

# EFFECTIVENESS OF AGRICULTURAL DEVELOPMENT PROGRAMME COMMUNICATION METHODS ON BROILER PRODUCTION TECHNOLOGY ADOPTION AMONG FARMERS IN ANAMBRA STATE, NIGERIA

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## Abstract

*Improved agricultural activities ensure food security at all levels and Agricultural Development Programme (ADP) in every state in Nigeria is saddled with the responsibilities of ensuring that up to date technologies are disseminated to farmers with a view to eradicating hunger. Broiler is among the popular livestock raised as means of income generation among farmers in the Southeast. However, little is known about the effectiveness of ADP communication methods on broiler production among farmers in Anambra State, therefore, the need for this study. Simple random sampling was used to select 90 farmers for the study and validated interview schedule was used for data collection. Findings reveal that only 39.3% of broiler farmers in Anambra State had post secondary education and the mean farming experience was 7.34 years. Among the six ADP communication methods identified, only three Results demonstration ( $3.48 \pm 0.90$ ); method demonstration ( $2.99 \pm 0.83$ ) and fellow farmers ( $\bar{X} 3.57 \pm 0.99$ ) were indicated to be effective for the adoption of broiler production technologies among farmers. Farmers' awareness of broiler technologies ( $b = 2.59$ ;  $t = 3.157$ ;  $p \leq 0.05$ ) was influenced by the ADP communication methods disseminated to farmers by the extension agents. It was observed that the effective ADP communication methods were interpersonal. It was therefore recommended that extension workers and other stakeholders should intensify efforts in using mass media as communication methods in order to reach out to large number of farmers.*

**Key words:** effectiveness, adoption, broiler production, technology

## INTRODUCTION

Nigerian agricultural technology transfer policy since political independence had emphasized the dissemination of technical innovations to farmers through various agrotechnology systems (Madukwe *et al*, 2002) [9]. Advanced technology can revolutionize global agricultural development. Developments in crop and animal production techniques could facilitate the rate at which products and processes which have been proved successful in developed nations can be adapted and adopted around the world particularly in developing countries such as Nigeria. Advances in technology consist of discovering new methods of production, developing new products and introducing new techniques (Maduekwe, 2010) [10]. These technologies can be transferred to farmers through adequate means of communication. Various technologies are being transferred by

the ADP to farmers in the study area. These technologies are in the areas of: housing orientation; bio- security; stocking and brooding; disease control and feeding. In spite of the abundance of poultry technologies developed by researchers and transferred by ADPs, poultry production in Nigeria is still far from actualizing its maximum potential (Apantaku, 2006) [2]. Sustained agricultural production in general and poultry production in particular cannot be realized in the absence of a solid and functional extension network with an efficient communication system. Effective communication of research results to farmers and feedback on farmer's field problems to research institutions is the primary role of extension service. The use of adequate communication methods by extension agents to reach farmers at their door step and make positive impression that will bring about the desired change in knowledge and practices are

still some of the key inputs necessary for improved broiler production among farmers. However, extension efforts to the farmers over several decades with beneficial research based agricultural technologies do not look to have made the expected impact in developing countries (Okunade and Oladosu, 2005) [14]. In Nigeria, the ADP is currently the prominent government funded agro-technology transfer outfit (Madukwe *et al.*, 2002) [9]. ADP transfers technologies in both crop and animal sections, the livestock development component is responsible for the development of improved technologies for lower ruminants and poultry production; these are extended to resource-poor farmers. Though ADPs in some states of the federation are experiencing poor funding and other challenges, a study conducted on the ADPs in Nigeria: status and policy implications by Auta, and Dafwang (2010) [3] shows that 63.6% of the ADPs have weak or very weak funding status. Despite the funding problems, 89% of the states paid visits to farmers, 68% established SPATs while 54% established OFARs in 2008. Also, MTRMs/QTRM, FNTs/MTs and MTPs were conducted by 86% of the states. Furthermore, Ifenkwe (2010) [8], states that investigation reveal that the ADPs of the nine states in South- East agro-ecological zone, Nigeria transferred extension messages and technologies on major livestock species such as; goat, sheep, poultry, cane rat and rabbits. The key technologies on poultry were based on; housing, feeds and feeding, health management, record keeping and artificial brooding.

Poultry farming also serves as part-time job to supplement the income of small and marginal farm families and that of other categories of workers (Chah *et al.*, 2013) [4]. The development of poultry industry has also been described as the fastest means of bridging the protein deficiency gap prevailing in the diets of Nigerians, however, poultry production in Nigeria is associated with numerous problems ranging from low egg production, disease and pests to low and poor performing breeds, poor weight gain/feed conversion, feeding and management problems and lack of capital (Mungube *et al.*, 2008) [11]. Many studies

conducted on the communication methods of the extension agencies on adoption in the area have focused mainly on crops with less attention given to livestock and poultry (broilers) in particular. Moreover, the extent of adoption of broiler technologies in Anambra State has not yet been fully established, thus the need for the study.

The purpose of the study was to ascertain the effectiveness of ADP communication methods on broiler production technology adoption among farmers in Anambra State with a view to unveiling among the technologies those that are effective. The study hypothesized that there was no significant influence of the ADP technologies on the adoption of broiler technologies.

## MATERIALS AND METHODS

The study was conducted in Anambra, State in South East zone of Nigeria. Agricultural production such as crop and livestock production is the major occupation of the people living in the rural communities of the State. Poultry production is almost a household business in the study area as large population of the farmers engaged in livestock production keep poultry at a small to medium scale level. The population of the study includes all the small scale poultry farmers in the state. There are 21 local government areas, and four extension zones in Anambra State. The zones are Awka, Anambra, Onitsha and Aguata extension zones.

Poultry (broiler) farmers were selected through a multi-stage sampling procedures follows:

1<sup>st</sup> step: Simple random selection of three extension zones from the State.

2<sup>nd</sup> step: Simple random selection of three extension blocks from each of the 3 extension zones (i.e. 9 extension blocks);

3<sup>th</sup> step: Purposive selection of one extension circle from each of the 9 extension blocks in the state based on the intensity of poultry production. (i.e. 9 extension circles);

4<sup>th</sup> step: Ten poultry (broiler) farmers were randomly selected from the 9 extension circles from each of the extension blocks in the State, making 90 respondents selected for the study.

However, 89 copies of questionnaire administered were returned.

Structured questionnaire was used to collect primary data from the respondents. Secondary data were obtained from the literature relevant to the study. Data obtained were described with descriptive statistics such as frequency counts and percentages while linear regression analysis was used to determine the influence of awareness on adoption. The model specification is given below:

The relationship explicitly was expressed as:

$$Y_i = f a + bX_1 \quad (1)$$

where:

$Y_i$  = Adoption score as dependent variable

$X_1$  = Awareness of technologies.

## RESULTS AND DISCUSSIONS

### Socio-economic characteristics of the respondents

Results in Table 1 show that about 68.5% of broiler farmers were male, while 31.5% of them were female. This findings show that male constituted the majority of broiler farmers in the study area. This finding conforms with the studies of Ifenkwe (2010) [8] that males dominated animal farm enterprise in Abia State. The male dominance may be due to the numerous responsibilities attached to women (child bearing, mother care and home maker) as identified in the gender analytical framework by Ogunlela et al. (2009) [13] and Abdullahi (2007) [1]. However, the findings disagreed with the reports of Chah et al., (2013) [4] that described poultry farmers in Enugu North Local Government Area as female dominated. The results also show that 9% of the respondents were less than 30 years of age while 47.2% and 29.2% of the respondents were within the age groups of 30-39 years and 40-49 years, respectively while only 11.2% and 3.4% of these farmers were within the age brackets of 50-59 years and 60-69 years of age respectively. The mean age was 49.19 years and the standard deviation was 12.10 years. This implies that broiler farmers in the study area were in their active and prime ages.

The implication of the findings is that they will be able to use their youthful characteristics such as innovativeness, quick reaction times and faster knowledge acquisition (Torimiro et al., 2003) [16] in the poultry management practices. This means that adoption of broiler technologies is expected to be high among them.

Table 1. Socio-economic characteristics of broiler farmers (N= 89)

Variable	F	%
<b>Sex</b>		
Male	61	68.5
Female	28	31.5
<b>Age (years)</b>		
<30	8	9.0
31-39	42	47.2
40-49	26	29.2
50-59	10	11.2
60- 69 and above	3	3.4
<b>Mean</b>		<b>49.19</b>
<b>Std. Dev</b>		<b>12.10</b>
<b>Education level</b>		
No formal education	14	15.7
Primary education	16	18
WASC	24	26.9
NCE/OND and above	35	39.3
<b>Experience (years)</b>		
0-5 years	31	34.8
6-10 years	35	39.3
11-15 and above	23	25.8
<b>Mean</b>	<b>7.34</b>	
<b>Std. Dev</b>	<b>2.27</b>	
<b>Kind of production</b>		
Full time	29	32.6
Part time	60	67.4

Source: Field survey.

### Level of adoption of broiler technologies

Result on table two shows that farmers had a high adoption level of broiler production technologies with a grand mean of ( $\bar{X}$  =3.10) in 'building orientation of poultry house'. Similarly, in 'sourcing for breeds', analysis shows that the grand mean of ( $\bar{X}$  =3.54) was recorded; implying a high adoption level (Table 2).

Furthermore, in 'stocking and brooding', farmers recorded a grand mean of ( $\bar{X}$  =3.49), farmers also recorded high level of adoption in 'prevention of diseases (bio-security)' with a mean value of ( $\bar{X}$  = 3.64) which is lower than the 2.5 benchmark. Furthermore,

'adequate feeding' also recorded high adoption by the farmers as was shown in the pooled mean of ( $\bar{X}$ =3.22). The pooled data indicate high level of adoption of broiler production technologies introduced to farmers in the study area. It could be recalled that farmers had high experience in broiler production.

Table 2. Distribution of respondents by their adoption of broiler technologies (N=89)

Variable	Mean	Std. Dev
<b>Adequate siting of poultry house</b>		
Long side backing sun direction	2.61	1.09
Siting house away from residential areas	2.87	1.07
Siting house in a noiseless area	2.84	0.89
Ensuring adequate ventilation	3.06	1.16
Ensuring safety of surrounding	3.60	0.54
<b>Pooled mean</b>	<b>3.10</b>	
<b>Sourceing of feeds</b>		
Getting fast growing breeds	3.64	0.48
Acquiring disease resistant breeds	3.53	0.50
Getting good breeds with high weight gain	3.46	0.57
<b>pooled mean</b>	<b>3.54</b>	
<b>Stocking and brooding</b>		
Stocking in batches	3.02	1.13
Maintaining adequate stocking density	3.33	0.82
Ensure adequate climatic environment	3.36	0.74
Effective monitoring	3.63	0.57
Providing the necessary brooding equipment	3.82	0.39
Ensuring adequate handling of chicks	3.77	0.42
<b>Pooled mean</b>	<b>3.49</b>	
<b>Prevention of diseases (bio-security)</b>		
Use of good litter material l(wood-shavings)	3.75	0.49
Effective use of disinfectants	3.68	0.47
Careful handling of birds	3.61	0.65
Effective disease control	3.49	0.63
<b>pooled mean</b>	<b>3.63</b>	
<b>Adequate Feeding</b>		
Giving the right feed at the right age	3.41	0.86
Giving the right quantity of feed	3.54	0.68
Giving good quality feed	3.45	0.73
Supplementing commercial feeds using local feeds materials recommended by ADP	2.31	1.31
Supplementing commercial feeds recommended by other bodies	3.41	0.86
<b>Pooled mean</b>	<b>3.22</b>	

Source: Field survey, 2016.  
 Mean  $\geq 2.5$  = High

This factors could be responsible for the high adoption level established in the findings of this study as Ekong (2010) [7], Deji and Koledoye (2013) [6], Yusuf (2009) [17], among other studies had documented the positive correlation that farming experience and awareness had on adoption of agricultural technologies.

#### Effectiveness of ADP's communication methods in transferring useful information on broiler technologies to farmers

Data on Table 3 reveal that method demonstration ( $\bar{X}$  =2.91; SD=1.01); result demonstration (Field day) ( $\bar{X}$  =3.48; SD=0.78), and fellow farmers ( $\bar{X}$  =3.57; SD=1.00) were the ADP communication methods rated effective in adoption of broiler production technologies among farmers.

Table 3. Distribution of farmers based on the effectiveness of ADP's communication methods in transferring useful information on broiler technologies to them ( N= 89)

Variable	Mean	Std. Dev
News bulletins	2.02	0.75
Village meetings	2.00	0.74
On- farm adaptive research	2.00	0.75
Method demonstration	2.91*	1.02
Result demonstration (Field ay)	3.48*	0.78
Fellow farmers	3.57*	1.00

Source: Field survey, 2016.

\*Mean  $\geq 2.5$  = Effective

This finding shows that interpersonal methods of communication are the best communication methods that would be effective in raising adoption of broiler production technologies among farmers. In agreement, the finding of Nwabueze, et.al (2012) [12] reports that friends (97.0%) and relatives (92.3%) showed relative effectiveness as information sources of fisher folk in Delta State.

#### Perceived effect of adoption of broiler technologies on farmers

Results in Table 4 show that adoption of broiler production technologies had the following effects on farmers: understand better how to manage birds ( $\bar{X}$  =3.66; SD=0.50), help birds to grow faster ( $\bar{X}$  =3.51;SD=0.50), increase farmers' supply of chicken(meat)to people ( $\bar{X}$  =3.51;SD=0.50), help farmers contribute to soil fertility ( $\bar{X}$  =3.73;SD=0.49),

improve farmers' income ( $\bar{X} = 3.69$ ;  $SD=0.47$ ), improve farmers' wellbeing ( $\bar{X} = 3.60$ ;  $SD=0.49$ ), help farmers contribute to protein intake of people around them ( $\bar{X} = 3.69$ ;  $SD=0.47$ ) and help farmers contribute to food security of Nigerians ( $\bar{X} = 3.22$ ;  $SD=0.91$ ). The grand mean of  $\bar{X} = 3.50$  indicates that adoption of broiler production technologies had a high effect on farmers.

Table 4. Distribution of respondents based on their responses on perceived effect of adoption of broiler technologies on them (N=89)

Variable	Mean	Std. Dev
Understand better how to manage the birds	3.66*	0.50
Help birds to grow faster	3.51*	0.50
Increases my supply of chicken (meat) to people	3.51*	0.50
Helps me contribute to soil fertility	3.73*	0.49
Improves my income	3.69*	0.47
Improves my wellbeing	3.66*	0.48
Helps me contribute to protein intake of people around me	3.69*	0.47
Helps me contribute to food security of Nigerians	3.22*	0.91
<b>Grand mean</b>	<b>3.50</b>	

Source: Field survey, 2016.  
 Mean  $\geq 2.50$  = High effect

This finding corroborates the study of Oyeyinka *et al.* (2011) [15] and Cheboi *et al.*, (2014) [5] that adoption of agricultural technologies and improved farming practices has significant impact on the farmers' productivities and livelihood means.

### **Influence of awareness of ADP communication methods on the adoption of Broilers production technologies**

Results in Table 5 show that farmers' awareness of ADP communications ( $t = 2.59$ ) was significantly related to the adoption of broiler production technologies in the study area at 0.01 level of significant. This shows that farmers that aware of these technologies stand the chance of adopting and this will invariably have positive effect on their production as reported earlier. The finding is in-line with the findings of Maduekwe (2010) [10] that reported that awareness of technology was a determinant of its adoption. The Nagelkerke R Square of 0.149 implies

that awareness of technology could explain about 14.9 percent variation in the adoption.

Table 5. Results of Linear regression analysis showing the awareness of ADP communication methods on the adoption of broiler technologies among farmers

Regressor	B	S.E.	t	Sig.
Awareness	2.59	0.820	3.157	0.01
Constant	3.67	0.976	3.760	0.01

Source: Field survey, 2016.

-2 Log likelihood= 345.301, Cox & Snell R Square= 0.370 and Nagelkerke R Square= 0.149

\*\* Significant at 0.01 level of significance

## **CONCLUSIONS**

The study therefore concludes that adoption of broiler technologies in the area studied had high effect on broiler production. Results and method demonstrations with fellow farmers were the ADP communication methods that had significant influence on the adoption of broiler production technology in the study area.

Based on the findings of the study, it was recommended that, since farmers already have positive disposition towards poultry technologies, through their adoption of the technologies, they should be encouraged to expand their production through better funding such as giving of grants and soft loans by government and other stakeholders. ADP should also intensify their effort on the use of those communication methods that influence farmers positively towards adoption of the technologies.

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