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## EFFECT OF MASS MEDIA ON INFORMATION DELIVERY TO FADAMA III BENEFICIARIES IN KONTAGORA LOCAL GOVERNMENT AREA, NIGER STATE

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### ABSTRACT

The study was carried out to assess the Effect of Mass Media on Information Delivery to Fadama III Beneficiaries in Kontagora Local Government Area (LGA), Niger State, Nigeria. Data for the study were obtained from 160 beneficiaries selected through multistage sampling techniques. Both descriptive and inferential statistics were employed to analyze the data obtained. The study showed that the respondents have different degrees of accessibility to radio, television, print media, GSM, and the Internet. Radio was found to be more accessible (66.5%) and the major source (80.0%) of agricultural technologies to the respondents. The Correlation analysis at 0.01 and 0.05 levels of probability revealed that there is a significant relationship between the agricultural technologies and extension media methods on information delivery among the Fadama beneficiaries and hence, the use of mass media was effective in the dissemination of agricultural technologies in the study area. Lack of electricity, poor timing of the program, and high cost of electronics were found to be the major constraints to the use of mass media by the Fadama beneficiaries. The study recommended among others that, to enhance the effectiveness of mass media on information delivery of agricultural technologies for agricultural development in the study area there is a need to strengthen the use of radio and television on information dissemination to farmers, the erratic power supply should be improved significantly, the timely announcement of the agricultural programs before their commencement should be improved.

### INTRODUCTION

Information and communication are essential ingredients needed for the effective transfer of technologies that are designed to boost agricultural

production. For farmers to benefit from such technologies, they must first have access to them and learn how to effectively use them in their farming systems and practices. This should be the function of agricultural extension agencies all over the world. These extension workers make use of different approaches (media) in transferring improved agricultural technologies to the end users (farmers).

Mass media methods in agricultural information delivery generally, are useful in reaching a wide audience at a very fast rate. They are useful as sources of agricultural information to farmers and as well constitute methods of notifying farmers of new developments and emergencies. They could equally be important in stimulating farmers' interest in new ideas and practices (Ani *et. al.* 1997). Mass media are important in providing information for enabling the rural community to make an informed decision regarding their farming activities, especially in the rural areas of developing countries (Lwoga, 2010). Information, as we know is the key to success in the operation and management process of agriculture activities. In recent decades, the widespread use of the mass media has resulted in heightening the level of public knowledge in different fields (Buren, 2000). To a large extent, mass media serve as a veritable instrument for information dissemination in agriculture.

Many researchers and educators have tested the understanding of farmers and other clients on the delivery of educational information (Suvedi *et al.*, 1999; Trede and Whitaker, 1998). The outcomes of their studies indicate that different media and methods are used by extension educators to communicate new and emerging technologies to farmers. Mass media are those channels of communication that can expose large numbers of people to the same information at the same time. They include media that convey information by sound (radio, audio cassettes); moving pictures (television, film, video); and print (posters, newspapers, leaflets). The attraction of mass media to extension services is the high speed and low cost with which information can be communicated to people over a wide area (FAO, 1985).

In developing countries, the latest mass media have made their place for backing up the agricultural sector through extension activities (Qamar, 2006). Mass media can uplift knowledge and have an impact on behaviour (Nazari and Hassan, 2011). The potency of modern electronic technology can be exploited for infotainment in the farming community (Guenther

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and Swan, 2011). The cost of extension advice through mass media comes to be considerably low as compared to individual and group methods (Oakley and Garforth, 1985). However, mass media involve one-way communication from the information source to the receivers. They permit limited and delayed feedback, which of course is essential for effective communication (Muhammad, 2005). Mass media are spreading agricultural technologies to farmers at a faster rate than personal contacts (Suman, 2003; Yawson *et. al.*, 2010).

In Nigeria, various communication media are being used to transmit agricultural information to farmers in line with national policy on agriculture. The communication media include farm magazines, leaflets, newsletters, newspapers, pamphlets, radio, and television, among others (Dare, 1990). Among them, radio is the most preferred tool of mass communication in Nigeria (Zaria and Omenesa, 1992; Omenesa, 1997; Ekumankama, 2000).

Omenesa (1997) observed that radio programmes are usually timely and capable of extending messages to the audience no matter where they may be if they have a receiver with an adequate supply of power. The absence of such facilities as roads, light, and water is no hindrance to the radio. Similarly, such obstacles as difficult topography, distance, time, and socio-political exigencies do not hinder the performance of the radio. He further observed that illiteracy is no barrier to radio messages since such messages can be passed in the audience's language.

In this context, farmers need adequate information exposure to the latest technologies. Research has shown that farmers' information exposure is most likely to be an important factor influencing their adoption behaviour. Muhammad and Garforth (1995) opine that greater exposure is likely to enhance awareness about the latest recommendations and lead to farmers putting these recommendations into practice in a precise manner.

## **STATEMENT OF THE PROBLEM**

Nigeria has elaborated agricultural research and extension systems. A wealth of research results, therefore, exists in the agricultural research system in Nigeria. However, there is a widening gap between research and the consumption of technological information. CTA (1996) has identified limited access to agricultural information as one of the most serious

constraints to agricultural development in West Africa. In this context, this limits what individual farmers can produce.

The rural populace suffers from acute low productivity, and social and economic retrogression due mainly to ignorance which also results from either inadequate or total absence of information dissemination. Reverse the situation and they are sure to be aware of happenings in and around them while generating, at the same time, more favourable conditions necessary for the cultivation of the right attitude, which shall in turn encourage the adoption of desirable systems accordingly. Bordchart (1977) adequately underpins the essence of the need for rural information dissemination when he remarked that:

*None of the thousands of projects in the developing countries can be executed without the fundamental conditions of the establishment of a literate and numerate society, and a system for the continuous provision of exchange of ideas, thoughts, and knowledge on which the society can feed and use with suitable modifications to construct its own cultural and industrial destiny.*

Food and Agricultural Organization (FAO 2001) reported that in many developing countries, wide adoption of research results by most farmers remains quite limited. This, therefore, calls for a system that allows adequate information flow from researchers to farmers. Hence, extension agencies have a central role in facilitating the flow of a variety of information to offer the needed exposure of farmers to new techniques/innovations for overall development.

Against a background as this, the study, therefore, is designed to assess the effect of mass media on information delivery of agricultural technologies to Fadama III beneficiaries in Kontagora LGA, Niger state. It, therefore, seeks to address the following research questions:

1. What are the socio-economic characteristics of farmers participating in the Fadama III development project in the study area?
2. What are the available mass media channels and their accessibility in the study area?
3. What is the effect of mass media on information delivery of agricultural technologies among the Fadama Beneficiaries?

4. What are the problems associated with the use of mass media in the information dissemination of agricultural technologies?

### **The objective of the study**

1. Describe the socio-economic characteristics of the farmers participating in the Fadama III development project in the study area.
2. Identify the different mass media available in the study area and their accessibility to Fadama beneficiaries.
3. Determine the effect of mass media on information delivery of agricultural technologies among the respondents.
4. Know the problem associated with the use of mass media in information dissemination.

### **The hypothesis of the study**

H<sub>01</sub>: The use of mass media is not effective in the dissemination of agricultural technology among the Fadama beneficiaries in the study area.

### **Conceptual Framework and Model of the Study**

Academic research is normally premised on a relevant theoretical framework to provide a solid foundation and consolidate the analysis. A study of this kind requires a suitable conceptual framework as a value anchor. The conceptual frame of this study is predicated on the *uses and gratification theory* whereby the decision to use or not to use by a respondent is a function of certain explanatory variables. This is presented in figure1. However, it is to be noted that extension workers are agents of change and mass media is a tool of change too.

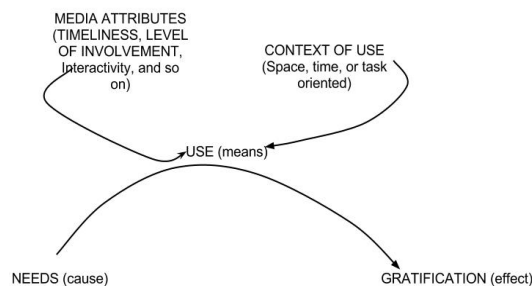
Uses and gratifications theory (UGT) is an approach to understanding why and how people actively seek out specific media to satisfy specific needs. UGT is an audience-centered approach to understanding mass communication. Diverging from other media effect theories that question "What do media do to people?". UGT focuses on "what do people do with media?" (Behrens and Evans, 1984).

Uses and gratification theory suggests that media users play an active role in choosing and using the media. Users take an active part in the communication process and are goal oriented in their media use. The theorist says that a media user seeks out a media source that best fulfills

the needs of the user. Uses and gratifications assume that the user has alternate choices to satisfy their need (Blumler and Katz's 1974).

This communication theory is positivistic in its approach, based on socio-psychological communication, and tradition, and focuses on communication at the mass media scale (Katz, 1959). The driving question of UGT is: *Why* do people use media and what do they use them for? UGT discusses how users deliberately choose media that will satisfy given needs and allow them to enhance knowledge, relaxation, social interactions/companionship, diversion, or escape. (McQuail and Denis, 2010; Tankard and James, 2000; West and Turner, 2007).

It assumes that audience members are not passive consumers of media. Rather, the audience has power over their media consumption and assumes an active role in interpreting and integrating media into their own lives. Unlike other theoretical perspectives, UGT holds that audiences are responsible for choosing media to meet their desires and needs to achieve gratification. This theory would then imply that the media compete against other information sources for viewers' gratification.



Uses and gratifications theory takes a more humanistic approach to look at media use. Blumler and Katz (1974) believe that there is not merely one way that the populace uses media. Instead, they believe there are as many reasons for using the media, as there are media users. According to the theory, media consumers have free will to decide how they will use the media and how it will affect them. Blumler and Katz's values are seen by the fact that they believe that media consumers can choose the influence media has on them as well as the idea that users choose media alternatives merely as a means to an end. Uses and gratification are the optimist's view of the media.

The theory takes out the possibility that the media can have an unconscious influence over our lives and how we view the world. The idea that we simply use the media to satisfy a given need does not seem to fully recognize the power of the media today (Blumler and Katz 1974). The conceptual model of the relationships envisaged for this study includes the independent variables, dependent variables, and intervening variables.

The independent variables consist of socio-economic factors. The dependent variables in the model are the mass media. The intervening variables are information delivery. All these factors in one way or another other influence the uses of mass media.

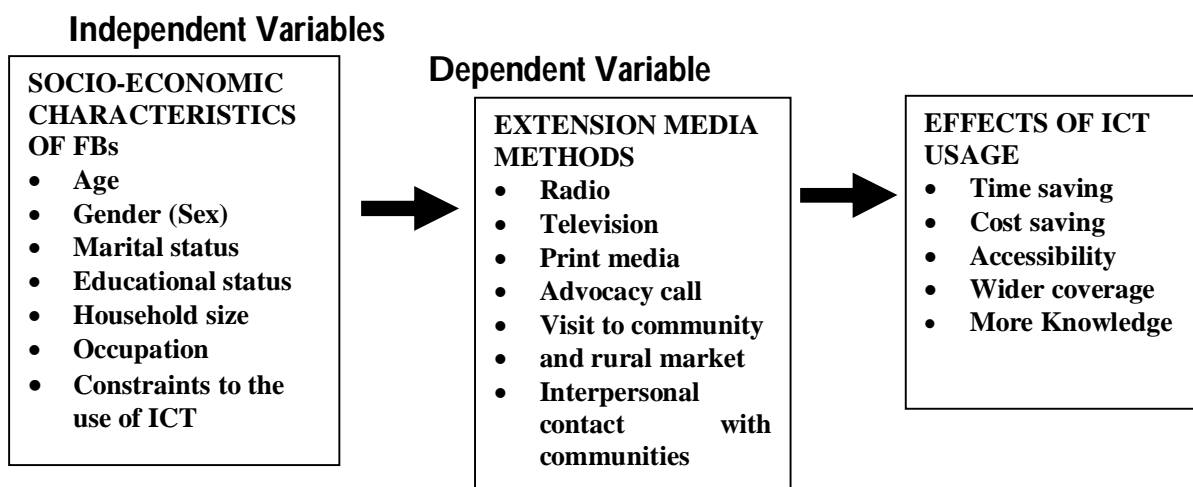


Fig. 1: Schematic presentation of the conceptual Model of the study (Developed in the Study)

## METHODOLOGY

### Study area

The study was conducted in Kontagora Local Government Area (LGA) of Niger State. The state lies between latitude 8° 20'N and 11° 30'N and longitude 3° 30'E and 7° 20'E. The state is bordered to the North by Sokoto State, to the West by Kebbi State, to the South by Kogi State, and the South-West by Kwara State, while Kaduna and Federal Capital Territory bordered the state to the North-East and South-East respectively. The state also has a common international boundary with the Benin Republic at Babanna in Borgu Local Government; equally, the state covers a total land area of 83,266,779 square kilometers or about 8.3 million hectares which represent 8 percent of arable land. (Niger State,

2011). About 85 percent of the population are farmers. The crops grown in the area are maize, groundnut, millet, Sorghum, Cowpea, Yam, Cassava, Cotton, and Vegetables. They are equally engaged in the storage, marketing, and processing of Shea-butter, rice, groundnut, and cassava. While the remaining 15 percent engaged in other vocations such as white-collar jobs, manufacturing, and business among others. The population of the state according to census figures was about 3,950,249 (NPC, 2006). Niger State is referred to as the "Power" State of the nation because it houses three hydroelectric power stations. They are the Jebba Hydro Electric Dam, Kanji Generating Plant, and Shiroro Hydro Electric Power Station (Niger State, 2011).

Kontagora LGA of Niger State was the area where this research study was conducted. Kontagora LGA lies in the Northern Guinea Savannah vegetation zone between latitude 10° 24.133' N and longitude of 005° 28.263' E. The climate is characterized by distinct dry and rainy seasons. Kontagora LGA is divided into two districts namely, Gabas (East) and Yamma (West) districts. And thirteen wards; Arewa, Central, Gabas, Nagwamatse, Magajiya, Masuga, Madara, Usalle, Kudu, Kawo, Tugan Wawa, Rafin Gora, Yamma.

### **Sampling Technique and Sample Size**

A multistage purposive sampling technique was used in the study. Two districts were purposively selected. This was followed by the random selection of two Fadama Community Associations (FCA) from each of the selected districts. Five (5) Fadama User Groups (FUGs) were randomly selected from each of the FCAs selected. Eight (8) members were used as the respondents from the FUGs selected given a sample size of One hundred and Sixty (160) Fadama Beneficiaries.

### **Method of Data Collection**

The primary data used for this study was collected from the Fadama beneficiaries through the administration of 160 copies of a structured questionnaire. The questionnaire was in line with the objectives of the study such that it contained open-ended and closed-ended questions. However, 160 sets of questionnaires were returned and used for the analysis.



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## **Method of Data Analysis**

### **Correlation Analysis**

Spearman's rho Correlation analysis was used to determine the relationship between extension media methods and agricultural technologies among the Fadama beneficiaries.

The following formula is used to calculate the Spearman rank correlation:

$$(R) = 1 - \frac{6 \sum d^2}{n^3 - n}$$

Where -

$R$  = Spearman rank correlation

$d$  = the difference between the ranks of correlating values  $X_i$  and  $Y_i$

$n$  = number of values in each data set

$\sum$  = the sum of

## **RESULTS AND DISCUSSION**

Socio-economic characteristics of Fadama Beneficiaries (n=160)

### **Age Distribution of Fadama Beneficiaries**

The result showed that most of the respondents (58.8%) fall between 40 and 59 years of age. The mean age was 44.72 years. This indicates that most of the respondents were adults and fall within the economically active age group. Adubi (1992) described that age has a significant influence on the decision-making of farmers concerning risk aversion, adoption of important agricultural technology, and other related decisions. Such a group is most likely active in farming and tends to develop more interest in sourcing agricultural technology through the mass media.

### **Gender (Sex)**

The result in Table 1, shows that most of the respondents were male. This implies with findings of FAO (2009) that men participated fully in farming activities whereas women engaged mostly in processing and selling of farm produce in most North-West of Nigeria. Furthermore, it is well known that men are mostly the owner of the factors of production, and farming is a laborious activity that could be handled more effectively by men.

### **Marital Status**

The majority (96.8%) of the respondents are married. This connotes that marriage is highly valued in the study area. This ensures an increase in the size of the family, which in turn provides more hands in farming activities. However, it could be deduced that since the majority of the respondents were married, it is expected that they will source agricultural technologies through the mass media to increase their productivity and enhance their income.

### **Educational Status**

This refers to the knowledge acquired through formal training in an organized institution of learning. It determines to what extent the farmer can accept innovations during agricultural production. Farmers without basic education would like to be irresponsive to modern agricultural extension programs. The result in Table 1 shows that 37.7% and 4.6% had NCE/Diploma and degree level education while 4.6% and 20.8% had primary and secondary, and 22.3% had Qur'anic/Arabic education respectively. Farmers' education generally has been found to enhance production through the acceptance of agricultural technologies (Ani, 2006).

### **Household Size**

It is measured by the total number of persons in a household. The result indicated that 76.5 % were from a household size of 1-10 members and 19.9% had 11 – 20 and 3.6% of the respondents had 21 – 30 members. The mean household size in the study area was 5 persons. This implies that there will be more people serving as family labour on the farm. This is in line with the finding of Lawal (2002) in Ubandoma (2014), that the adduced reason for such large household size was to avoid one hundred percent dependence on hired labour during the farming season thereby reducing the cost of production resulting from labour input.

### **Occupation**

Occupation refers to the respondents' major source of income or livelihood. The result shows that 68.8% and 23.8% are farmers and civil servants, while equal numbers of 3.7% are traders and marketers. This result agrees with the finding of Lawal (2002) that farming is still an important sector of the nation's economy that can rely upon to at least provide an immediate need for household food supply. The respondent's occupation was viewed in this study as full-time farmers.

**Table 1: Distribution of Fadama Beneficiaries based on their socio-economic characteristics**

<b>Socio-economic characteristics deviation of the respondents</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Mean</b>	<b>Std.</b>
<b>Age (years)</b>				
20-39	48	30.0		
40-59	94	58.8	44.72	11.268
60-79	16	10.0		
80 and above	2	1.2		
<b>Marital status</b>				
Single	3	1.9		
Married	155	96.8	1.04	0.259
Widow	2	1.3		
<b>Household size</b>				
1-10	84	76.5		
11-20	22	19.9	8.52	5.420
21-30	4	3.6		
<b>Level of education</b>				
Primary School	6	4.6		
Secondary School	27	20.8		
NCE/Diploma	49	37.7	3.49	1.416
Degree	6	4.6		
Qur'anic/Arabic	29	22.3		
None of the above	13	10.0		
<b>Occupation</b>				
Farming	110	68.8		
Trading	6	3.7		
Marketer	6	3.7	1.83	1.286
Civil servant	38	23.8		

Source: field survey 2015

## **Extension Activities and Communication Methods**

### **Extension visit**

The result in Table 3 shows that 42.5% and 26.3% received extension workers' visits once and twice a month. While only 6.9% of the respondents see extension agents always and 3.8% do not at all. This shows that extension workers are available for consultation on demand, even though the number of visits to farmers was not adequate. IFAD (2007) opined that the sustainable agricultural development sub-component aims to assist farmers' groups of farm household to investigate, developed, and adopts several locally appropriate and better land husbandry technologies within individual farm holding (upland and

wetland) through farmer field school approach which is a new extension delivery system.

### **Method of teaching employed**

The method employed in extension has a very significant impact on extension delivery. The result shows that the group method has the highest percentage of 52.0% followed by an individual with 37.8% and 10.1% of mass media. This indicates that the group method is the most recognized method of information dissemination in the study area.

### **The most preferred medium of communication**

In terms of the medium of communication, 66.5% of the respondents preferred radio. 16.5% and 8.9% preferred television and print material, while 5.1% and 3.2% preferred recorded video film and slide shows respectively. This implies that radio as a means of mass communication has so many advantages over any other medium of mass appeal concerning affordability, popularity, immediacy, and possible cost of producing and airing development programs to farmers. This finding agreed with Ononiwu (1986) that says radio is the only mass medium of mass communication with which rural populations are familiar.

### **The function of mass media**

The result in Table 3, also indicates that 75.2% of fadama beneficiaries believe that mass media can be a source of creating massive awareness among farmers and that the same information can get to all farmers at the same time and 16.3% believe mass media is targeting the appeal of a large audience. While 4.6% believe that there is a high peer influence capacity and 3.9% believe that mass media stimulate interest among peer-educated farmers.

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**Table 2: Shows the Extension activities and communication methods**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Extension visit</b>		
Once a month	68	42.5
Twice a month	42	26.3
Four times a month	3	1.9
Always	11	6.9
Sometimes	30	18.8
Not at all	6	3.8
<b>Method of teaching employed</b>		
Individual method	56	37.8
Group method	77	52.0
Mass media method	15	10.1
<b>The most preferred medium of communication</b>		
Radio	105	66.5
Television	26	16.5
Print materials	14	8.9
Slide shows	5	3.2
Recorded video films	8	5.1
<b>The function of mass media</b>		
Targeting the appeal of large audience	25	16.3
Send information to all farmers	115	75.2
High peer influence capacity	7	4.6
Stimulate interest among poor educators	6	3.9

Source: field survey 2015

### **Available mass media and their accessibility to Fadama Beneficiaries in the study area**

The availability of mass media and their accessibility to Fadama beneficiaries determine the extent to which the farmers obtained agricultural technology through the mass media. Table two showed that five mass media such as radio, television, GSM, print media, and internet are available in the study area. Radio and Television with 66.5% and 16.5% were found to be more available and accessible to Fadama beneficiaries, followed by GSM at 8.9%. Internet and print media were found to be less available and accessible to the respondents with 5.1% and 3.2% respectively. This can be explained by the fact that Kontagora (LGA) a metropolitan Local Government has a high level of literacy as can be found in Table 1 and awareness of innovation through the mass media.

**Table 3: Distribution of Fadama Beneficiaries based on the availability of mass media and their accessibility**

Mass Media	Frequency	Percentage (%)
Radio	105	66.5
Television	26	16.5
Print media	5	3.2
GSM	14	8.9
Internet	8	5.1
Total	160	100

Source: Field Survey, 2015

### Relevance of Mass Media to Effective Information Delivery to Fadama Beneficiaries

The effect is the extent to which the respondents have benefitted immensely from mass media in terms of information delivery. The effect in this context of the study is the ability of mass media in relating agricultural innovations to farmers. The result of the Likert scale in Table 4 indicated that mass media is more effective in decision-making among the beneficiaries with a mean score of 4.51. The findings agreed with Inwieri (2007) that, rural people (farmers) who are mainly illiterate require access to appropriate information to be able to make decisions and participate fully in the national development processes, including agriculture. Oladele (2011) observed that lack of agricultural information is a key factor that has greatly limited agricultural advancement in developing countries.

**Table 4: Likert scale result showing the relevance of mass media to effective information delivery to Fadama Beneficiaries**

Variable	Mean score	Standard deviation	Rank
Decision making	4.51	0.624	1 <sup>st</sup>
Production planning	3.78	0.750	5 <sup>th</sup>
Harvesting	3.88	0.893	3 <sup>rd</sup>
Processing and packaging	4.34	0.760	2 <sup>nd</sup>
Marketing	3.86	1.246	4 <sup>th</sup>

Source: Field survey, 2015

### **The Effects of Fadama Beneficiaries' Usage of ICT on Their Fadama Activities.**

The study investigated the effects of ICT usage on the Fadama III Beneficiaries' work to ascertain the impact of ICT on their Fadama III activities. It was premised on the assumption that the magnitude of the effect of ICT on the respondents was an indication of the importance it exerts on them and their work.

In Table 4, there is an indication that many of the respondents agreed that ICTs have a high effect on them. Consequently, it was found that: 59% of Fadama beneficiaries agreed (both Very high and high) that it was time-saving; in Table 5, 33.29% agreed (both Very high and high) that it was cost-saving; while in Table 6, 33.33% agreed (both Very high and high) that it gives more accessibility to them; in Table 7 also, 38.37% agreed (both Very high and high) that it provides wider coverage; and in table 8, it shows that 43.02% agreed (both Very high and high) that it gives more knowledge. With these results, it can be asserted that the respondents agreed that ICT has impacted them.

**Table 5: Shows the effect of ICT usage (Time saving) on Fadama Beneficiaries**

<b>Mass Media Type</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Undecided</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Radio	96(67.6)	56(35.0)	-	-	-
Television	68(50.7)	72(45.0)	-	-	-
Print media	72(45.0)	65(40.6)	5(3.5)	-	-
Cinema van	62(44.3)	68(48.6)	6(4.3)	-	-
Multimedia projector	51(36.2)	70(49.6)	15(10.67)	5(3.5)	-
Overhead projector	55(39.0)	42(31.3)	33(23.4)	4(2.8)	-
Electronic book	52(36.1)	45(31.3)	22(15.3)	19(13.2)	6(4.2)
Video/Audio CD	65(40.6)	57(35.6)	11(7.7)	10(7.0)	-
GSM	76(53.1)	67(46.8)	-	-	-
Internet	54(37.8)	48(33.6)	16(11.2)	12(8.4)	13(9.2)

**Sources:** Field survey, 2015

**Table 6: Shows the effect of ICT usage (Cost saving) on Fadama Beneficiaries**

Mass Media Type	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Radio	77(50.7)	75(49.3)	-	-	-
Television	60(40.5)	60(40.5)	16(10.8)	12(8.1)	-
Print media	36(23.7)	72(47.4)	42(27.6)	2(1.3)	-
Cinema van	21(14.0)	65(43.3)	54(36.0)	9(6.0)	1(0.7)
Multimedia projector	9(6.0)	55(36.7)	38(25.3)	45(30.0)	3(2.0)
Overhead projector	15(9.37)	63(42.6)	17(11.3)	44(29.7)	9(6.1)
Electronic book	13(8.6)	58(38.4)	17(11.3)	62(41.1)	1(0.7)
Video/Audio CD	33(21.7)	93(61.2)	10(6.6)	16(10.5)	-
GSM	76(51.4)	56(37.8)	13(8.8)	3(2.0)	-
Internet	17(11.8)	46(30.9)	28(18.8)	11(7.4)	47(31.5)

**Sources:** Field survey, 2015

**Table 7: Shows the effect of ICT usage (Accessibility) on Fadama Beneficiaries**

Mass Media Type	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Radio	91(60.7)	59(39.3)	-	-	-
Television	64(43.8)	80(54.8)	2(1.4)	-	-
Print media	13(8.7)	84(56.0)	13(8.7)	36(24.0)	4(2.7)
Cinema van	3(2.0)	77(52.4)	19(12.9)	44(29.9)	4(2.7)
Multimedia projector	9(6.1)	69(46.6)	14(9.5)	42(28.4)	14(9.5)
Overhead projector	10(6.8)	51(34.5)	29(19.6)	40(27.0)	18(12.2)
Electronic book	10(6.8)	52(35.6)	14(9.6)	44(30.1)	26(17.8)
Video/Audio CD	24(16.0)	96(64.0)	15(10.0)	15(10.0)	-
GSM	68(45.9)	67(45.3)	13(8.8)	-	-
Internet	12(8.0)	50(33.3)	20(13.3)	18(12.0)	50(33.3)

**Sources:** Field survey, 2015



**Table 8: Shows the effect of ICT usage (Wider coverage) on Fadama**

<b>Beneficiaries</b>					
<b>Mass Media Type</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Undecided</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Radio	84(59.2)	46(32.4)	-	12(8.5)	-
Television	31(22.3)	106(76.3)	2(1.4)	-	-
Print media	18(12.7)	88(62.0)	4(2.8)	32(22.5)	-
Cinema van	15(10.8)	63(45.3)	22(15.6)	7(5.0)	32(23.0)
Multimedia projector	22(15.5)	54(38.0)	26(18.3)	6(4.2)	34(23.9)
Overhead projector	15(10.6)	60(42.3)	14(9.9)	19(13.4)	34(23.9)
Electronic book	11(7.7)	54(38.0)	11(7.7)	20(14.1)	46(32.4)
Video/Audio CD	21(14.8)	100(70.4)	4(2.8)	17(12.0)	-
GSM	72(51.4)	57(40.7)	9(6.4)	2(1.4)	-
Internet	15(10.6)	37(26.1)	26(18.3)	16(11.3)	48(33.8)

**Sources:** Field survey, 2015

**Table 9: Shows the Effect of ICT usage (More knowledge) on Fadama**

<b>Beneficiaries</b>					
<b>Mass Media Type</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Undecided</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Radio	96(67.6)	46(32.4)	-	-	-
Television	68(48.6)	72(51.4)	-	-	-
Print media	72(50.7)	65(45.8)	5(3.5)	-	-
Cinema van	62(44.3)	68(48.6)	6(4.3)	-	-
Multimedia projector	51(36.2)	70(49.6)	15(10.67)	5(3.5)	-
Overhead projector	55(39.0)	42(31.3)	33(23.4)	4(2.8)	-
Electronic book	52(36.1)	45(31.3)	22(15.3)	19(13.2)	6(4.2)
Video/Audio CD	65(40.6)	57(35.6)	11(7.7)	10(7.0)	-
GSM	76(53.1)	67(46.8)	-	-	-
Internet	54(37.8)	48(33.6)	16(11.2)	12(8.4)	13(9.2)

**Sources:** Field survey, 2015

### **Limiting Factors/Constraints to the use of Mass Media**

From Table 3, the result shows that the major limiting factor affecting the electronic mass media is lack of electricity and poor timing of the program which represent 33.8% and 30.6%. According to the respondent's view, the high cost of electronics constitutes 13.8% while poor reception and poor program quality constitute 11.8% and 10.0% respectively. This implies that the available time air marked for the program is relatively short by given to other non-agricultural programs, with this development there is a need to sponsor vital agricultural

programs at regular time intervals to improve the timing involved in the complete delivery of any program.

**Table 10: Shows the distribution of the respondents according to the problems associated with the use of ICT**

Variables	Frequency	Percentage
Poor reception	19	11.8
Poor airtime of the program	49	30.6
High cost of electronics	22	13.8
Poor program quality	16	10.0
Lack of electricity	54	33.8

Source: field survey 2015

### Test of Hypothesis

#### Relationship between the Extension media methods and Agricultural Technologies

The model used for this study posits the existence of a relationship between Agricultural Technologies and Extension Media Methods. Results of the Spearman correlation coefficient ( $r_s$ ) as shown in Table 11, indicates that there is a positive and significant association between the information delivery of agricultural technologies and extension media program methods. For example, results of Spearman correlation coefficients indicate that a significant association exists between the value addition on rice, cassava, and shea butter processing and radio with ( $r_s = 0.754$ ), Television programs ( $r_s = 0.174$ ), Advocacy calls ( $r_s = 0.552$ ), visit community leaders and rural market ( $r_s = 0.455$ ) and interpersonal contact with communities ( $r_s = 0.440$ ).

Similarly, animal traction for land cultivation was significantly related to Radio as a means of communication with ( $r_s = 0.244$ ) and visits to community leaders and rural markets with ( $r_s = 0.296$ ) at an alpha level of 0.05.

Moreover, the introduction to Yam mini sett production was indicated to be statistically significant at an alpha level of 0.05 on Radio ( $r_s = 0.494$ ) and Television ( $r_s = 0.430$ ). Aquaculture had a significant relationship at an alpha level of 0.05 with Print media, Advocacy call, visit to community leaders and rural market and Interpersonal contact with communities have correlated values as ( $r_s = 0.448, 0.319, 0.471, \text{ and } 0.240$ ) respectively.

*An investigation into a Fast Spreading Parasitic Plant (mistletoe: tapinanthus globiferus.) On an Economic Tree, Locust Beans Tree: Parkia Biglobosa in Bauchi State College of Agriculture, Farm Lands, Yelwa, Bauchi State*

More so, Artificial insemination on cows has a significant relationship with Radio

( $r_s = -0.355$ ), Print media ( $r_s = 0.376$ ) and Interpersonal contact with communities ( $r_s = 0.256$ ) respectively and that of Advocacy call ( $r_s = 0.176$ ) at alpha level of 0.01.

The analysis also shows that the improved cock breed (agricultural technology) is significantly related to Television ( $r_s = 0.352$ ), Advocacy calls ( $r_s = 0.248$ ), Visit to community leaders and rural market ( $r_s = 0.364$ ), and Interpersonal contact with communities ( $r_s = 0.212$ ) at an alpha level of 0.01 respectively, while Print media ( $r_s = 0.161$ ) was significant at an alpha level of 0.05.

Also, Waste to wealth using pure water leather bags was significantly correlated with Television ( $r_s = 0.160$ ) and Interpersonal contact with communities ( $r_s = 0.207$ ) at an alpha level of 0.05 and 0.01 respectively.

Similarly, Waste management to compost manure had significantly correlated with Advocacy calls ( $r_s = 0.362$ ), Visit to community leaders and rural market ( $r_s = 0.242$ ), and Interpersonal contact with communities ( $r_s = 0.371$ ) at an alpha level of 0.05. Rice brand as manure was significantly correlated with Radio ( $r_s = 0.160$ ), Television ( $r_s = 0.185$ ), and Advocacy calls ( $r_s = 0.189$ ) at an alpha level of 0.01, while a visit to community leaders and rural market ( $r_s = 0.287$ ) and Interpersonal contact with communities ( $r_s = 0.257$ ) were also significant at an alpha level of 0.05 respectively.

Soap making was statistically significant with Radio ( $r_s = 0.161$ ) at an alpha level of 0.01, while that of Print media ( $r_s = 0.643$ ), Advocacy call ( $r_s = 0.460$ ), and Inter-personal contact ( $r_s = 0.360$ ) were also significantly correlated at an alpha level of 0.05 respectively.

Also, Pomade from shea butter ointment and jelly oil had a significant relationship with Television ( $r_s = 0.401$ ), Print media ( $r_s = 0.529$ ), Advocacy calls ( $r_s = 0.462$ ), Visit community leaders and rural market (0.342) and Interpersonal contact (0.300) at an alpha level of 0.05 respectively.

Biogas technology using cassava piles was revealed to have a significant relationship with Radio ( $r_s = -0.298$ ), Print media ( $r_s = 0.420$ ), and Interpersonal contact ( $r_s = 0.334$ ) at an alpha level of 0.05 while Advocacy

call ( $r_s = 0.201$ ) was significant at an alpha level of 0.01. More so, zero tillage had a significant relationship with Radio ( $r_s = -0.212$ ) and Interpersonal contact ( $r_s = 0.221$ ) at an alpha level of 0.05 respectively.

Thus, the hypothesis ( $H_0$ ) tested between agricultural technologies and extension media methods indicated to have had a statistically significant relationship, therefore the null hypothesis which stated that the use of mass media is not effective in information delivery of agricultural technologies among the beneficiaries was rejected in favour of alternative hypothesis at an alpha level of 0.01 and 0.05 respectively. This study implies that agricultural technologies were improved because of the extension media method of communication, and mass media is effective in information delivery of agricultural technologies in the study area.

**Table 11: Spearman's rho Correlation Coefficient showing the significant relationship between Agricultural Technologies and Extension Media Methods.**

Agricultural technologies Spearman's rho	Radio	Television	Print media	Advocacy call	Visit community leaders and rural market	Interpersonal contact with communities
Value addition on rice, cassava, and shea butter processing	-0.059	0.174*	0.754**	0.552**	0.455**	0.440**
Animal traction for land cultivation	0.244*	0.078	-0.109	0.097	0.296**	0.103
Yam mini sett production	-0.494*	-0.430**	0.097	0.061	0.100	0.070
Aquaculture (fish folk and fish processing)	-0.122	0.090	0.448**	0.319**	0.471**	0.240**
Artificial insemination on cows	-0.355*	-0.142	0.376**	0.176*	-0.061	0.256**
Improve cock breed	-0.039	0.352**	0.161*	0.248**	0.364**	0.212**
Waste to						

*An investigation into a Fast Spreading Parasitic Plant (mistletoe: tapinanthus globiferus.) On an Economic Tree, Locust Beans Tree: Parkia Biglobosa) in Bauchi State College of Agriculture, Farm Lands, Yelwa, Bauchi State*

wealth using pure water leather bags	-0.154	-0.160*	0.147	0.153	0.027	0.207**
Waste management to compost manure	-0.100	0.076	0.089	0.362**	0.242**	0.371**
Rice brand as manure	0.160*	0.185*	0.036	0.189*	0.287**	0.257**
Soap making	-0.161*	0.078	0.643**	0.460**	0.120	0.360**
Pomade from shea butter ointment and jelly oil	0.100	0.401**	0.529**	0.462**	0.342**	0.300**
Biogas using cassava piles	-0.298*	-0.115	0.420**	0.201*	0.003	0.334**
Zero tillage	-0.212*	-0.124	0.101	0.041	-0.027	0.221**

\*\* Correlation is significant at the 0.01 level

\* Correlation is significant at the 0.05 level

## CONCLUSION

Based on the result of the study, it can be concluded that the majority of the respondents are married, aged between 40-59 years, possessed secondary, NCE/Diploma, and Qur'anic/Arabic education, and are engaged in Farming. The study also concluded that radio, television, print media, GSM, and the internet are available to mass media in the study area, but radio and television were more available and accessible, hence serving as the major sources of agricultural technologies to the respondents. Generally, the use of mass media in the dissemination of agricultural technologies was found to be effective in the study area. Given farmers' preference over other mass media channels, there is a need to establish community television stations that should feature special programs targeted at rural farmers.

## RECOMMENDATIONS

However, to provide better access and improve the effectiveness of mass media in the dissemination of agricultural technologies for agricultural development in the study area, the following recommendations were made:

- Agricultural extension delivery particularly the Fadama III Development Project should strengthen the use of radio and television for information delivery to farmers in the study area.
- Adequate announcements of the agricultural programme on the radio and television before the kickoff for the programme will keep the farmers abreast and enable them to plan their time to listen to and watch such programme.
- Formation of radio for rural farmers or listening groups among the farmers should be encouraged.
- The erratic power supply should be improved significantly if mass media especially electronic mass media is to perform its roles effectively.
- Finally, the educational level of the study area should be increased, and farmers should be encouraged to be able to get benefits from printed material.

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