

Different sources of information on adoption behaviour of farmers in Logo local area Government of Benue State, Nigeria

Kughur P.G.*, Daudu S., Akua E.M.

Agricultural Extension & Communication Department, University of Agriculture, Makurdi, Benue State, Nigeria.

E-mail : gyandenkugh@gmail.com

Contact No : +91 -

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Abstract

The research examined the influence of sources of information on adoption behaviour of farmers in Logo Local Government Area of Benue State. Structured interview questionnaire was administered on 105 respondents randomly selected from 5 council wards. Data collected were analyzed through descriptive statistics and logit regression. The results revealed that 56.2% got information on innovations from conventional sources particularly the electronic media, while 51.4% obtained information on innovations through traditional sources specifically contact farmers, 72.4% application of agrochemicals was the idea mostly introduced, 65.7% village location prevented them from adoption of innovations, 54.1% preferred both electronic media and extension agent for receiving information on improved agricultural practices. The coefficient of farm size (0.037 ha) and access to agricultural information (4.206) were statistically significant at 5%. It is recommended that electronic media should be given priority in dissemination of agricultural information.

Key words : different sources, information, adoption, behaviour, farmers.

INTRODUCTION

Communication is fundamental to existence of every human organization and it is so vital that no human being or organization can exist without it. Knowledge is an important factor determining the standard of living in all human life and everywhere. Today most technologically advanced production techniques are knowledge based. Agricultural information had been in existence in various sources like; mass media such as radio broadcast, print media and traditional media or folk media which includes the use of traditional song, traditional dances, and talking drums among others. Interpersonal methods of extension education usually undertaken in various forms like; face to face, group contact and field demonstration.

The ultimate purpose of all the above mentioned sources of information is to disseminate agricultural information to farmers. Dissemination of agricultural information to farmers has been an issue of interest to both government and scientists alike. This has led to many agricultural researches so as to improve the life style of the rural populace. Mid-20th century extension communication researchers agreed that wide spread and acceptance of improved farm practices require adequate information which has to be effectively disseminated so that farmers receive the information, understands and regard it as a valid basis for action. The prerequisites to adoption of farm innovation would require selection and utilization of proper tools and procedure for the communication process. The choice usually lies with the source of the message to be transmitted, the content and technical treatment of such message before the end-user for easy understanding^[1].

Recent advances in technology and computer software development have opened up opportunities tremendously for government and private agricultural based firms, agencies and ministries. Satellite communications have facilitated information over television and radio, while video technologies, computers and interactive video/computer systems have revolutionaries teaching and training of farmers and extension personnel, hence provided that the information is closely attuned to the farmer's

needs and conditions^[2]. Radio and television have been more extensively utilized in most countries. The use of satellite, video and computer technologies, however, has been largely confined to developed countries. For example, the Green Thumb Project in the United States^[3], Minitels in France^[4], Agrilline Videotext Service in Ireland^[5]. Videotext systems in Finland and Denmark and Viditel in the Netherlands^[6], and on-line access to relevant agricultural information from established databases or to agricultural specialists responding to transmitted questions via varying combinations of video, television has also been used in Australia to successfully stem the spread of foot rot^[7]. The ICTs use in extension delivery is still at its low use in developing countries like Nigeria, especially as it affects the information/technology users (farmers). Nevertheless, it will be uncharitable to state that radio and television have also made tremendous contributions in extension delivery for sustainable development^[8].

The adoption of new technology is described as innovation decision process through which an individual passes from the time of first hearing about innovation to decision to adopt or reject it and to the confirmation of this decision^[9]. Innovation is an idea, method or object which is regarded as new by an individual but may not always be new, the result of recent research/modern technologies are new ideas, methods, practices or a technique which provides the means of achieving sustainable increase in farm production and income due to increase scientific and improved methods of communication, a great variety of ideas have been generated and brought to farmers and other people because of communication^[10].

A number of factors determine adoption and non-adoption of new technologies. They include the following: Land is a major resource for agricultural production. The size of land owned by a farmer and the type of title a farmer has over it affect adoption. Tenant farmers cannot make long term plans on the land and this impedes adoption. Moreover, even on communal or family land, farmers face opposition from immediate family or border

community members. Some family members are resistant to allow experimentation of improved practices on their farmland. Many farmers do not adopt innovative farming practices unless the benefits of mass scale production are clearly demonstrated. Seasonal climatic constraints such as drought as well as lack of drinking and irrigation water have led to failure of agricultural/farm experiments^[1].

Considering the resource poor farmers reluctance to quick adoption of innovations, the need to take measures that would enhance adoption cannot be over emphasized. Emphasis has shifted from top-down extension approach (which has been criticized for being responsible for the failure of many agricultural extension programmes) to bottom-up or participatory approaches which emphasis local knowledge of the people. Participatory approaches involves farmers fully as equal partners in generating and testing new ideas, techniques, technologies and practices leading to a more dynamic development, commitment and results at community level^[11]. Farmers are involved in the process of decision making, implementation programme, sharing cost and sharing the benefit of development as well as evaluation of such programmes. The value of participation in enhancing adoption lies in the fact that it is a farmer-centered process and seeks to simplify economic and environmental factors that may influence the behaviour of researchers, change agent and farmers during the development process. It influences the technical knowledge necessary for the adoption of innovations.

METHODOLOGY

The study was conducted in Logo Local Government Area (LGA) of Benue State, Nigeria. The LGA is bounded by Ukum LGA to the north, Katsina-Ala LGA to west, Buruku LGA to the south and Taraba State to the east. The estimated population of the LGA is 169063^[12]. Logo LGA is blessed with fertile soil and experiences a tropical climate with two marked seasons, the rainy and dry seasons. The rainy season spans between April and October, while dry season is from November to March. Primary and secondary data were collected. Primary data were collected through structured questionnaire. Random sampling technique was adopted. Five (5) council wards were purposively selected out of 10 council wards, in each of the council wards selected, structured questionnaire were administered to 21 randomly selected respondents (household head) through interview thus, giving a total of 105 respondents. Secondary data were gathered

through journals, textbooks, theses, proceedings and bulletins. Data gathered were analyzed using descriptive statistics and logit regression.

Specification of the Model

$$Y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8$$

Where Y = level of adoption measured by the number of innovations adopted by a farmer

X1 = age (years)

X2 = education in years (number of years spent in school)

X3 = gender (Male = 1 and Female = 0)

X4 = household size (1, 2, 3, 4, etc)

X5 = farm size (ha)

X6 = farming experience (years)

X7 = annual income (₦)

X8 = access to agricultural information (dummy: 1 = yes, 0 = no)

Logit Regression Model is of the form:

$$Z_i = B_0 + B_1x_1 + \dots + B_kx_k + U_i$$

Where: Z_i = level of adoption

B₀ = constant term

B_i (i=1, 2...6) = vector of the parameters to be estimated

U_i = Independent distributed error term

RESULTS

Results in Table 1 indicate that for conventional sources; majority 56.2% of the respondents received information through electronic media. Electronic media particularly the radio is one of the commonest ways of disseminating information in the rural area because it is affordable and portable. One of the reasons that make it very common in the rural area is that the information is translated in vernacular for the benefit of those who cannot understand English and other languages. This makes the passage of information through this means spread wider than any other electronic media. This finding is similar to^[13] who reported that electronic media is one of the most frequent sources of receiving

Table 1. Distribution of Respondents Based on Sources of Information Received by Farmers (n=105)

Conventional sources	Frequency	Percentage	Traditional sources	Frequency	Percentage
Electronic media	59	56.2	Contact farmer	54	51.4
Extension agent	58	55.2	Friends/relations	52	49.2
Print media	57	54.3	Opinion leaders	49	46.7
Film/slides	42	40.0	Groups/associations	40	38.1
Internet	7	6.7	Drama	10	9.5
			Town crier	8	7.6

* Multiple responses

Table 2. Distribution of Respondents According to Innovations Introduced (n=105)

Innovations introduced	Frequency	Percentage
Application of agrochemicals	76	72.4
Improved animals and seeds	74	70.5
Land preparation, planting date & plant spacing	64	61.0
Storage practices	54	51.4
Disease/pest control	49	46.7
Livestock/crops management	43	41.0
Organic farming	26	24.8

* Multiple responses

Table 3. Distribution of Respondents Based on Factors that Prevent Farmers from Accepting Innovations (n=105)

Factors	Frequency	Percentage
Village location	69	65.7
Low income	66	62.9
Inadequate extension contact	56	53.3
Complexity of innovations	54	51.4
Information on innovation not clear	50	47.6
Age	42	40.0
Gender	24	22.9
Incompatibility with culture	24	22.9
Religious barrier	21	20.0

* Multiple responses

information for agricultural production used by most farmers. While on traditional sources, 51.4% of the respondents stated that they got information through contact farmers. This is because majority of the people in the rural area are not literate as a result they cannot read or write. This create problem of passing information to rural farmers through other means except for the educated and progressive farmers who serve as contact person for agricultural extension agent. The information is further pass to other farmers by the contact farmer. One important thing with dissemination of information through this means is that the contact farmer is one of the villagers who understands the other farmers better than the extension agent and knows how to relay the information to his colleagues sometime better than extension agent.

Results in Table 2 depict that 72.4% of the respondents were taught how to apply agrochemicals. A high proportion of farmers in Benue State are now employing the use of agrochemicals in their bid to increase the area of farm land cultivated, output, reduce the drudgery associated with mechanical weeding. The destruction of crops by pests also calls for application of agrochemicals to reduce the high incidence of pests. However, many of the farmers do not know how to constitute and apply the

chemicals. Furthermore, many farmers are not aware of either the short term or long term dangers associated with the use of most of these agrochemicals, hence the need for extension agent to teach them how to apply chemicals to avoid any bad effect that might result from improper handling of chemicals. The application of agrochemicals (particularly pesticides, herbicides and insecticides) is now on increase in Benue State.

Results in Table 3 reveal that 65.7% of the respondents stated that the location of their village is one of the factors that prevented them from accepting certain innovations. This could be attributed to dispersed settlement of people in the study area, a situation where most of the rural settlers completely isolate themselves from one another. This type of settlement pattern makes it difficult for passage of information and provision of basic amenities. The Tiv (one of the local tribes in the study area) people are known for this type of settlement which makes the environment porous for enemies in time of war and for thieves. This settlement pattern is very common in the rural area especially now that people are disposed to acquire more land to use for agricultural production. This is causing a lot of communal conflict as people who settle on such lands later claim ownership of the land even if the land does initially belongs to them, this lead to fragmentation of farmland

Table 4. Distribution of Respondents According to Preference of Information Sources (n=105)

Information sources	Frequency	Percentage
Electronic media	54	51.4
Extension agent	54	51.4
Print media	53	50.5
Contact farmer	51	48.6
Friends/relations	31	29.5
Opinion leaders	25	23.8
Indigenous music	18	17.1
Internet	6	5.0

* Multiple responses

Table 5. Estimate of Parameters of the Analysis of Factors Influencing the Level of Adoption of Innovations by Farmers (n=105)

Variable	Coef.	t-ratio	Signif.
Constant (bo)	0.167	-0.211	0.833
Age (years) X1	0.012	0.072	0.943
Education (years) X2	0.040	1.448	0.151
Gender (1,0) X3	0.042	0.137	0.891
Household size X4	0.293	1.201	0.233
Farm size (ha) X5	0.037	2.222*	0.812
Farming experience (years) X6	0.037	0.239	0.812
Annual income (?) X7	0.095	0.843	0.401
Access to agric information (1,0) X8	4.206	0.669*	0.000
F-test	7.450		
R2	0.412		

* Multiple responses

and make mechanization of farm impossible. This confirms^[14] who reported that the increase in number of people and the need to acquire more land for agricultural production by rural farmers is one of the frequent causes of communal conflict in Benue State.

Results in Table 4 reveal that extension agent and electronic media 51.4% each were most preferred by farmers. This is because the electronic media has been very effective in the dissemination of information on innovations to the rural area. Furthermore, the information is translated to the local languages for better understanding of the farmers. The electronic media particularly the radio reaches out to rural farmers to interview some of them and this makes them very happy that have been heard on the radio all over the state. It also encourages the farmers not to miss listening to such radio programmes as they might be expecting to hear from one of them or very important information from their extension workers. On the other hand, one of the most important aspects that attract farmers to extension agent messages is the prompt response to questions. Farmers who their questions were answered during extension contact go home very happy and ready to start applying the introduced practices.

Results in Table 5 show that a significant overall influence of the independence variables on the level of adoption ($F=7.45$). The R^2 for the estimated regression show that about 41.2% of variation in the level of adoption of farmers, the remaining 58.8% is due to random variable (U1). All the estimated variables have a positive sign which reveal that an increase in any of the 8 variables could increase the respondents' level of adoption of innovation. However, only the coefficient of farm size (0.037 ha) and access to agricultural information (4.206) were statistically significant at 5%. This means that farm size is only the factor that significantly influences the level of adoption of innovations by farmers. Furthermore, the result of access of agricultural information by farmer increases the level of adoption by 42.06%. This implies that if farmers were able to have more access to information on improved innovations they would have improved their production.

CONCLUSION

Information play a very vital role in human life, based on the two main sources of information investigated majority of the farmers (respondents) got information from conventional sources

particularly from the electronic media on application of agrochemicals, the respondents preferred electronic media for receiving information on innovations. It is recommended that electronic media should be given priority in dissemination of agricultural information; more and timely information should be disseminated to farmers.

REFERENCES

1. Agbarevo, M.N.B. and C.P.O. Obinne, *Elements of Rural Sociology and Agricultural Extension*, Teo Publisers, Enugu, 2010., 118-124
2. Baxter, M.. New Development in Agricultural Extension, Privatization Extension Services is as Good as Extension by Government or Educational Institutions, *Journal of Extension System*, 1987, 3(2) 15-18
3. Bennett, C.F.; W. Paisely,; E.M. Rogers, and P.D. Warner. The Kentucky Green Thumb Experimental Project: Some Major Findings and Recommendations from University of Kentucky and Standford University Evaluations, 1984, 13-15
4. Netter, L.. Agriculture Video Development in France, Paper Presented at the European Seminar on Knowledge Management and Information Technology, November 23, 24, Wageningen, The Netherlands, 1989,20-21
5. Scally, Q. 1989. Effective Integration of Knowledge and Information, Information Clinics. In: M. H. Van dan Ban and H.S. Hawkins (ed). *Agricultural Extension*, 2nd Edition. Black Well Science Ltd, London, 1989, 96-119
6. Westermarck, H. 1991. Computers, Videos and Technology, can they help Farmers and Agricultural Advisory Services, *Journal of Agricultural Systems*, 11(1): 47-52
7. Cullen, J. and S. Badhan New Development in Agricultural Extension, In: N. Roberts (ed.) *Agricultural Extension in Africa*, A World Bank Symposium, Washington, D.C., The World Bank, 1989., 93-96.
8. Ani. O. A.. *Agricultural Extension: A Pathway for Sustainable Agricultural Development*, 2007, 29-36
9. Rogers, E. M.. *Diffusion of Innovations*, 1st Edition, Free Press. New York. 1995, 21, 24
10. Van dan Ban, M. H. and H.S. Hawkins *Agricultural Extension*, 2nd Edition, Black Well Science Limited, London, 1996, 96-116
11. Haggmann, J. P.; E. Chuma, and K. Murwira *Transformation of Agricultural Extension and Research towards Farmers Participation: Approach and Experience from Masvingo Province, Zimbabwe*. Belmont Press. 199., 134-145
12. NPC 2006. National Population Commission, Abuja Nigeria. National Population and Housing Census.
13. Yahaya, M. K.. Gender and Communication Variables in Agricultural Information Dissemination in Two Agro-Ecological Zones of Nigeria, Research Monograph, Corporate Graphics Ltd, Ibadan, 2002, 34-35
14. Kughur, P.G.. Communal Conflict and Rural Livelihood in Selected Local Government Areas of Benue State of Nigeria. Unpublished M.Sc. Thesis Submitted to the Department of Agricultural Economics and Extension. Usmanu Danfodiyo University, Sokoto, Nigeria, 2009, 12-15.