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Original Article

Farmer's perception of the effectiveness of extension communication channels in the dissemination of Agro-forestry Technologies in Ekiti state, Nigeria

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ABSTRACT

Effective communication channels must constantly assess the impact of their information delivery system to farmers' and design communication strategies that are effective in informing farmers' in a timely, clear, and effective manner to encourage awareness, acceptance and use of innovations. The study was designed to analyzed famer's perception of the effectiveness of extension communication channels in the dissemination of agro-forestry technologies in Ekiti State. Multi-stage sampling techniques were used for the study. Data were collected with administration of well-structured questionnaires and analyzed with descriptive statistics, Likert scale and Tobit regression analysis. The results showed that majority of the respondents are male (67.42%), educated (97.76%), married (73.41%) with average household size, farm size and farming experience of five persons, 2.8 hectares and 11 years, respectively. Group discussion ($\varkappa$ = 4.37; SD = 1.43), radio ($\varkappa$ = 3.81; SD = 1.39), television ($\varkappa$ = 3.74; SD = 1.56), and extension agents ($\varkappa$ = 3.51; SD = 1.21) were perceived by the respondents to be effective in dissemination of agro-forestry technologies to the farmers. Marital status ($P \leq 0.05$), educational level, household size, farm size ($P \leq 0.01$), and membership of cooperative ($P \leq 0.05$) are significant variables and determines farmer's perception of the effectiveness of extension communication channels in the dissemination of agro-forestry technologies. The study recommends that the use of group discussion, radio, television, and extension agents should be strengthened for proper and effective dissemination of agro-forestry technologies to the famers.

Keywords: Group discussion, radio, television, extension agent, effective communication

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INTRODUCTION

Agriculture is the bedrock of economic development in Nigeria. However, the development of the sector cannot be achieved without an efficient and effective extension system.[1] The policy focus of extension is the transfer of agricultural technology for agricultural development.[2] Agricultural extension brings about changes, through education and communication to alter farmer's attitude, knowledge, and skills in agricultural production.[3] The role of agricultural extension involves dissemination of information, building capacity of farmers through the use of a variety of communication method and help farmers make informed decisions.[4] Agricultural extension is basically a communication process which identifies needs and problems, constraints, and opportunities and develops appropriate ways for farmers to optimize resources use as a means of improving agricultural production and livelihood through adoption of recommended practices.[5]

Communication channels are pathways through which information or message is transmitted to an audience or receiver.[6] Effective dissemination of agricultural innovation depends on the complexity of the innovation and communication channels used to create awareness of its existence and encourage its adoption.[7] Availability of

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accessible communication channels is therefore critical in the dissemination that will serve to develop the agricultural system in Nigeria through technology transfer.[8]

Technology refers to an intervention either by modifying an existing system or practice or development of new ones.[8] According to International Centre Research for Agroforestry.[9] agro-forestry within the context of a dynamic natural resources management system that integrates perennial trees and crops on the same farm with or without animals for sustainable production, increased socio-economic and environmental management by means of vital extension services. Extension services on the other hand, need to maximize the benefit of effectively utilizing appropriate communication channels to disseminate agro-forestry information for poverty reduction and improved livelihood among farmers in Nigeria.[3]

Studies have shown that communication channels used for dissemination have a positive relationship with behavioral change and improved adoption rates among rural farmers.[10] These channels offer an opportunity for extension services to effectively disseminate recommended agro-forestry practices to the farmers who use them. There are numerous accessible channels available to farmers in Nigeria. They include radio, television (TV), training and visit (T and V), demonstration plots among others.[10]

Extension services in Nigeria have not been able to effectively use the available communication channels such as radio, TV, T and V, face-to-face, and demonstration plots to diffuse and disseminate recommended agro-forestry practices among farmers. At present, most extension communication systems lack effective messages or are inappropriate and least preferred by farmers. Dissemination of quality and right information at the appropriate time among farmers is key to providing change in agriculture.[11] The agricultural sector is strategic and crucial to rural development and contributes significantly to any initiative to alleviate poverty. For this reason, there is a great need for effective extension and advisory services.

Extension services can be organized and delivered in a variety of forms, but their ultimate aim is to increase farmers' productivity and income.[12] However, farmers are often blamed for poor adoption of extension services and success or failure is based on the level of adoption without considering the effectiveness of extension delivery mechanisms. According to Ajala *et al*.,[13] there are numerous problems facing the agricultural extension service such as high level of illiteracy among farmers which sometimes make it difficult for them to comprehend all the ideas being communicated to them. Even after communicating the ideas, some of the farmers cannot subsequently translate the ideas to practice. In the same vein, most of the farmers are conservative and are not ready to accept any positive changes.

Effective extension communication channels must constantly assess the impact of their information delivery system to farmers' and design communication strategies that are effective in informing farmers' in a timely, clear, and effective manner to encourage awareness, acceptance, and use of innovations. Most studies have focused on factors influencing adoption but not use of communication channels and this creates a knowledge gap. Therefore, the focus of this study was to analyze farmer's perception of the effectiveness of extension communication channels in the dissemination of agro-forestry technologies in Ekiti state, Nigeria.

The objectives of the study are as follows:

i. To describe the socio-economic characteristics of agro forestry farmers in the study area;
ii. To evaluate famers perception on the effectiveness of the extension communication channels used in the dissemination of Agro-Forestry Technologies;
iii. To determine Socioeconomic factors influencing farmers' perception on effectiveness of extension communication channels.

Hypothesis of the Study

The hypothesis of the study is stated in null form as follows:

Ho: There was no significant relationship between the socioeconomic factors and farmers' perception of the effectiveness of the extension communication channels.

METHODOLOGY

Study Area

The study was carried out in Ekiti State [Figure 1]. The state is an agrarian state in southwest Nigeria with 16 Local Government Areas. It is located between longitudes 40° 51' and 50° 151' East of the Greenwich meridian and latitudes 70° 151' and 80° 51' North of the equator. The state has a total land area of 5887.89 sq km. The population is 8, 159, 476 people as at 2006 census figure with a projected growth rate of 3.2.[14] The state is further divided into three political (senatorial) zones, namely: Ekiti North; Ekiti South; and Ekiti Central.[15] Agricultural production is the main occupation of Ekiti people. They produce crops such as cassava, yam, maize, rice, kola nut, and cocoa among other farm products. Many other residents of the state are either civil servants or traders. Among the different occupations agriculture is the most important source of employment as it employs over 75% of the people. The state also has abundant forest resources, notably timber due to the favorable climatic condition in the areas. Ekiti and Ondo State according to Faleyimu *et al*.[16] have 37 forest reserves covering about 305, 541 hectares. The people of Ekiti are Yoruba speaking and have a rich culture comprising many aspects including music, dance, mode of dressing, cooking, and respect for elders. Among the Yoruba people of

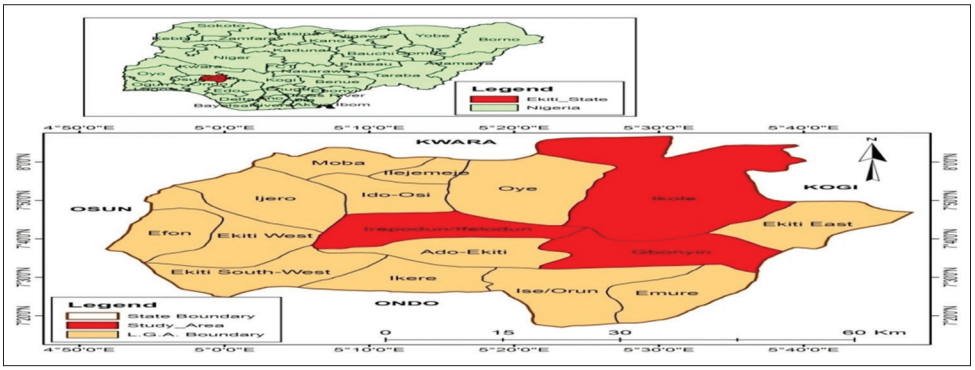

Figure 1: Map of Nigeria showing Ekiti State and the study area

South Western Nigeria, the people of Ekiti are known for their high educational attainment. The major religion practiced in Ekiti State is Christianity followed by Islam and the African Traditional Religion.

Sampling Techniques

All the three Senatorial districts, namely, Ekiti North, Ekiti South, and Ekiti Central were used for the study. Multi-stage sampling procedure was used in the selection of respondents for data collection. In the first stage, one Local Government Area was purposively selected from each Senatorial districts based on the extent of agro forestry practices in the area. In the second stage, five villages were selected randomly in each Local Government Area making a total of 15 communities. Finally, a random selection was used to select 35% of the total population of agro forestry farmers in each selected village making a total of 267 out of 758 [Table 1].

Methods of Data Collection

The primary data used for the study were collected through the use of structured questionnaire administered to 267 agro-forestry farmers. The questionnaires were designed in line with the objectives of the study and it consists of both open and closed ended questions. The questionnaires were subdivided into: Socioeconomic characteristics, famers perception on the effectiveness of the extension communication, and socioeconomic factors influencing farmers' perception on effectiveness of extension communication channels.

Data Analysis

Data were analyzed with descriptive statistics, Likert scale, and Tobit regression analysis.

Descriptive statistics such as frequency distribution, percentages, mean and tables was used to describe the socio-economic characteristics of agro-forestry farmers. 5-Points Likert scale, namely, highly effective, effective, moderately effective, less effective, and ineffective, which were assigned scores of 0.5, 0.4, 0.3, 0.2, and 0.1, respectively, was used to rate effectiveness of extension communication channels used by extension personnel for the dissemination of agro-forestry technologies among the farmers.

Table 1: Population and sample size of Agro-forestry farmers selected for the study

Senatorial district	LGA	Villages	Sampling frame	Sample size (35%)
Ekiti North	Ikole	Odoro	50	18
		Ayebode	60	21
		Ikole	35	12
		Ijesa-Isu	70	25
		Ayedun	51	18
Ekiti South	Gboyin	Ode	37	13
		Ijan	55	19
		Iro	63	22
		Agbado	22	8
		Aisegba	45	16
Ekiti Central	Irepodun, Ifeolodun	Igede	42	15
		Awo	57	20
		Iyin	63	22
		Afao	40	14
		Iworoko	68	24
Total			758	267

Tobit regression analysis was used to determine the socio-economic factors influencing farmer's perception of the effectiveness of communication channels and to test the hypothesis:

The conceptual Tobit model can be specified as;
$yi^* = X\beta + \varepsilon i$
$yi = yi^*$ if $yi^* > 0$
$yi = 0$ if $yi^* \leq 0$

yi is the observed dependent variables indicating the effectiveness of extension communication channels used in the dissemination of agro-forestry technologies, yi* is the

latent dependent variables, xi is the vector of the independent variable, β is the vector of coefficients, εi is assumed to be independently normally distributed: ε ~ N(0,) and therefore yi ~ N (Xiβ,).

The effectiveness of extension communication channels used in the dissemination of agro-forestry technologies (yi) was measured using Likert scale of ineffective = 0.1, less effective = 0.2, moderately effective = 0.3, effective = 0.4, and highly effective = 0.5.

The explanatory (xi) variables include:
X_1 = Age of the respondents (Years)
X_2 = Sex (Male = 1, Female = 0)
X_3 = Marital status
X_4 = Educational level (Years of Schooling)
X_5 = Farm Size (Hectares)
X_6 = Farming experience (Years)
X_7 = Household size (Number of people in the Household)
X_8 = Extension contact (Number of visit to the farm)
X_9 = Amount of credit obtained (Naira)
X_{10} = Cooperative membership (Years of membership of cooperative)

RESULTS AND DISCUSSION

Socioeconomic Characteristics of Agro Forestry Farmers in the Study Area

The socio-economic characteristics of agro forestry farmers in the study area are presented in Table 2. Table 2 showed that 44.57% of the respondents are within the age of 21–40 years of age while the average was 38 years. This shows that the farmers fall within economically active age of ≤40 years and can stand the demands for agro-forestry technology adoption. Minot and Ngigi[17] explains that age may be associated with accumulation of skills, more experience and accumulation of assets thereby allowing the participants to increase their productivity. The result of gender distribution was largely skewed to male famers with 67.42% been male while 32.58% are female. This corroborates the finding of Ariyo *et al*.[18] on assessment of the role of mass media in the dissemination of agricultural technologies among farmers in Kaduna state revealed that 59.3% of the respondents are male while 40.7% are female.

Marital status of the respondents revealed that 73.41% are married, 20.22% are single, and 6.37% are widow. Marital status may influence the size of households as married farmers may have larger household sizes which may encourage them to participate and adopt agro-forestry to raise their income and standard of living. The significance of marital status on agricultural production and livelihood activities can be explained in terms of the supply of agricultural family labor. It is expected that family labor would be more available

Table 2: Socio-economic characteristics of agro forestry farmers in the study area

Socio-economic variables	Frequency *n*=267	Percentage	Mean
Age			
Less than 20	30	11.24	
21–30	30	11.24	
31–40	89	33.33	
41–50	59	22.10	
51–60	53	19.85	
61–70	6	2.25	
Mean			38
Gender			
Male	180	67.42	
Female	87	32.58	
Marital status			
Married	196	73.41	
Single	54	20.22	
Widow	17	6.37	
Educational status			
Non-formal education	6	2.25	
Primary	5	1.87	
Secondary	54	20.22	
Tertiary	202	75.67	
Agro-forestry farming experience			
1–10	143	53.56	
11–20	76	28.46	
21–30	42	15.73	
31–40	6	2.25	
Mean			11
Household size			
1–3	90	33.71	
4–6	70	26.22	
7–9	65	24.34	
10–12	30	11.24	
13–15	12	4.49	
Mean			5
Farm size			
1–3	196	73.41	
4–6	53	19.85	
7–10	18	6.74	
Mean			2.8
Extension contact			
No contact	128	47.94	

(Contd...)

Table 2: ***(Continued)***

Socio-economic variables	Frequency *n*=267	Percentage	Mean
Contact	139	52.06	
Once	24	17.27	
Twice	60	43.17	
Thrice	19	13.67	
Four times	18	12.95	
Five times	12	8.63	
Six times	6	4.32	
Mean			3
Membership of cooperative			
Non-Member	129	48.31	
Members	138	51.69	
1–3	54	39.13	
4–6	54	39.13	
7–9	6	4.35	
10–12	18	13.04	
13–15	6	4.35	
Mean			5

where the household heads are married *ceteris paribus*. This finding is in line with[19] who worked on evaluation of factors influencing the utilization of extension services provided by Adamawa Agricultural Development and Investment Limited to Maize farmers in Adamawa, State, Nigeria revealed that high proportions (75.8%) of the respondents were married, 13.0% widowed, 7.6% single, and 3.6% divorced.

The level of education which was measured in years is important as it is directly related to ability to acquire new skills. The table showed that majority (75.67%) of the farmers had tertiary education, 20.22% had secondary, and 1.87% had primary education. The percentage of respondents with non-formal education was 2.25%. This indicated that most of the farmers in the study area are highly educated. The implication of this is the greater potential of adoption of innovations and easy access of information. Furthermore, more educated farmers are typically assumed to be better able to process information and search for appropriate technologies to alleviate their production constraints. The belief is that education gives farmers the ability to perceive, interpret, and respond to new information much faster than their counterparts without education.

The years of experience in agro-forestry faming as revealed in Table 2 showed that majority (53.56%) of the respondents had experience ranging between 1 and 10 years while 28.46% had experience between 11 and 20 years. The average years of experience in agro-forestry faming by the respondents was 11 years. This showed that most of the respondents had farmed for a reasonable number of years as would enable them to be abreast with agro-forestry technology. In term of household size, majority (50.56%) had household size between 4 and 9 while 33.71% of the respondents had household size of 1–3. The average household size recorded for all the respondents was five. This indicates that the respondent has a moderate household size. The size and composition of the household is an important variable in agricultural production because it suggests available labor force or pressure on land. In general, a large household may imply high labor availability for different activities especially with high proportion of working adults and also more mouths to feed.

Farm size was measured by area of crops grown. It is the measure of availability of land for agricultural production. The result in Table 2 further showed that majority (73.41%) of the respondents had land holding of between 1 and 3 hectares. The analysis further revealed that the mean farm sizes recorded during the survey was 2.8 hectares implying that these farmers still fall within the range of smallholder farmers. Farm size is an indicator to the level or scale of production of an individual farmer. Under subsistence agriculture, farm size is expected to play a significant role in food availability because size of the land under cultivation will determine the size of food production. The finding of this study is consistent with Ekong[20] who reported that most Nigerian farms are small-sized family farms in which family members contribute the required labor.

Information on extension agent contact from Table 2 revealed that 52.06% of the respondents had contact with extension agent while 47.94% do not have contact with extension agent. The maximum extension contact observed was 6 times with an average contact of 3 times. Frequent contacts between farmers and extension agents create more awareness and reduce difficulty in the adoption process. Contact with the extension can lead to improvement in food production as a result of information on improved agricultural technologies which would enhance greater productivity.

The analysis of membership of cooperative society showed that majority (51.69%) are members of cooperative association while 48.31% are non-member. The average number of years spent as a member was 5 years with 78.26% of the respondents having between 1 and 6 years of membership. The implication of this result is that most of the farmers in the study area will enjoy the benefits accrued to cooperative societies through pooling of resources together for a better expansion, effective management of resources and farms. Membership of cooperatives societies has propensity to provision of credit facilities. People come together to pool their resources so as to meet individual needs that could not be resolved by individual limited financial capacity.

Farmers' Perception of the Effectiveness of the Extension Communication Channels used in the Dissemination of Agro-Forestry Technologies

Perception of the famers on the effectiveness of extension communication channels used in the dissemination of agricultural technology was evaluated with the use of 5-points Likert scale. The scale was rated on "highly effective," "effective," "moderately effective," "less effective," and "ineffective." The ratings were assigned scores of 0.5, 0.4, 0.3, 0.2, and 0.1, respectively. The ranking of different extension communication channels was done on the basis of their weighted score as found in Table 3. Table 3 showed that group discussion ($\varkappa$ = 4.37; SD = 1.43), use of radio ($\varkappa$ = 3.81; SD = 1.39), TV ($\varkappa$ = 3.74; SD = 1.56), and extension agent ($\varkappa$ = 3.51; SD = 1.21) were perceived by the farmers to be effective in dissemination of agro-forestry technology to the farmers. Agricultural information passed through an extension services therefore, reduces the level of uncertainty about a technology's performance that may change farmers' assessment to purely objective than subjective over time, thereby, facilitating adoption. Group discussion methods are usually well suited to bringing specific information about practices, helping to move the individual through the desire for conviction and sometimes for taking action. Radio and TV methods attract attention and stimulate the interest and desire for further information. They are the methods used to reach many people at different locations at the same time. This finding is in line with Farinde[21] who reported that group meetings, individual contact methods, farm visits, and radio were mostly employed in teaching farmers improved agricultural practices and creating awareness about new farm technologies.

The coefficients of variation of group discussion (32.6), radio (31.7), TV (32.6), and extension agent (27.6) which are adjudged to be effective in dissemination of agroforestry technology to the farmers were low and are within the 33% permissible upper fiducial limit of coefficient of variation. According to Johnson and Welch,[22] the low coefficient of variation is a reflection of reliability (precision) of the result. Johnson and Welch[22] reported that for a normal distribution, the ratio of mean to standard deviation (SD) should be of order of three or more.

Table 3: Farmers' perception of the effectiveness of the extension communication channels used in the dissemination of agro-forestry technologies

Communication channels	WS	MS	SD	CV	Decision
Group discussion	968	4.37	1.43	32.6	Effective
Radio	879	3.81	1.39	31.7	Effective
Television	856	3.74	1.56	32.6	Effective
Extension agent	843	3.51	1.21	27.6	Effective
Demonstration	820	2.49	0.89	35.7	Less effective
Cooperative	521	2.45	1.61	36.8	Less effective
Visit	468	1.91	1.87	42.7	Less effective
Newspaper	440	1.87	1.45	33.1	Ineffective
Phone	319	1.3	1.86	42.5	Ineffective
Campaign	305	1.25	1.81	41.3	Ineffective
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WS: Weighted score, MS: Mean score, SD: Standard deviation and CV: Coefficient of variation

The study further revealed that the following extension methods were perceived to be less effective by farmers, demonstration ($\varkappa$ = 2.49; SD = 0.89), cooperative ($\varkappa$ = 2.45; SD = 1.61) and visits ($\varkappa$ = 1.91; SD = 1.87). While, newspaper ($\varkappa$ = 1.87; SD = 1.45), phone ($\varkappa$ = 1.30; SD = 1.86), and campaign ($\varkappa$ = 1.25; SD = 1.81) were perceived to be ineffective by famers in the study area. The implications of the findings are that most of extension methods used by agricultural advisors in the study area are effective. It will be imperative to ensure that methods regarded to be effective are mainly used to deliver extension messages. Many situations and factors affect the choice of extension methods to be used. Such situations include, nature of subject matter, amount of time the extension worker intends to devote to the method and the time the farmers can devote, reinforcement, steps in extension teaching, materials and possible teaching situation available, preference and ability of the extension worker to perform successfully on the various methods and evaluate performance.

Determinants of Socio-economic Factors Influencing Farmers' Perception on Effectiveness of extension Communication Channels

Tobit regression analysis was used to estimate the parameters of the socioeconomic factors influencing farmers' perception on effectiveness of extension communication channels. Nine variables such as age, gender, and marital status, educational level, farming experience, household size, farm size, extension contact, and membership of cooperative were used in the analysis. The DECOMP based fit measure was 0.398, suggesting that the model has a fairly good fit to the data. This indicates that about 40% variation in effectiveness of extension communication channels was explained by variations in the specified explanatory variables, suggesting that the model has fairly good explanatory power on the changes in effectiveness of extension communication channels among the respondents with 95% level of confidence. The maximum likelihood function exhibited appropriate sign (−153.38**)** and significant (Table 4**)**, meaning that the explanatory variable included in the model explain the farmers' perception of the effectiveness of the extension communication channels. Variables with negative signs implies that a unit increase of the variables will lead to a reduction in the effectiveness of extension communication channels used while a unit increase of the variables with positive signs will lead to an increase in the effectiveness of extension communication channel used in the dissemination

Table 4: Factors influencing farmers' perception on effectiveness of extension communication channel

Variable	Coefficient	Standard error	*t*-value
Constant	1.046	0.121	8.610***
Age	−0.001	0.004	−0.250^{NS}
Gender	0.019	0.028	0.670^{NS}
Marital status	−0.053	0.002	−2.280**
Educational level	0.142	0.032	4.483***
Farming experience	0.002	0.009	0.223^{NS}
Household size	0.023	0.005	4.799***
Farm size	−0.056	0.009	−6.119***
Extension contact	0.011	0.054	0.204^{NS}
Membership of cooperatives	0.007	0.003	2.124**
Sigma	0.212	0.010	21.452***
Numbers of observation	276		
Log likelihood function	−153.38		
Info. Criterion AIC	0.0072		
ANOVA base fit measure	0.346		
DECOMP base fit measure	0.3985		

***0.01, **0.05, NS: Not significant

of agro-forestry technology. The coefficients of the significant variables and their sighs are explained below:

The coefficient of marital status was negatively related to the effectiveness of extension communication channels and statistically significant at ($P \leq 0.05$) probability level. This showed that households with married people were less likely to effectively utilize different extension communication channels than their counterparts. This may be due to the fact that the married people are more likely to be older than the single people. It is well established that the age of the household head affects the productive capacity of small-scale farmers.[19] People who are predominantly below midlife could be regarded as potentially productive farmers with a greater capacity to adopt new technologies as compared to their older and married counterparts.

The coefficient of educational level was positive and statistically significant at $P \leq 0.01$ probability level. This means that the higher the educational attainment of the respondents the higher the effectiveness of extension communication channels. This was justified because the larger proportions of the respondents in the study area are educated.

The coefficient of household size was positive and statistically significant at ($P \leq 0.01$) probability level. Thus increase in family size increase the effectiveness of extension communication channels. Lager household size may have needs to adopt more agro-forestry technology. Family size has been recognized to play a vital role in adoption and utilization of any particular technology or farm practice.[23] On the one hand, family provides the human labor and management inputs. This can affect the level of use of technologies in terms of quality of management decision and the availability of labor required by any technology.

The coefficient of farm size was negative and statistically significant at ($P \leq 0.01$) probability level. This implied that increase in farm size decreases the effectiveness of extension communication channels. This was contrary to apriori expectation and could be due to the fact that majority of the respondents are small holder famers and cultivate less that 3 hectares of land. Reddy *et al*.[24] observed that greater efficiencies in the use of resources are associated with large farms than small farms. They pointed out that the smallness of holdings deters the use of mechanization and does not allow the use of modern inputs due to lack of purchasing power in the hands of small farmers.

Membership of cooperative has positive coefficient and statistically significant at ($P \leq 0.05$) level to the effectiveness of extension communication channels. This implies that respondents belonging to agricultural social group tend to comprehend extension communication and utilized extension services than those that did not belong to any agricultural social groups. This is because social group tends to enhance the chances of famers having access to better crop production techniques, improved inputs, as well as other production incentives that positively affect farm productivity and production. Asogwa[25] observed that high level of technical inefficiency among small-holder farmers in the rural and semi-urban areas of Nigeria were highly attributable to low availability of social group, extension services and information about technical aspects of crop technologies. Furthermore, this result rejected the null hypothesis which says socioeconomic characteristic have no significant influence on farmers' perception of the effectiveness of the extension communication channels at 5% level of probability and the alternate hypothesis accepted.

CONCLUSIONS AND RECCOMENDATION

It can be concluded from the findings of the study that majority of the respondents are male, married, with average household size of five persons. They had tertiary education, average farming experience of 11 years and cultivated average farm size of 2.8 hectares with maximum extension contact of 6 times and average contact of 3 times per respondent. Group discussion, radio, TV and extension agents were perceived by the respondents to be effective in dissemination of agro-forestry technology to the farmers. It can be concluded further that marital status, educational level, household size,

farm size, and membership of cooperative are the factors that determine farmer's perception of the effectiveness of extension communication channels in the dissemination of agro-forestry technologies. The study recommends that the use of group discussion, radio, TV, and extension agents should be strengthened for proper and effective dissemination of agro-forestry technologies to the famers.

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