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PREFERENCE OF EXTENSION DELIVERY METHODS USED IN THE ADOPTED VILLAGES OF THE NATIONAL AGRICULTURAL EXTENSION AND RESEARCH LIAISON SERVICES IN KADUNA STATE, NIGERIA

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ABSTRACT

The study investigated the extension delivery methods practiced in the Adopted Villages of National Agricultural Extension and Research Liaison Services in Kaduna State, Nigeria. Multistage sampling procedures was employed in selecting 260 out of the 7,075 farmers registered in the Adopted villages for the study. Both primary and secondary data were used in the study. Primary data were collected through structured questionnaire while secondary data were obtained from records of NAERLS. Data collected were analysed using frequency counts, percentages and regression. Higher percentage of the respondents were male (57.2 %), married (80.6%) and aged between 31 – 40 years (42%). Farm and home visit was the most preferred extension delivery method by the respondents. Irregular visit by extension agents was the major constraint of extension delivery method. Majority of the respondents (80%) opined that they understood message best when it is face to face and that personal letter was not an appropriate extension method for them. Age, education, household size, farm size, farming experience and land acquisition method had positive coefficients and significant at 5% level of the relationship with preferred extension delivery method. The study recommended that adult education programmes should be promoted in the adopted villages because farmers' education could enhance agricultural productivity. Also, more extension agents should be employed and sent to the adopted villages to educate farmers on how to improve their productivity.

Keywords: Extension Methods, Adopted Villages, Rural Development, Smallholder Farmers

INTRODUCTION

According to the West African Agricultural Productivity Programme (WAAPP, 2015), the adopted village concept involves the process of technology transfer and adoption of the improved packages released by the National Agricultural Research Institutes (NARIs) to the farming communities around the NARIs. The approach brings together researchers and extension agents working on the farmers' field to provide solution to the identified field problems. This approach is beneficial to the farmers because they are involved in the planning, developing and dissemination of new technology, which lead to adoption of the technology. The approach also demonstrates the impact of group activities on productivity in farming community as a whole. Information on technologies are being disseminated to the beneficiaries in the adopted villages through the NARIs mainly on the following commodities: maize, rice, cassava, yam, sorghum, aquaculture and poultry (Atala and Hassan, 2012).

The National Agricultural Extension Research and Liaison Services (NAERLS) is one of the Agricultural Research Institutes in Nigeria and one of four Agricultural Research Institutes run under the university system. The Institute has been existing as an autonomous Agricultural Extension and Research Liaison Services since 1975. In 1989, the then Federal Ministry of Science and Technology gave it the national mandate to cover the extension services for the entire country. The NAERLS currently uses three approaches to extension dissemination methods which are

participatory, demand driven and Training of Trainers (TOT). Some of the extension methods used by NAERLS in technology dissemination include: Farm and home visits, Farmers call or office call, personal letter/telephone call, result demonstration, method demonstration, group meeting, field day or farmers day, broadcast media, TV, Print media Leaflet, bulletin, guides, newsletter, magazine, projected media, film, video exhibition, campaign, mass meeting and agricultural festival and National farmer's helpline.

For efficient extension service, it is important to identify the most effective extension delivery method so as to reduce inefficiency in extension service delivery. For extension educators and communicators, it is particularly important to identify and examine the usefulness of each delivery method. Knowledge about the usefulness of delivery methods will not only help to identify the information needs of farmers but also assist in developing educational resources to effectively communicate with farmers and other clientele.

The NAERLS has a mandate of delivering agricultural technologies to farmers in its area of jurisdiction. This, it does through its extension department. The department uses variety of methods in disseminating the technologies to farmers. These methods have different levels of appropriateness in their appeal to farmers. Naturally, extension delivery methods are first prepared by subject matter specialist and forwarded to Extension agents in order to transfer information to farmers on the field. In preparing the extension methods, they are selected generally based on the new technologies



being disseminated to the farmers. Technologies and technology delivery approaches designed by scientist at research institutes are not necessarily appropriate to or in tandem with expectations of farmers. There is therefore, the need to find out the farmers' point of view on what method best suits them.

The specific objectives are therefore to:

- i. describe the socio-economic characteristics of farmers in the study area;
- ii. identify the preferred extension delivery methods among farmers in the study area;
- iii. determine the relationships between the preferred extension delivery method and socio-economic characteristics of the farmers; and
- iv. identify the problems associated with extension delivery method to farmers.

METHODOLOGY

The study area is located in Kaduna State. The study was conducted in NAERLS adopted villages in Kaduna State. The adopted villages for NAERLS in Kaduna State are situated in Giwa, Sabon Gari and Zaria Local Government Areas. It has a projected population of 1,473,636 people

based on 2006 population census (NPC, 2006). The study area is characterized by a tropical climate with two main seasons; a rainy season (May to October) and a dry/harmattan season (November to April). The monthly mean temperature records show a range from 13.8 to 36.7°C and a mean annual rainfall of 1092.8 mm (Delia *et al.*, 2019). There is also the predominance of grasses and browse shrubs in the area. Major crops cultivated in the area include maize, sorghum, millet, cowpea, rice, ground- nut, soybeans, cotton and vegetables. Agriculture forms the principal means of livelihood for most of the working population in the area. Livestock keeping is a common activity among most households in the area, ranging from poultry, cattle, goats and sheep.

The population for the study is the entire farmers in all the adopted villages of NAERLS in Kaduna State (7,075) who are spread across three local government areas of the state namely Giwa, Sabon Gari and Zaria. Giwa local government has 43 Adopted Villages with 3,225 Farmers; Sabon Gari has 35 Adopted Villages with 2625 farmers and Zaria has 7 Adopted villages with 1225 respondents. Random sampling technique was employed for this study to select 260 respondents proportionately from the three local government areas.

Table 1: Table of Sampling Frame

Local Government Areas	Registered Farmers in each LGA	Proportion Selection ($\frac{260}{\text{Total population}} \times \text{farmers in LG} = \text{Sample}$)
Giwa	3225	119
Sabon Gari	2625	96
Zaria	1225	45
Total population	7075	260

Field survey, 2018

The primary data were collected with the aid of questionnaires. Data were collected on the socio-economic characteristics of the farmers, as well as on the extension methods through which the respondents get information. Secondary data were obtained from NAERLS published materials, textbooks, book of proceedings of conferences and relevant websites on the population of the study, location, relevant literatures and sample size. The SPSS version 16 was used to analyse the data. Chi-square inferential statistics was used to test the relationship between socio-economic characteristics of the farmers and the preferred extension delivery method.

RESULTS AND DISCUSSION

Table 1 shows the distribution of the farmers in the adopted villages by their socioeconomic characteristics. The results reveal that more than half of the respondents (57.2%) were male. This suggests male predominance in farming activities in the adopted villages. This is expected

because the culture and religion of the area have placed male as head of households. Also, the female in the adopted villages were 42.8% showing an improvement in women participation in agriculture compared to previous studies by Salifu *et al.* (2016). This came as a result of the economic and security situation of the country which makes women to also take part in helping their families financially. The mean age of respondents was 41 years and the standard deviation is 44.6, meaning that the farmers in adopted villages are adults and responsible for the upkeep of their families. It is also in line with the findings of Okwu and Daudu (2011), who showed that the middle-aged group of 40 to 59 years has the highest frequency stating that the respondents were adults. The implication of this result show that respondents are adults and can make decisions on their own on the choice of extension method. Majority of the respondents (80.6%) were married, 11.6% were single and few (7.8%) were divorced. This showed that a large proportion of the farmers in the adopted villages were married and therefore,

implies that married people were mostly involved in agricultural production. High percentage (64.3%) of the respondents had one form of education or another, with 43.4% attaining secondary school level and above. The mean household size of respondents was 7 persons. This fairly large household size is expected as most farmers depend on family members for farm labour and less on hired labour. Most of the respondents (57.4%) had farm sizes of 1 – 2 hectares. The mean value of years of experience is 11 years which shows that the respondents were more experienced in farming. This

is in line with Oluwatayo, Sekumade, and Adesoji (2008) who noted that farmers with more experience are more efficient, have better knowledge of climatic conditions and market situation and are thus, expected to run a more efficient and profitable enterprise. Lastly, the result for the means of land acquisition revealed that about 41.5% of the respondents acquired land through inheritance, 29.1% got it through rent, 24.8% percent acquired it by purchase while only a few (4.7%) were gifted land for free.

Table 2. Socioeconomic characteristics

Socioeconomic characteristics	Frequency	Percent	Mean	SD
Gender				
Male	149	57.2		
Female	109	42.8		
Age of the respondents (years)				
Less than 20	13	5.0		
20-30	25	9.7		
31-40	110	42.6	41	44.6
41-50	89	34.5		
51 and above	21	8.1		
Marital Status				
Married	208	80.6		
Single	30	11.6		
Divorced	20	7.8		
Education				
No formal education	92	35.7		
Adult education	41	15.9		
Primary school	54	20.9		
Secondary Education	65	25.2		
Tertiary education	6	2.3		
Household size				
1-3	45	17.4		
4-6	78	30.2		
7-10	117	45.3	7	
>10	18	7.0		
Farm size				
1-2	148	57.4	2	
3-4	60	23.3		
5-6	38	14.7		
7 and above	12	4.7		
Years of farming experience				
1-10	97	37.6		
11-20	126	48.8		
21-30	23	8.9	11	
31-40	6	2.3		
41 and above	6	2.3		
Means of land acquisition				
Inheritance	107	41.5		
Rent	75	29.1		
Purchase	64	24.8		
Gift	12	4.7		

Source: Field Survey, 2018

Preference of extension delivery method

The extension delivery methods preferred by the farmers in the study area are presented in table

2. Farm and home visit was the most preferred (81.4%) extension delivery method by the farmers in the adopted village followed by results/method



demonstration (79.5%). The percentage of respondents who chose group meeting, agricultural festivals and farmer field day as the most preferred method of extension delivery are 77.5%, 73% and 72%, respectively. This is in addition to the respondents who preferred personal letters, public campaigns, radio/television and telephone calls accounting for 58%, 57%, 56% and 50% of the respondents, accordingly. The possible reason for the preference of farm and home visit is linked to the

situation whereby farmers in rural areas prefer one-on-one contact with extension workers as they adopt faster. The implication of least preference for telephone calls may be due to inadequate or lack of network coverage for telecommunications. This is supported by Oladele (2005), Okwu and Daudu (2011) who all revealed that farm and home visits are the most preferred extension methods in their studies.

Table 3 Preference of Extension Delivery Methods

Extension Delivery Method	Most preferred*	Not preferred*	Rank
Farm and home visit	81.4	1.9	1 st
Results/method demonstration	79.5	2.3	2 nd
Group meeting	77.5	2.3	3 rd
Agricultural Festival	73.6	2.3	4 th
Field day	72.9	2.3	5 th
Personal letter	58.1	7.8	6 th
Campaign	57.8	7.4	7 th
Leaflet bulletin	56.6	8.5	8 th
TV and Radio	56.2	8.9	9 th
Video exhibition	53.5	9.3	10 th
Farmers call or official call	49.2	10.9	11 th

Source: Field survey, 2018

*Multiple Responses existed

Relationship between the socio-economic characteristics and the preferred extension method

Table 3 reveals the results on chi-square analysis of the relationship of socioeconomic characteristics of the respondents and the most preferred extension delivery method. The result indicated that age, education, household, farm size, farming experience and land tenure system all had positive significant relationship with the preferred extension method. This implies that, an increase in

age, education, household size and farm size influence the choice of extension method. On the other hand, sex and marital status with the p values of 0.409 and 0.082 respectively were not significant at 5% level. This implies that sex and marital status did not influence preference of extension delivery method. The results also support the findings of Boz and Ozcatalbas (2010) which show that farmers' educational level and farm size have significant effect on their use of modern information sources.

Table 4. Relationship between socio-economic characteristics and preferred extension method

Socioeconomic Variables	Coefficient	p-value
Sex	1.78	0.409
Age	18.04	0.021*
Marital status	8.82	0.082
Education	77.79	0.000*
Household	23	0.001*
Farm size	24.63	0.000*
Farming experience	36.48	0.000*
Meanland	40.05	0.000*

Note: * Significant at 5% level.

Problem associated with extension delivery method to farmers

The problems associated with extension delivery methods in the study area are presented in Table 4. The problems were ranked in order of magnitude. The findings reveal that irregular visit by extension agents (89.5%) was the first in rank. Limited time given to agricultural programme was

ranked second (82.2%), as well as 76.7% of the respondents selected no opportunity for interactive session as third. This is in addition to the respondents who chose locality is outside network coverage, languages spoken not understood as well as message content not relevant ranking 9th (32.9%), 10th (26%) and 11th (20.9%) respectively. The possible reason for the high percentage of

respondents stating irregular visit by extension agents as a major constraint is linked to the situation of inadequate number of extension agents we have in the country. Also, the respondents' opinion on message content not relevant shows that the content of the messages delivered seems to be relevant. It also shows that languages used in communicating to the respondents were understood by the majority and that the localities are inside network coverage area.

The findings of the study is similar to that of Gaya *et al* (2016) who found that most of the respondents disclosed irregular visits by agricultural extension agents constitutes their major problem. The findings is therefore not in support of Gwary *et al* (2013) who stated that Untimely/lack of or inadequate supply of essential inputs were indicated by most of the respondents as a major factor that hinders the delivery of extension services to them.

Table 5. Constrains of Extension Delivery Methods

Constraints	Frequency	Percentage	Rank
Irregular visit by extension agents	231	89.5	1 st
Limited time given to agricultural programme	212	82.2	2 nd
No opportunity for interactive discussion	198	76.7	3 rd
Lack of adequately trained extension agents	176	68.2	4 th
Unable to read and write	165	64.0	5 th
Lateness of information flow	153	59.3	6 th
Unable to understand the languages	120	46.5	7 th
Unavailable in their localities	90	34.9	8 th
Locality is outside Network coverage	85	32.9	9 th
Languages spoken not understood	67	26.0	10 th
Message content not relevant	54	20.9	11 th

Source: Field Survey, 2018

* Multiple responses

CONCLUSION AND RECOMMENDATION

The study concluded that farmers in the adopted village still prefer the conventional extension methods which are all the methods that involve a face to face personal interaction. This is due to poor network coverage for mobile phones, low level of western education and cost of other extension methods which hinders acceptance in the adopted villages. Based on the findings of the study, Adequate time should be given to agricultural programmes in the Adopted villages as farmers need more time for interactive sessions as it creates more room for problem solving. Government should make available and extend network coverage to all localities in the Adopted Villages for effective dissemination of information through different extension methods.

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