has been highly limited. In modern
91 farming business in Nigeria, beyond poor access, efficient utilization of credit is fast becoming a major
92 factor limiting farm productivity and income (Ololade and Olagunju, 2013). This may be one of the
93 reasons why food security not improved in the country was because the amount of credit given to the
94 farmers is not enough for them to improve their method of farming in the study area. Therefore, this

95 study investigated the accessibility of Agroforestry farmers to credit facilities on poultry egg
96 production in Oyo State Nigeria with the following objectives: describe the socio-economic
97 characteristics of Agroforestry farmers in poultry egg production; determine the factors affecting
98 access to credit; determine the factor affecting output of poultry egg production; and identify the
99 constraints faced by poultry egg production in the study area.

100 **Methodology**

101 The study was carried out in Oyo state which is made up of thirty three (33) Local Government Areas
102 with four (4) agricultural zones. Which are: Oyo, Ibadan-Ibarapa, Ogbomoso, and Saki Zones. Oyo
103 State covers a total land area of about 27,249,000 square kilometers with a total population of about
104 5.6million (National Population Commission, 2006). It is situated between Latitude 7° N and 19°N and
105 Longitude 2.5°E and 5°E of the meridian. It is located South Western Nigeria. The city has a
106 population of 1,338,659 in 2006 and more than 96 per cent of the inhabitants are Yoruba. The capital is
107 Ibadan which has a tropical wet and dry climate, with a lengthy wet season and relatively constant
108 temperatures throughout the course of the year. This good weather condition makes poultry a thriving
109 business among farmers in the study area. Primary data was collected through a well-structured
110 questionnaire. A two-stage sampling technique was employed in selecting the respondents. The first
111 stage involved purposive selection of six LGAs based on where Agroforestry is practiced with poultry
112 production and these areas are Egbeda, Oluyole, Afijio, Surulere, Saki North and Ibarapa central
113 LGAs. The Agroforestry farmers in poultry production were selected from the estimated numbers of
114 poultry farms in the state. There are over 320 estimated poultry farms in with most of them not
115 registered with Oyo State Branch of Poultry Farmers Association of Nigeria (Oluwole *et al.*, 2012).
116 However, the second stage of the sampling procedure involved the random selection of respondents
117 from the estimated poultry farms in the selected LGAs in proportionate to size. In all, 120 Agroforestry
118 farmers were randomly selected through a questionnaire. Ten (10) poultry farmers with credit facility
119 and equal number of poultry farmers without credit facility were selected from each of the selected
120 Local Government areas (LGAs) for the study. Both descriptive and inferential analytical tools were
121 used to analyze the data collected. The simple percentages and frequencies were a descriptive tool
122 whereas logit multiple regression is the inferential tool employed.

123 **Model specification for inferential statistical tool:**

$$124 \quad Y_i = \log \frac{P_i}{1-P_i} = \beta_0 + \beta_i X_i + U_i$$

125 Y_i = Access of i th poultry farmer to credit (1 = if acquired credit, 0 = if otherwise)

126 X_1 = Age (years)

127 X_2 = level of education

128 X_3 = Family size

129 X_4 = visitation by extension agent

130 U_i = Error term

131 Multiple Regression Analysis

132 The multiple regression model was used to determine the factors affecting poultry egg production in
133 the study area.

134 $Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + \beta_{10} X_{10} + U_i$

135 Y = Output (Total Revenue)

136 X_1 = Sex

137 X_2 = Age

138 X_3 = Marital Status

139 X_4 = Level of Education

140 X_5 = Family Size

141 X_6 = Year of Experience

142 X_7 = Extension Agent Visit

143 X_8 = Feed Quantity

144 X_9 = Drug quantity

145 X_{10} = Vaccine quantity

146 β_s = The Unidentified Parameter Estimated.

147 U_i = Error Term.

148 **Results and Discussion**

149 Table 1 revealed that the age distribution of credit beneficiary and non-credit beneficiary poultry
150 farmers in the study areas that the mean age of farmers with access to credit was ± 46 years while that
151 of non-credit access was ± 56 years. Majority age range of the respondent was 41-50 year and 51-60
152 years for credit and non-credit beneficiaries' Agroforestry farmers respectively. This result is line with
153 the findings of Aromolaran *et al.* (2013) that small scale layers farming was common among average
154 aged farmers. The majority (77.4%) of the credit access farmers and most of the non-credit access
155 farmers (81.0%) were married. This showed that agriculture, especially poultry production was the
156 business of married people. This result corroborates with Chioma *et al.* (2017) that majority of poultry
157 farmers are married individuals with responsibilities. Looking at the years of experience for both credit
158 access and non-credit access farmers shows that 37.7% of farmers with credit had been practicing egg
159 production between the year ranges of 11-15 years while that of non-credit access was 59.5%. It was
160 expected that farmers with high years of experience should be more efficient and their chances of
161 obtaining credit were higher than a farmer with little years of experience. The result agreed with the
162 findings of Otunaiya *et al.* (2015) that majority of the poultry farmers are involved in egg production in
163 Oyo State. A majority of both Agroforestry farmers with access to credit (73.6%) and those with non-
164 access to credit access (73.8%) were male indicating that poultry egg productions were basically male
165 dominated. This was expected given the drudgery nature, physical and energy demand as well capital
166 intensive nature of investment required to establish poultry-egg enterprise, majority (60.4%) of credit
167 access farmers had family sizes of (4-6) persons, while most (69.0%) of non-credit farmers had
168 household size of (7-9) persons. Efiiong (2007) and Idiong (2006) reported that relatively large
169 household size enhances the availability of labour, although, large household size may rob a farmer the
170 opportunity of obtaining financial help in form of credit, as this credit may be directed to some other
171 family matters. Also, all (100%) of credit access farmers and (97.6%) of non-credit farmers belong to
172 different co-operative societies, while (2.4%) of non-credit farmers did not belong to co-operative
173 societies. The essence of co-operative was to help educate the members and support them to be
174 financially stable. This is line with Otunaiya *et al.* (2015) that over 80% of egg farmers are members of
175 cooperative societies in Oyo State which helps them in solving problems.

176

177 **Table 1: Socio-economic characteristic of the respondents with access and non access to credit**

Variables	Credit (N=53)		Non-credit (N= 42)	
	Frequency	Percentage	Frequency	Percentage
Age range				
≤30	1	1.9	-	-
31-40	9	16.9	-	-
41-50	23	43.5	10	23.8
51-60	19	35.8	22	52.4
≥61	1	1.9	10	23.8
Level of Education				
Primary education	-	-	1	2.4
Secondary education	16	30.2	9	21.4
Tertiary education	37	69.8	32	76.2
Year of Experience				
1-5	6	11.3	1	2.4
6-10	14	26.5	1	2.4
11-15	20	37.7	6	14.3
16-20	9	17.0	25	59.5
≥ 20	4	7.5	9	21.4
Gender				
Male	39	73.6	31	73.8
Female	14	26.4	11	26.2
Family size				
1-3	6	11.3	-	-
4-6	32	60.4	12	28.6
7-9	15	28.3	29	69.0
>9	-	-	1	2.4
Cooperative				
Yes	53	100	41	97.6
No	-	-	1	2.4

180

181

182 The analysis in table 2 revealed the result of logit model used to determine the factor affecting access
 183 to credit in the study area. The result showed that age of respondents has significant and positive
 184 relationship with access to credit by the poultry egg farmers at 5% level of significance. This implied
 185 that as the age of Agroforestry farmers increases, they tend to gain more access to credit facilities. This
 186 is line with Chioma *et al.* (2017) that most of the farmers in Ogun State had access to credit facility
 187 which correspond with the age of farmers in poultry business.

188 **Table 2: Logit Regression Results on Factor Affecting Access to Credit in the Study Area.**

Sex	Coefficient	Std. Err.	z	P> z
X ₁ Age of farmer	.0902277**	.0451034	2.00	0.045
X ₂ Level of educ	.6057318	.5945613	1.02	0.308
X ₃ Family size	-.1179183	.2038809	-0.58	0.563
X ₄ Extension	.1686712	.248674	0.68	0.498
Constant	-5.412192	2.857995	-1.89	0.058

189

190 LR chi2 (4) = 7.26
 191 Prob > chi2 = 0.1230
 192 Log likelihood = -30.853653
 193 Pseudo R² = 0.1052
 194 **Sig at 5%

195 From table 3, the result revealed that the factors affecting output of poultry egg. It shows that age,
 196 family size and drug quantity are positively related to output at 10% and 1% level of significance. This
 197 implied that as age, family size and drug quantity used increases the output of Agroforestry farmers
 198 also increases. Marital status has negative impact on the farmers' output and there was significant
 199 relationship between marriage and output in poultry egg production. This implied that the married
 200 farmers have significant relationship with increasing output than with unmarried farmers. The R² value
 201 of 0.874 implied that the regressors accounted for 87.4% of the variations in the total output of credit
 202 access among Agroforestry farmers in poultry egg production. The result revealed that access to credit
 203 facility and socioeconomic characteristics had positive coefficient and significantly related to the

204 output. This was in line with Oladunni and Fatuase (2014) that as the level of socioeconomic
 205 characteristics increases the output efficiency in egg production also increases.

206 **Table 3: Determinants of Egg Production among Agroforestry farmers with Access to Credit.**

Coefficients^a

Model	Unstandardized Coefficients		Standardize d Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-16263.342	19703.56		-.825	.421
Sex	-1822.140	5420.843	-.017	-.336	.741
Age	1022.371*	518.335	.197	1.972	.066
Marital status	-7214.321*	3625.607	-.099	-1.990	.064
Level of education	-839.354	5721.680	-.008	-.147	.885
Family size	2687.434*	1395.594	.092	1.926	.072
Years of experience	-624.224	852.969	-.069	-.732	.475
Extension agent visit	-3340.544	1938.892	-.081	-1.723	.104
Feed quantity	-.204	.982	-.013	-.208	.838
Drug quantity	314.483***	54.838	.839	5.735	.000
Vaccine quantity	875.604	1373.566	.093	.637	.533

Dependent Variable: Output

$R^2 = 0.874$

Adjusted $R^2 = 0.858$

207 *Sig at 10%, **Sig at 5%, ***Sig at 1%

208 From table 4, the result showed the determinant of egg production among farmers with no access to
 209 credit. Drug quantity used was positively related to the egg production output and significant at 1%
 210 level. This implied that as the drug quantity used by the poultry farmers increases the total output of
 211 the farmer also increases. Family size has a negative relationship with the total output and significant
 212 at 5% meaning that they are at the third stage of production process with regard to family labour. The
 213 R^2 value of 0.829 implied that the regressors accounted for 82.9% of the variations in the total output
 214 of Agroforestry farmers with no access to credit facility which influences positively some
 215 socioeconomic characteristics especially the quantity of drug used.

216 **Table 4: Determinants of Egg Production among Agroforestry farmers with no Access to Credit.**

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	76533.371	46883.11		1.632	.119
Sex	-455.206	7462.633	-.004	-.061	.952
Age	1028.995	623.277	.136	1.651	.115
Marital status	-4082.389	4411.530	-.069	-.925	.366
Level of education	-9648.249	7990.910	-.084	-1.207	.242
Family size	-6203.229**	2663.314	-.190	-2.329	.031
Year of experience	-1736.480	1276.162	-.125	-1.361	.190
Extension agent visit	2266.173	2722.286	.058	.832	.415
Feed quantity	-.396	1.471	-.024	-.269	.791
Drug quantity	289.743***	66.986	.815	4.325	.000
Vaccine quantity	1028.491	1639.260	.108	.627	.538

a. Dependent Variable: Total Output

$R^2 = 0.829$

Adjusted $R^2 = 0.791$

217 Source: analysis from field survey 2016

218 *Sig at 10%, **Sig at 5%, ***Sig at 1%

219

220 **Constraints to Poultry Egg Production among Agroforestry farmers in the Study Area**

221 From table 5, the result revealed the constraints to poultry egg production in declining order of
 222 importance in terms of severity of the challenges. Respondents rated limited finance as the major
 223 problem confronting poultry farmers in egg production. This result is in tandem with the submission of
 224 Ovwigho *et al.* (2009) that lack of finance is often a major problem to both extensive and semi-
 225 intensive poultry production among poultry producers in Delta State Nigeria. This could be the major
 226 challenge to farmers from not being able to acquire the necessary inputs, especially fixed inputs for
 227 large scale production which attracts higher profit and efficiency. This in line with the reposition of
 228 Liu (2006) that technical efficiency of production was highly influenced by financial constraints. This

229 was because in addition to the quantity of inputs used, the timing of input usage also affects farm
 230 output. High Cost of Inputs was the next most important constraints identified by the respondents and
 231 it makes it very difficult for the existing farms to expand their scale of operation while the new ones
 232 are reluctant to go into the business. Also stocking of poor breeds of poultry was tantamount to waste
 233 of effort because such breeds are positioned to get infected with diseases than good breeds due to high
 234 cost of input.

235 **Table 5: Distribution of Challenges Encounter in Egg Production by Agroforestry farmers**

Constraint	Very severe	Severe	Moderate	Rank
Limited finance	15	2	21	1 st
High cost of input	17	8	10	2 nd
Poor quality of day old chicks	16	10	12	3 rd
Scarcity of raw materials for chicks	9	18		4 th
Lack of storage facilities	10	11		5 th
Marketing of product	2	10		6 th

236

237 **Conclusion**

238 It is therefore concluded that level of education, years of experience and membership of cooperative
 239 play significant roles in credit used on poultry egg production and the major source of credit to poultry
 240 farmers was from their personal savings. From the result of the regression analysis the determinants of
 241 poultry egg production are age, family size, drug quantity and marital status for farmers with access to
 242 credit as well as drug quantity and family size among poultry farmers with no access to credit while the
 243 major problem encountered by Agroforestry farmers was limited capital in poultry egg production.

244 **Recommendations**

- 245 i. The study identified poor saving ability of the farmers as the reason for credit inequality.
 246 Therefore, enhancing mobilization of savings and access to savings facilities to enable
 247 Agroforestry farmers to demonstrate financial stability and credit-worthiness. Savings enhance
 248 poor people's self-reliance and act as a safeguard against risk in times of emergency.

- 249 ii. Government should enact policy that would promote both formal and informal rural financial
250 institutions to extend equal credits to farmers as this will help to improve poor people's access
251 to appropriate and sustainable credit.
- 252 iii. Any measure adopted to reduce the cost of drug used in egg production will lead to increased
253 profitability. Research should focus on developing drug production at affordable cost for
254 agroforestry poultry egg producers.

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