ANALYSIS OF MULTIMEDIA CHANNELS OF INFORMATION AVAILABLE TO FISH FARMERS IN OGUN STATE, NIGERIA

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ABSTRACT

Fish farmers in Nigeria lack adequate information and their production capacity is low. The study analyzed the multimedia channels of information available to fish farmers in Ogun State, Nigeria. Multistage sampling techniques was used to select 120 fish farmers in the study area. Primary data were obtained with interview schedule. Descriptive statistics were used to analyze the data collected. Most of the farmers (97.5%) were male and married. Many (43.3%) had primary education while 30.9% had no formal education. Majority (76.1%) had radio sets while 45.3% and 28.3% had television and phone respectively. Farmers' accessibility to information was high in radio (79.2%) and extension agents (73.3%) but low in television, flyers, trainings, phone, internet and fellow farmers. Most of the farmers (85.0%) preferred extension agents, radio (71.6%) and television (68.3%) as their source of information on fish farming. Majority (80.0%) preferred Yoruba as the language of broadcast and publications, 16.7% preferred English while 3.3% preferred Igbo. Most (83.3%) of the farmers regarded lack of electricity as the foremost constraint to their access to information on media. Other constraints identified were non-relevance of information to farmers' felt needs (73.3%), feedback problem (60.0%), inadequate fund (40.8%) and illiteracy (23.3%). Chi-square analysis showed a significant association at p ≤ 0.05 between farmers' choice of information channels and age (π^2=19.60), educational level (π^2=39.82), years of farming (π^2 = 20.48), income (π^2 = 34.03), and media related constraints (π^2 = 6.92). The study established that age, educational level, years of farming, annual income and constraints experienced by the farmers played significant roles in their choice and use of information channels, and that, farmers have more access to extension agents as channel of information. It was recommended that more information on fish farming should be provided through the multimedia and be based on farmers' felt needs. More extension workers should be employed and trained while phone-in radio and television programmes should be regularly aired and viewing centres and radio groups established in strategic locations.

Key words: Multimedia, Channels, Fish farmers, Information, Fish farming

INTRODUCTION

The most serious constraint to agricultural development in Nigeria and in Africa as a whole is the limited access to agricultural information (Adekanye, 1995). Information is a key resource in the function and attain-

ment of development goals of the extension service. It is also a veritable tool needed by the farmers to be acquainted with latest agricultural technologies and innovations. There is no gainsaying that agriculture is an important sector of the Nigeria economy which deserves the needed priority attention.

In order to enhance agricultural development in Nigeria, farmers should be informed of the latest agricultural technologies by experts in the various fields of agriculture through the various information sources and channels. Farmers receive information emanating from research stations and other sources through multimedia channels such as radio, television, internet, flyers, extension guide, handbills, workshops and seminars as well as extension agents and fellow farmers. These channels provide information on modern techniques on fish farming to the farmers. When the information sources used by the farmers are analyzed, the effective and popular ones would be identified with the ultimate aim of enhancing adoption. The effectiveness of any intervention will be in doubt when local farmers are not effectively reached through relevant information sources and communication strategies.

In the opinion of Obatolu (2002), the use of multimedia approach in information dissemination would help the extension service achieve credibility and conviction among its clientele. Also, it complements the efforts of the few extension personnels of the Agricultural Development Programmes (ADPs) on the field.

The purpose of agricultural extension service is to disseminate information on improved technologies and innovations to farmers and encourage their use thereby significantly improving their production. Agbamu (1998a) reiterated that insufficient flow of agricultural information to majority of resource poor farmers is a major problem in extension service delivery. This makes the identification and use of effective agricultural information sources imperative for adoption of agricultural technologies.

The development of agriculture including fisheries, in Nigeria requires among other inputs, a timely and systematic transmission of relevant and useful agricultural information through the various communication media to the intended audience (Ewaye, 1999). This point of view is shared by Igben (1988) who noted that the capability of farmers to continually manage their farms efficiently from year to year is often dependent on the collection of relevant information about production, marketing, weather and the general economic conditions of their environment.

The concept and interactions of variables in this study was anchored on the following communication theories: The Media Richness Theory conceptualized by Daft and Lengel (1984) which emphasized that communication media have varying capacities and could achieve certain tasks. The theory was based on the assumption that a variety of media (multimedia) commonly used by organizations work better for certain tasks than others. The Information Theory which is concerned with the measurement and transmission of signals as well as the transmission and reception of messages. According to Shannon and Weaver (1949), the goal was to discover how communication messages could be converted into electronic signals most efficiently and how these signals could be transmitted with a minimum error. The Two Step Flow Theory of Communica-

tion also suggested that mass media messages reach people indirectly, that is, they are mediated through and influenced by social relationships and that mass communication should be treated in connection with interpersonal communication system.

Fish production in Nigeria is still at very low level. The demand for fish has therefore not been met and the cost of fish in the market is still very high. Many of the fish farmers are yet to be acquainted with new technologies on fish production, they therefore have limited access to agricultural information. The relevant information could only reach such farmers through the available multimedia. It is therefore imperative to know how much of such information get to the farmers and through which medium/media farmers receive the needed information. It is against this background that this study provided answers to the following research question: do the farmers own media sets and have access to multimedia channels of information? what are the various sources of information available to the farmers and which medium/media are preferred by the farmers? How frequently do they receive information from the channels and what are the major communication related constraints experienced by the farmers? The general objective of the study was to analyze the multimedia channels of information available to fish farmers in Ogun State, while the specific objectives were to determine farmers ownership of media sets, ascertain their access to agricultural information through the multimedia channels, identify the preferred information channels, ascertain the frequency of information reaching the farmers through the various channels and identify the major communication related constraints experienced by the fish farmers. The following hypotheses stated in the null form were tested: Ho_1: There is no significant relationship between the socio-economic characteristics of the farmers and their choice of information source. Ho_2: There is no significant relationship between the constraints experienced by the farmers and their choice of information source.

METHODOLOGY

The study was carried out in Ogun State, which is located in the southwestern Nigeria and surrounded by Oyo, Ondo, Lagos, Edo and Delta States. It is situated within the tropics and derived its name from big "river Ogun". The state lies between longitude 2°1' and 3°55' and latitude 7°1' and 7°18'. It has a tropical climate with rainforest vegetation on its southern part and a derived savannah on its northern end. Ogun State is inhabited mainly by Yoruba speaking people but with subgroups of dialects such as Egba, Yewa, Remo, Awori and Egun. Agriculture is the major occupation of the people of Ogun State. Among the crops grown by the farmers are cassava, maize, yam, rice, cocoyam and vegetables. Others are tree crops like cocoa, coffee, kolanut, rubber and oil palm. Most of the farmers are resource poor and operate at subsistence level. Other economic activities of the state are trading, crafts, pottery, blacksmithing, fishing and other professional and technical occupations. The topography of the state is hilly in the central part but most rural communities where farmers are located occupy fairly plain and leveled grounds. Ogun State has twenty (20) Local Government Areas (LGAs) and is divided into four major agricultural extension zones (Abeokuta, Ikenne, Ijebu Ode and Ilaro), by the Ogun State Agricultural Development Programme (OGADEP).

The population of the study consisted of fish

farmers from the four agricultural zones of Ogun State. These are the farmers who have fish ponds and or fish tanks and produce fish on commercial basis.

Multistage sampling technique was used to select the respondents for the study. Three (3) blocks were randomly selected from each of the four agricultural extension zones of Ogun State as operationalised by the OGADEP, to have a total of 12 blocks out of the 24 blocks in the state. This represents 50% of the total number of blocks in the study area. The blocks are Ilewo, Wasimi and Ilugun in Abeokuta zone, Oke-Odan, Imeko and Ado-Odo blocks in Ilaro zone; Idi-Ade, Ijebu-Igbo and Ijebu-Ife blocks in Ijebu-Ode zone and Simawa, Obafemi and Isara blocks in Ikenne zone. A list of fish farmers in each of the blocks was obtained from the Block Extension Supervisors (BESs) covering the areas. Ten (10) fish producing farmers were randomly selected from each of the blocks to have a total of 120 fish farmers from the 12 blocks that constituted the respondents for this study.

Data for the study were collected through structured interview schedule administered to the 120 fish farmers. The exercise was carried out with the assistance of the Village Extension Agents covering the cells within the selected extension blocks. Additional relevant information were collected from previous relevant studies carried out by other researchers, libraries, in-house publications of relevant agricultural organizations, University of Agriculture, Abeokuta among other institutions.

The instrument was subjected to face and content validity through critical review by experts in agricultural communication and fisheries management. The reliability test using the test-retest method provided an r value of 0.87, indicating a high degree of consistency and reliability. The research instruments were administered to a few randomly selected respondents who were not included in the actual study population. Scores were assigned to the responses of the selected respondents. Total scores for each period were computed and Pearson Product Movement Correlation (PPMC) was used to determine the correlation between the two set of scores. The 'r' value obtained was 0.87 on the average.

Dependent and independent variables of the study were measured. Ownership and accessibility to media channels were also measured at nominal level by identifying the specific electronic sets/gadgets owned by the farmers. Accessibility was considered in terms of the media through which the farmers have the privilege of receiving information. Frequency of information received by the farmers was considered in terms of the number of times they received information from the media channels on weekly basis while the constraints experienced by the farmers in their access to information channels were ranked to determine the degree of severity of each of them.

Descriptive statistics such as percentages and frequency counts were used to describe the socio-economic characteristics of the farmers while inferential statistics such as the chi-square was used to test the significance of association between channels of information used by fish farmers and their personal/socio-economic characteristics.

RESULTS AND DISCUSSION

Socio-economic characteristics of the farmers

The socio-economic characteristics of the farmers are presented in Table 1. The result shows that 40% of the farmers representing the age bracket 40-49 years were more involved in fish production. The mean age was 49.0 years. This category of farmers according to the Food and Agriculture Organization (FAO, 1997) constitute the majority of farmers in developing countries in Africa and are the economically active part of the population. Few of the farmers (19.2%) were above 60 years of age. This result is similar to the findings of Oladoja *et al* (2006) who stated that most Nigerian farmers are between 41-50 years of age and are still active. Majority (97.5%) of the farmers were males while only 2.5% were females. This shows that fish production is highly favoured by men and they are more involved in the enterprise. Majority (95.0%) of the farmers were married with children. This might be an added advantage to the farmers because their children will be able to assist in the management of the fish farming. Most (43.3%) of the farmers had primary education while 30.9% had no formal education.

The farmers had varying number of years of fish farming experience with 45.0% of them having 1-6 years experience while 42.5% had 1-5 years of experience. The mean of the year of fish farming experience was 6.7 years. The implication of this is that majority of the farmers were experienced and they were able to provide the necessary information required in this study. The farmers had varying number of fish ponds and tanks with 54.2% having 1-5 fish tanks and 34.1% having 6-10 fish tanks. The mean of the number of fish ponds owned by the farmers was 6.0. This implies that the farmers had enough fish ponds to justify being the respondents for this study.

Ownership of media sets

Data in Table 2 show that majority (76.1%) of the farmers owned radio sets, 45.3% owned television sets while 28.3% had phones. The implication of this is that majority of the farmers owned one form of media set or another to access information on fish production, disseminated by the relevant agencies and media.

Fish farmers' access to media information channels

Data in Table 3 show farmers' access to the various media/information channels. Majority (79.2%) had access to radio. Although 76.1% owned radio as shown in Table 2, some of the farmers who do not own, had the opportunity of listening to programmes from their friends and neighbours' radio sets, hence 79.2% had access to radio.

More than half (52.5%) of the farmers had access to television sets, 73.3% had access to extension agents, 31.6% had access to flyers, handbills, posters and leaflets, 23.3% had access to information on phone, while 5.8% had access to trainings and workshops. Only 1.6% had access to the internet while 25% had access to fellow farmers. This is because the farmers were few in number and do not reside in the same location. They do not also have their fish ponds and fish tanks in the same location. This result is in agreement with Waisbord (2005) who opined that multimedia are extremely important in exposing large number of people to information. It is also in consonance with Apantaku (2008) who concluded that radio is the most accessible extension media to farmers while their access to printed materials is very low.

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Table 1: Distribution of fish farmers according to their socio-economic characteristics

Socio-economic characteristics	Frequency	Percentage	Mean
Age (years)			
29	3	2.5	
30-39	17	14.2	
40-49	48	40.0	49.0
50-59	26	21.7	
60-69	23	19.2	
70 and above	3	2.4	
Sex			
Male	117	97.5	
Female	3	2.5	
Marital Status			
Single	3	2.5	
Married	114	95.0	
Divorced	1	0.8	
Widowed	2	1.7	
Educational Status			
No formal education	37	30.9	
Primary education	52	43.3	
Secondary education	23	19.2	
Post secondary	7	5.8	
Adult education	1	0.8	
Years of fish farming experience			
1-5	51	42.5	
6-10	54	45.0	6.7
11-15	10	8.4	
16-20	5	4.1	
Number of fish ponds			
1-5	65	54.2	
6-10	41	34.1	6.0
11-15	10	8.4	
16-20	4	3.3	

Source: Field Survey, 2008

Table 2: Farmers' ownership of media set

Media	Frequency	Percentage
Radio	95	76.1
Television	58	45.3
Phone	34	28.3

Source: Field Survey, 2008

Table 3: Fish Farmers' access to media/information channels

Media/information channels	Frequency	Percentage
Radio	95	79.2
Extension Agents	88	73.3
Television	63	52.5
Flyers, posters, handbills	38	31.6
Fellow farmers	30.	25.0
Phone	28	23.3
Training and workshop	7	5.8
Internets	2	1.6

Source: Field Survey, 2008

Farmers' preference for media/ information channels

Majority of the farmers (85.0%) preferred extension agents as their source of information. This is followed by radio (71.6%), television (68.3%), fellow farmers (56.6%), phone (31.6%), flyers, posters and handbills (27.5) training/workshops (20.8%) and internet (1.6%). Majority of the farmers preferred extension agents as their source of information because they regularly got in touch with the extension agents who guide, direct and provide needed information for them at the appropriate time. They could also ask questions and get prompt feedback which is not always easy to do with the electronic media such as radio and television.

This finding corroborates Voh (1979) and Tolongbose *et al.* (2006) who found that extension agents were the first major source of information to farmers. The finding is also in consonance with Madukwe and Ayichi (1997) and Mohammed Wenaso (1993) who reported the use of friends and relatives as one of the most used sources of information among farmers. The implication of this is that, more awareness should be created about the availability of useful information on modern fish farming in the various media. Also, more agricultural programmes should be aired on radio and television while more extension guide and bulletin on fish farming should be produced and distributed to literate farmers.

Table 4: Fish Farmers' preferred media/information channels

Media/information channels	Frequency	Percentage
Radio	86	71.6
Television	82	68.3
Extension agents	102	85.0
Flyers, posters, handbills	33	27.5
Training and workshop	25	20.8
Internet	2	1.6
Fellow farmers	68	56.6
Phone	38	31.6

Source: Field Survey, 2008.

Regularity of information received by the farmers through the media/information channels

Data in Table 5 show that farmers received information more regularly from extension agents (60.0%) than any other information channel. This is followed by radio (54.2%), television (38.3%), fellow farmers (26.6%) training and workshops (11.7%), flyers, posters and handbills (10.8%) as well as Internet (0.8%). Majority (54.2%) of the farmers never received information from flyers, posters and handbill. Results showed that most (97.5%) of the farmers never received information from the internet. This was due to their low level of education as well as the non-accessibility of the internet facilities to the farmers. The implication of this is that the relevant extension agencies responsible for the production and airing of agricultural information need to improve on the frequency of the media production. Farmers should also be encouraged to source information from the available media.

Table 5: Regularity of information received by farmers through the media/information channels

Media/information channels	Regularly		Seldom		Never	
	Freq	%	Freq	%	Freq	%
Radio	65	(54.2)	29	(24.2)	26	(21.6)
Television	46	(38.4)	38	(31.6)	36	(30.0)
Extension agents	72	(60.0)	23	(19.2)	25	(20.8)
Flyers, posters, handbills	13	(10.8)	42	(35.0)	65	(54.2)
Training and workshop	14	(11.7)	25	(20.8)	81	(67.5)
Internet	01	(0.8)	02	(1.7)	117	(97.5)
Fellow farmers	32	(26.6)	47	(39.2)	41	(34.2)
Phone	6	(5.0)	26	(21.6)	88	(73.4)

Source: Field Survey, 2008.   * Figures in parenthesis are percentages.

Farmers' perceived constraints to effective communication and access to media/information channels

As shown in Table 6, majority of the farmers (88.3%) indicated that lack of electricity was their foremost constraint limiting their access to mass media of information especially television. This limitation was inevitable owing to the epileptic supply of electricity in Nigeria. Information not relevant to farmers' felt needs was ranked second among the constraints (73.3%). This was followed by feedback problem in which 60.0% of the farmers did not have the opportunity of asking questions and receiving answers during radio and television presentations. The radio and television programmes did not give room for feedback in most of their productions. About twenty three point three percent (23.3%) of the farmers identified illiteracy as a constraint affecting their access to media information on fish production. This stance is relevant to the print media such as flyers, extension guide, extension bulletins and posters where farmers would be required to read the information in the printed materials.

Data in Table 6 further shows that inadequate fund to purchase media sets like television, radio and phone by 40.8% of the farmers was another constraint to their access to information on fish farming. Language was another constraint limiting farmers' access to agricultural information. This is shown by 20.0% of the farmers requesting for English and Igbo languages of the radio and television broadcasts as indicated in Figure 1. Some (13.3%) of the farmers although literate, could not benefit from the information from the Mass Media (print only) owing to bad eye sight which also constituted another constraint to their access to information.

Table 6: Constraints to farmers' access to information on fish farming

Constraint	Freq.	%	Rank
Inadequate fund to purchase media sets	49	40.8	4
Lack of electricity	106	88.3	1
Illiteracy	28	23.3	5
Information not relevant to farmers felt needs	88	73.3	2
Feedback problem	72	60.0	3
Language problem	24	20.0	6
Bad eye sight	16	13.3	7

Source: Field Survey, 2008

Farmers' preference of language of broadcast and print (publications)

Majority (80.0%) of the farmers preferred Yoruba as the language of broadcast and publications by the media organizations. Few (16.7%) of the farmers preferred English language while only 3.3% wanted the broadcast to be made in Igbo language. The farmers preferred the above languages so that they can have an in-depth knowledge and understanding of the content of the broadcasts and the printed materials. This implies that there should be more efforts in the area of farm broadcast on fish farming in Yoruba language than other languages. Similarly, information on print materials should also be in English language while few copies of such publications be made available to the few Non-Yoruba speaking farmers.
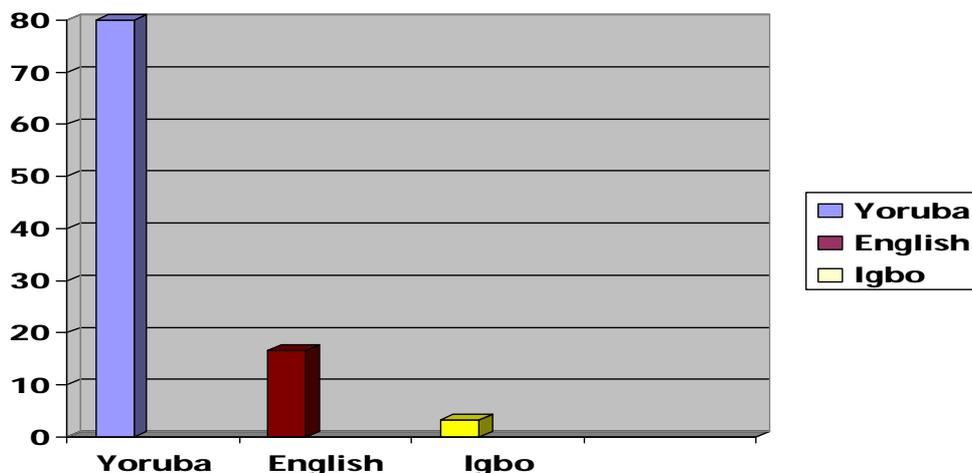
Figure 1: Farmers' preference for language of broadcast and print (publications)

Test of association between farmers' socio-economic characteristics and their choice of information channels

Data on Table 7 revealed that some selected socio-economic characteristics of the farmers have significant relationships with their choice of information channels. By implication, the age, education, years of experience in farming and income have significant relationships with the farmers' preferred channel of agricultural information. In other words, their preference for information channels was based on the above variables. This finding is similar to the assertion made by Adedoyin and Adesanya (1996) and Torimiro (1997) that some socio-economic characteristics influence the choice of agricultural communication method used for information dissemination.

Sex, religion, marital status, and farm size have no significant association with farmers' choice of information channels. In other words, irrespective of farmers' sex, religion, marital status and farm size, they can use any of the available information channels to obtain agricultural information in their fish farming.

Table 7: Chi-square analysis of the association between the socio-economic characteristics of the farmers and their choice of information channels

Variable	π^2 Value	df	P-value	Decision
Age	19.60	6	0.00	S
Sex	8.16	2	0.15	NS
Religion	29.51	3	0.07	NS
Marital Status	29.84	4	0.09	NS
Farm size	17.19	11	0.34	NS
Educational level	39.82	5	0.00	S
Years of experience in farming	20.48	8	0.00	S
Annual income	34.03	7	0.00	S
Source: Field Survey, 2008	S = Significant;		NS = Not significant.	

Test of relationship between farmers' media related constraints and their choice of information channels

Results in Table 8 show that there is a significant association between the constraints experienced by the farmers and their choice of information channels ($\pi^2 = 6.92$, $P<0.05$). The information channel used depends largely on the type of constraint faced by the farmers, lack of feedback (from radio and television) was seen as a constraint which made some farmers to prefer other channels of information, lack of electricity and lack of fund prevented some farmers from choosing radio and television as their preferred channel of information. The result further shows that inability to read (illiteracy), made some farmers to reject printed materials such as extension guides and flyers as their channel of information.

Table 8: Chi-square analysis of the relationship between farmers' media-related constraints and their choice of information channels

Variable	π^2 Value	Df	P-value	Decision
Constraints	6.92	7	0.00	S

Source: Field Survey, 2008

CONCLUSION

Against the background of low fish production in Ogun State as a result of limited access to agricultural information by the fish farmers, this study attempted to analyze the multimedia channels of information available to fish farmers in Ogun State. Particular emphasis was placed on electronic and print media of information. Although the farmers differ in their socio-economic characteristics, they had different levels of exposure to the available media of agricultural information from where they were kept abreast of new technologies in fish farming. Their accessibility to the multimedia channels also vary and this dictated the amount of information they were exposed to in fish farming. The constraints associated with the farmers' access to information were also a major factor determining their access to new technologies in fish farming. Such constraints as it were, should be looked into to enable the farmers gain more practical knowledge of fish farming. The study also established that farmers have preferences for media/information channels and not all of them owned media sets/gadgets with which they received agricultural information. The study further revealed that some socio economic characteristics of the farmers and the constraints they faced in their quest for information affected their choice of information channels. It can, therefore, be concluded that the development of fish farming in Ogun State is dependent, among other factors, on the farmers knowledge of improved practices of fish farming which is also a function of the available information through the multimedia channels.

RECOMMENDATIONS

Based on the findings of the study, the discussions therein and the conclusions drawn, the following recommendations were made:

- More information on fish farming should be provided for the farmers through radio, television and printed materials. Such information should be

based on the felt needs of the farmers.

- Since majority of the farmers preferred information from the extension agents because of personal contact and easy access, more field extension workers should be employed, regularly trained and motivated for efficient performance.

- To mitigate the effect of feedback problem, phone-in radio and television programmes should regularly be aired to avail the farmers the opportunity of asking questions and receiving instant answers.

- Radio groups and viewing centres should be established in strategic locations within the farmers' communities to make them more accessible to information from the media.

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