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Full Length Research Paper

Extension communication channels' usage and preference by farmers in Benue State, Nigeria

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The study assessed farmers' use and preference of extension communication channels in Benue State, Nigeria. A sample of 316 farmers was selected through a stratified random sampling technique and interview schedule was used in eliciting information from them. Descriptive and inferential statistics were used for data analyses. Interpersonal communication channels were generally found to be more available, accessible and used by the farmers than the mass media to obtain information on improved farm technologies. Relatives/friends/neighbours constituted the most regularly available, accessible and used interpersonal channels although extension agents and television were mentioned by the farmers as the most preferred interpersonal channel and mass medium, respectively. Chi-square analysis shows that there is significant relationship between frequency of communication channels use by farmers and their educational level, sex, farm size and farming experience. It is recommended that rural radio booster stations and community rural television stations are established to feature special programmes targeted at rural farmers. To ensure regular availability and accessibility of extension agents (the farmers most preferred channel), efforts should be made to employ more extension agents.

Key words: Farmers, extension, communication channels, usage, preference.

INTRODUCTION

Background statement

In the post-second World War years, development cooperation was based on transfer of technologies to developing countries. According to the model of social labour division in western cultures, technical knowledge was generated by science and industry, transferred by extension services and utilized by farmers (Roth, 2001). The introduction of western technology to non-western farmers was intended to increase production capacity and improve the market position of agriculture.

According to Israel and Wilson (2006), developing an understanding of extension sources and channels used by clients to obtain information is a pre-requisite for efficient educational programming because messages that go unheard or unseen cannot lead to change.

Though early extension efforts were based on direct communication with clients, changes in society and technology have resulted in programmes using diverse array of communication channels to reach clients, both directly and through surrogates.

Many clients, especially older people, continue to rely on more traditional channels for agricultural information while using newer technologies as a complement (Howell and Hebron, 2004; Vergot et al., 2005; Boz and Ozca, 2010).

Conceptual/theoretical frame work

The concept of 'use' of communication channels or media is of great importance because the knowledge of it will provide keys for understanding and predicting outcomes of communication process. Exposure to (or use of) various communication media or channels is a pre-condition for any effect of media content on people to occur. It seems right to state that the influence of any medium in a communication situation or on the message depends not merely on the type of media but also on how it is used, or the use to which it is put.

This study is based on some theoretical perspectives,

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including uses and gratification theory (Lin, 1999), rational choice theories which include the utility maximization framework and social exchange theory (Strebel et al., 2004 adoption-diffusion theory) (Rogers, 2003).

Uses and gratification theory perceives messages recipient as one, who selectively chooses, attends to, perceives and retains the media messages on the basis of his/her needs. The focus was thus shifted from media production and transmission functions to the media consumption functioning. The theory acknowledges that users are goal driven decision-makers who select information communication channels that meet their needs.

Social exchange theory suggests that extension clients are likely to use a particular source-channel combination when the social benefits are greater that the social costs. This theory also suggests that benefits are more likely to be realized when information is relevant to client's needs and when channels provide detailed individualized information.

Problem statement

Nigeria has elaborate agricultural research and extension systems. A wealth of research results therefore exist in the agricultural research system in Nigeria. However, these results are not fully made available to the end-users, the farmers. CTA (1998) has identified limited access to agricultural information as one of the most serious constraints to agricultural development in West Africa.

Benue State of Nigeria has abundant agricultural land estimated at 5.09 million hectares of which 3.8 million hectares is arable (Benue Agricultural and Rural Development Authority, 1999). The state is literally referred to as the "Food Basket" of the nation because of its endowed agricultural potential. But it is one of the poorest states in Nigeria (DFID, 1997). Some questions concerning the utilization and effectiveness of the various communication channels in agricultural extension services delivery there are therefore pertinent and need to be addressed empirically. Which communication channels are available and which ones are being used to disseminate farm innovation messages to the farmers? What is the relative usage of the channels by farmers? Which of the channels do the farmers prefer but constrained in use? Are the disseminated messages relevant to the agricultural information needs of the farmers? Attempts were made by Ilevbaoje (1998), Jeffery (2001) and Obinne et al. (2000) to address some of these questions. However, none of the studies was comprehensive enough to address all the questions raised. Moreover, there is need for generalizations about communication and the consequences for human activities to be continuously re-examined and re-tested against the realities of a changing social world. Thus Israel and Wilson (2006) have suggested that periodic studies be carried out to identify trends among audience segments as knowledge of clients' use of information channels and sources can have an impact on reaching them.

Objective of the study

The general objective of the study is to assess farmers' relative use and preference of communication channels in obtaining information on improved agricultural technologies in Benue State, Nigeria.

The specific objectives of the study are to:

1. Examine the socio-economic characteristics of the farmers in the study area;
2. Find out the level of communication channels' availability and accessibility to farmers.
3. Assess the relative usage by farmers, of the available extension communication channels;
4. Determine communication channel preference of farmers;
5. Determine the relationship between farmers' personal and social characteristics and frequency of use of communication channels as sources of agricultural information.

The following null hypothesis was stated: There is no significant relationship between farmers' personal and social characteristics and their frequency of use of communication channels as sources of agricultural information.

For proper use of communication channels to disseminate information on agricultural innovations, the extension agents should observe which of the channels are used or preferred by farmers. The extent to which farmers use different channels need to be evaluated frequently. This study shall provide the necessary information on the appropriateness or otherwise of the use of communication channels in disseminating information on improved agricultural technologies to farmers in Benue State, Nigeria. The findings of the study shall also provide the necessary feedback mechanism to the media organizations, policy makers and the extension agents for necessary adjustments.

METHODOLOGY

The study area

The study area, Benue State, lies in the middle belt of Nigeria between longitude 6°35' E to 10°E of the Greenwich Meridian and latitude 6°30' to 8 10' N of the equator. With a population of4,218,244 (2006 National Population Census), the State occupies a land mass of 33,955 km^2. It is divided into three geo-political zones namely Zone A (Eastern Zone), Zone B (Northern Zone) and Zone C (Central Zone) and 23 local government areas (LGAs).

Most of the people in Benue State are farmers and the State is acclaimed "The Nation's Food Basket" because of its diverse rich agricultural produce which include yams, rice, beans, cassava, soy beans, benniseed , maize, sorghum, millet, tomatoes. Livestock

such as poultry, goats, sheep, pigs and cattle are also reared.

Instrument for primary data collection

Cross sectional field survey was carried out to obtain required primary data for the study. An interview schedule was designed to elicit information from the farmers since most of them were not educated enough to be administered with questionnaire. Validity of the instrument was ascertained through Jury method (Kerlinger, 1973) where the entire instrument was subjected to the scrutiny of relevant experts. The test-retest method of affirming instrument reliability was employed.

Sample selection

The population for the study was made up of all the farmers in Benue State. A sample of 324 farm families made up of 36 each from nine extension blocks in Benue State, Nigeria was used for the study. A 4-stage stratified random sampling technique was used to select the farmer-respondents. This was in line with the agricultural and ecological division of the state into zones, blocks, cells and sub-cells. The three agricultural/ecological zones in the state formed the primary sampling strata and a 4-stage sampling was carried out in each of them. The drawing of 3 blocks from each of the 3 zones constituted the first stage while the selection of 2 cells from each of the chosen blocks was the second stage of the sampling. Selection of 2 sub-cells from each cell was the third stage and sampling of 9 respondents within each sub-cell constituted the last (4^{th}) stage. The total number of farm families in each sub-cell was compiled and summed up to 2933 for the selected sub-cells and this constituted the sampling frame. From this frame, a random sample of 9 farmers was drawn from each of the selected sub-cells. This brought the total number of respondents interviewed to 324. A simple random sampling technique (lottery type) was used for the selection of sample units at each stage. Only data for 316 respondents were, however, utilized for analysis. The others were discarded for incomplete information and inconsistency.

Data collection procedure

Enumerators, specially trained for the work, were engaged for data collection. They were made up of some graduate assistants in the College of Agricultural Economics and Extension, University of Agriculture, Makurdi and extension staff of Benue Agricultural and Rural Development Authority (BNARDA).

Analytical techniques

Descriptive and inferential statistics were used in analyzing the data. Chi-square analysis was carried out to test the null hypothesis of no significant relationship between farmers' personal and social characteristics and their frequency of communication channels usage. SPSS was used in the analysis of the data and testing of the hypothesis.

RESULTS AND DISCUSSION

Personal and social characteristics of respondents

Frequency distribution of the respondents' personal and social characteristics is contained in Table 1. Age distribution of farmer-respondent showed that the middle-aged group of 40 to 59 years has the highest frequency of 183 respondents constituting 57.83% of the total number of respondents. In other words, majority of them were between 40 to 59 years'. The young age bracket (farmers of 39 years and below) constituted only 22.75% which is an indication of declining involvement of youth in agriculture.

A substantial proportion of the farmers (30.65%) had no formal education. Those with primary and secondary education constituted the highest percentage (56.56%) of the respondents. Only a small fraction of the respondents (12.66%) had post-secondary education.

The distribution of household size among the farmers showed that majority of them (56.25%) had between 1 and 10 people per household. The medium class had between 11 to 20 people per household and constituted 32.23% of the respondents. Those with 21 people and above constituted 11.38% of the total respondents.

Most of the respondents were males as they constituted 97.64% of the total number of respondents. This was due to the fact that heads of the households were the ones selected for the study and were in most cases, males except in the case of windows. Most of the respondents (97.33%) were married. Only 2.21% were single while only one (0.32%) was a widow. Majority of the farmers (61.94%) had farm size of 4 ha and less while 33.50% of them (respondents) had 5 to 10 ha. A small number of the farmers (4.42%) had 11 ha and above.

The farmers' personal and social characteristic as revealed by this study were similar to those found by Tologbonse et al. (2006) in their study carried out in the middle belt of Nigeria.

Communication channel availability/accessibility to farmers

Interpersonal channels were generally more available and accessible to the respondents as illustrated by Table 2. Within the IPCs, friends/neighbours/relations were the most regularly available/accessible interpersonal channels of communication (45.89%), followed by extension agents (38.61%). About 31% of the respondents mentioned contact farmers as regularly available and accessible to them as source of agricultural information and 22% indicated opinion leaders as regularly available and accessible to them as sources of agricultural information.

Radio was the most available/accessible mass medium for obtaining agricultural information as 81.01% of the respondents indicated its availability/accessibility. Only 28.80% of the respondents, however, indicated its regular availability/accessibility while 52.21% indicated its availability/accessibility only sometime. Television was the least regularly available/accessible source of agricultural information with only about 1% of the respondents

Table 1. Percent distribution of respondents' personal and social characteristics .

Respondents characteristics	Frequency	Percentage
Age (years)		
≥ 39 (young)	72	22.75
40-59 (middle)	183	57.83
60 and above (old)	61	19.27
Educational level		
No formal education	97	30.65
Primary/secondary	179	56.56
Post-secondary	40	12.66
Household size		
≥ 10 (small)	178	56.25
11-20 (medium)	102	32.23
21 and above (large)	36	11.38
Mean	11	
Farm size (ha)		
≥ 4 (small)	196	61.94
5-10 (medium)	106	33.50
11 and above (large)	14	4.42
Mean	4.51	
Sex		
Male	309	97.64
Female	7	2.21
Marital status		
Single	7	2.21
Married	308	97.33
Widowed	1	0.32

N = 316.

mentioning it as regularly available and accessible. On average, about 62% of the respondents indicated that mass media were never available and accessible to them as sources of agricultural information.

Frequency of communication channels' usage as sources of agricultural information

The interpersonal channels have higher relative usage by farmers than mass media. Table 3 gives the details. Friends/relations/neighbours (41.14%), constituted the most regularly used interpersonal channels followed by extension agents (37.02%) and then the contact farmers (22.15%).

Generally, majority (66.77%) of the respondents indicated use of radio in obtaining agricultural information but only 10.44% of them indicated its regular use while 56.33% indicated that they used it only some times. Newspaper, television and film show have very low frequency of usage as 87.02, 81.01 and 76% of the respondents had respectively indicated their non-use at all as sources of agricultural information. The low or non-usage of mass media could be due to low socio-economic status of the farmers and lack of facilities such as electricity to operate them. The low or non-usage of print media such as newspapers, extension bulletins/ newsletters can be attributed to low literacy level of the rural farmers. These findings corroborated those of Yahaya (2002) and Tologbonse et al. (2006) which reveal that television, extension publications (bulletins, news-letters, posters and hand bills) were not considered as important sources of agricultural information among the farmers in Nigeria while friends/neighbours/relations, extension agents and contact farmers were considered important in terms of availability and usage.

Table 2. Percent distribution of channel availability/accessibility.

Communication channel	Availability/accessibility					
	Regularly		Sometimes		Never	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Mass media						
Radio Benue	91	28.80	165	52.21	60	18.99
Television	3	0.95	73	23.10	240	75.95
Newspapers	8	2.53	78	24.68	230	72.78
Ext. bulletin/news letter	8	2.53	95	30.06	213	67.41
Film show	4	1.26	81	25.63	231	73.10
Posters/Handbills	5	1.58	114	36.07	197	62.34
Interpersonal channel						
Extension agents	122	38.61	153	48.42	35	11.07
Contact farmers	98	31.01	152	48.10	85	26.90
Opinion leaders	70	22.15	133	42.09	75	23.73
Friends/ neighbours	145	45.89	155	49.05	5	1.58

N = 316.

Table 3. Communication channels' usage frequency in accessing agricultural information.

Communication channel	Channel usage					
	Regularly		Sometimes		Never	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Mass media						
Radio Benue	33	10.44	178	56.33	105	33.23
NTA Makurdi	3	0.95	57	18.04	256	81.01
Nigerian Voice	2	0.63	39	12.34	275	87.02
Ext. bulletin/news letter	7	2.21	76	24.05	233	73.73
Film show	2	0.63	73	23.10	241	76.26
Posters/handbills	4	1.26	97	30.70	215	68.04
Interpersonal channel						
Extension agents	117	37.02	157	49.68	42	13.29
Contact farmers	70	22.15	155	49.05	91	28.80
Opinion leaders	50	18.67	132	41.77	125	39.56
Friends/ neighbours	130	41.14	157	49.68	29	9.17

N = 316.

Communication channels preference by the respondents

Table 4 shows the channel preference by the respondents. The respondents were asked to indicate the most preferred channel should all listed channels be made available and accessible to them. Extension agents were mentioned by majority of them (54.75%) as the most preferred channel. Radio occupied the second position in the ranking of the most preferred channels with 17.41% of the respondents mentioning it as their most preferred channel. Friends/neighbours/relations and television jointly occupied the third position in the ranking order. Contact farmers came next (5^{th} position) with 6.33% of the respondents indicating it as their most preferred channel. Newspapers occupied the last position in the ranking of the most preferred channels. In fact, no respondent mentioned it as the most preferred channel.

The high preference rating for extension agents may be attributed to the interpersonal interaction and immediate feedback enjoyed by the farmers. The less preference shown for newspapers, posters/handbills and extension

Table 4. Percent distribution of channel preference.

Most preferred channel	Frequency	Percentage	Ranking
Mass media			
Radio Benue	55	17.41	2
Television	26	8.23	3
Newspapers	0	0.00	10
Extension bulletin/news letter	8	2.53	6
Film shows	4	1.26	7
Posters/hand bills	2	0.63	8
Interpersonal channel			
Extension agents	173	54.75	1
Contact farmers	20	6.33	5
Opinion leaders	2	0.63	8
Friends/neighbours	26	8.23	3
Total	316	100.00	

Table 5. Chi-square analysis of farmers' characteristics and their level of use of communication channels in obtaining agricultural information.

Variable	X^2	CC	P- Value	Remark
Age	63.87	0.410	0.106	NS
Education	122.70	0.529	0.000	S
Household	194.60	0.618	0.000	S
Farm size	370.00	0.734	0.000	S
Income	64.980	0.413	0.581	NS
Farming experience	70.103	0.426	0.039	S
Sex	40.82	0.338	0.001	S
Marital status	21.945	0.255	0.945	NS

P<0.05; S: Significant; NS: Not significant.

bulletin/news letter may be probably due to the high illiteracy level among the respondents.

Relationship between farmers' personal/ social characteristics and frequency of communication channels' usage

The null hypothesis of no significant relationship between farmers' personal and social characteristic and their frequency of use of communication channels as sources of agricultural information was subjected to chi-square test. The results as presented in Table 5 show that farmers' level of education, household size, farm size, farming experience and gender were significantly related to at 5% level of probability. These results, are to some extent, in agreement with those of Yahaya (2002) which showed significant relationship between farmers' education level, sex, farm size and frequency of use of traditional as well as conventional media. The results also support the findings of Boz and Ozcatalbas (2010) which show that farmers' educational level and farm size have significant affect on their use of modern information sources. Similarly, Howell and Hebron (2004) found farm size, educational attainment, gender and household size influence both patterns of information use and methods of delivery.

The results from this study are consistent with social structure literature (Tucker and Napier, 2002) and diffusion research (Rogers, 2003) in showing that factors such as farm size, complexity, gender, etc make a difference in determining the extent to which a client uses information channels or sources. Extension communicators and educators who design extension programmes that account for those contextual effects can increase coverage of the targeted audience and subsequently, the impact of their programmes.

CONCLUSION AND RECOMMENDATIONS

Interpersonal channels were generally found to be more available, accessible and used by the farmers than the mass media to obtain information on improved farm

technologies in Benue State, Nigeria. Relatives/friends/ neighbours constituted the most regularly available, accessible and used interpersonal channels. Extension agents were not readily available and used by the farmers although it was mentioned as the most preferred communication channel.

The study shows limited use of mass media by the farmers in obtaining farm information. Only Radio Benue featured regular agricultural programmes and it was the most often used mass medium by the farmers. Television and newspapers were hardly accessible to and used by the farmers. Many farmers indicated television as the most preferred channel if it were available and accessible to them. Most of the client attributes or characteristics had significant relationship with the frequency of use of the communication channels.

In order to solve the problem of low availability and accessibility or complete unavailability and inaccessibility of mass media as channels of agricultural information to rural farmers, the available mass media in Benue State (the study area) including: radio, television, newspapers, should devise ways of reaching out to the rural areas instead of concentrating their operations or attention in urban centers. Radio Benue took a good step in this direction by opening some booster stations in Zones A and C of the state. The booster stations, have, unfortunately, gone moribund. They should be resuscitated. Community rural television stations should be established to feature special programmes targeted at rural farmers.

Public television viewing and radio listening centers should be established to facilitate patronage of agricultural programmes featured by these mass media. Benue State Government and Federal University of Agriculture, Makurdi, through their extension agencies, can establish and manage such centers. To further enhance the patronage and comprehension of the programmes, viewers/listeners groups should be formed to discuss the topics of the programmes immediately after viewing or listening to them.

To ensure regular availability/accessibility of extension agents (farmers' most preferred channel), efforts should be made to fill the vacancies created by retracement; resignation, termination or death of extension agents.

There are presently many empty cells (that is, cells not manned by extension agents) in the study area.

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