Anchor University Journal of Science and Technology (AUJST)
A publication of the Faculty of Science and Science Education, Anchor University Lagos
URL: journal.aul.edu.ng
Vol. 1 No 2, December 2020, Pp. 17 - 24
ISSN: 2736-0059 (Print); 2736-0067 (Online)

Assessment of Rice Farmers' and Extension Agents' Perceptions on the Use of Radio in Dissemination of Agricultural Information in Zamfara State, Nigeria

[1]Yahaya M., [2]Sa'adu U., [2]Yahaya K., [1]Kabiru R.

[1]Department of Agricultural Technology, College of Agriculture and Animal Science Bakura, Zamfara state.

[2]Department of Agricultural Economics and Extension, Kebbi State University of Science and Technology Aliero, Kebbi State.

. **Corresponding author:**

E-mail: myacgummee99@gmail.com

Phone: +2348038194549

Submitted 17 August, 2020

Accepted 3 November, 2020

Competing Interests: The authors declare no competing interests.

ABSTRACT

Background: The absence of a functional agricultural information delivery system is a major constraint in the development of agriculture in Nigeria. Radio is identified by experts to be the most appropriate for rural emancipation programs, because it beats distances, and thus has immediate effect.

Objectives: This study assessed the perceptions of rice farmers and extension agents on the use of radio in the dissemination of agricultural information in Zamfara state.

Methods: The research uses a structured questionnaire for data collection. Multi-stage, simple random and purposive sampling techniques were used to arrive at a sample size of 350 farm respondents. Descriptive statistics and a five-point Likert scale were used. Also, the hypothesis was tested using a Spearman's correlation co-efficient.

Results: The major perception of rice farmers and extension agents was that radio serves as a panacea in closing the information gap in the study area with a mean of 2.80 and 2.94 respectively. The Correlation Coefficient (r) of 0.97. indicated that, there is a significant Correlation between rice farmers and that of extension agents' perceptions on the use of radio in the dissemination of agricultural information in the study area.

Conclusion: The research findings were able to identify some constraints such as non-possession of A radio set by rice farmers and their limited time to listen to most of the radio programmes. Therefore, there is the need to integrate extension service with agricultural radio programmes.

Keywords: Assessment, Perceptions, Radio, Rice Farmers Extension Agents

INTRODUCTION

In most parts of the developing world, Agriculture is the most valuable economic activity which provides food, employment, foreign exchange and raw materials for industries (Tadesse, 2008). Also, the linkage between farmers, extension agents and research networks in African countries is weak which does not reflect their priorities in research. The absence of a functional agricultural information delivery system is a major constraint in the development of agriculture in Nigeria. (Aina, 1989) reported that, non-provision of necessary agricultural information remains a key factor limiting agricultural development in Nigeria. Proper use of information and, the mass media, can provide information at the rates driven by arresting pressure of time, population, geographical constraints, and shortage of trained Extension personnel in developing countries. Radio is identified by experts to be the most appropriate for rural emancipation programs, because It beats distances, and thus has immediate effect. Traditional mass media channels that include radio, television and newspapers continue to be relevant particularly in most parts of Africa where new technology has been slow in taking root. New developments in technology have not obliterated traditional forms of mass media. Radio in particular has consistently remained in the lead over all other forms of media as the most utilized medium.

It has continued to provide current development about events unfolding around the world, educating audiences about diverse subjects such as climate change, health issues, nutrition, and governance. The influence of radio is best demonstrated by the stranglehold post-authoritarian African governments maintained over the medium soon after gaining independence through the state-owned radio with the excuse they were protecting the citizens from its corrupting influence on the audience‖ (Williams, 2003).

The sustainable and productive agricultural sector worldwide largely depends on the quality and effectiveness of extension services delivery. (Kimaro*, et al,* 2010), but lack of the necessary knowledge, skills and experience in adopting different extension methods is usually the case. However, most extension agents use individual extension teaching methods ranging from a farm or home visits and use of contact farmers to communicate and disseminate agricultural technologies to farmers. They are also working under poor infrastructural facilities such as transportation (Asayehegon *et al*., 2012). The use of conventional extension methods such as farm or home visits and contact do not provide the needed agricultural information on a timely basis (Deribe, 2011). This makes it practically difficult to reach the target farmers by face-to-face or individual contact methods. Therefore, these conditions undermine the provision of relevant agricultural information on a timely basis. The problem mentioned above calls for the use of radio to support agricultural extension services delivery because the radio can be more effective in delivering timely and relevant information to farmers, even to those living in remote areas. This research aimed to examine the socio-economic characteristics of rice farmers and that of extension agents in the study area and also assess the perceptions of rice farmers and that of extension agents on the use of radio in agricultural information dissemination in the study area

Theoretical Framework.

The hypodermic needle model (known as the hypodermic syringe model, is used for this study. This model of communication suggested that an intended message is directly received and wholly accepted by the receiver. However, the model uses the same idea. with the magic bullet theory. Also, it has been suggested that the media injects its messages directly into the passive audience. This means that media explores information in such a way that, it will inject into the mind of the audience as a bullet (www.wikipeia.org).

Methodology

Zamfara State is located in the north-western part of Nigeria and covered an area of 38,418 square kilometers. It is bordered in the North by the Niger Republic, to the South by Kaduna State, in the East by Katsina State and also to the West by Sokoto and Niger States respectively. It has a population of 3,278,873 according to the 2006 census. The research study employed a survey design, where two agricultural zones in the state were considered. More so, a Multi-Stage, simple random and purposive sampling procedure was adopted for data collection. At the first stage, four (4) and three (3) Local Government Areas were randomly selected from Zone 1 and II respectively. The second stage involves a purposive selection of five villages each from the selected local government from zone I and II, making a total of twenty (20) with fifteen (15) villages from zone 1 and II respectively. This will however constitute a total of 35 villages as a whole. At the third stage, ten (10) farmers with 1 extension agent from each of the selected villages were also selected using a random selection technique to arrive at 350 farm respondents, 35 village extension agents. The analytical tools used for data analyses include descriptive statistics such as tables, frequency distributions, percentages, Likert scale and Spearman`s Correlation Co-efficient.

Likert was specified as:

1, SA= strongly agreed;
2, A= Agreed;
3, UD = Undecided;
4, DA= Dis-agreed;
5, SD= strongly dis-agreed

Decision rule

Mean scores from 2.50 to 3.00 are considered to be agreed
Mean scores from 2.00 to 2.49 are considered to be undecided
Mean scores from 1.00 to 1.99 are considered to be dis-agreed

Likert formula

$$Xs = \frac{\sum fn}{Nr} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

Where

Xs = mean score,
$\Sigma =$ Summation,
F = Frequency (1, 2, 3, 4, 5)
n = Numerical values
Nr= Number of respondents.

$$r_s = 1 - \frac{6\sum D^2}{n(n^2-1)} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots 2$$

Where:

rs = Spearman`s co-relation co- efficient = Difference between ranks pairs,
n = Number of observation

Results and Discussion

Table 1 above shows that the mean age of the rice farmers and extension agents were 40 and 41years respectively. These results agree with the findings of Ezeh (2013) where the mean age of the respondents was 40years. This implies that rice farmers in the study area fall within the young middle-aged group. Age is an important characteristic that determines their ability to pursue and learn new technologies by listening to radio programs. The findings also show that 332 were male (94.9%) while 18 were female (5. 1%) farmers. Table 1 indicated that the number of males is higher than that of females, this is characterized by the religious and cultural beliefs of the local communities in the state where land is predominantly owned by men. Also, on the other hand, they are all male on the part of the extension agents. This implies that there is fewer women participation in rice production in the study area and the results reflect the issue of land ownership where most farmland is owned by men. These results are similar to the findings of Ezeh, (2013) where he reported higher participation of males than females in having access to agricultural information which amounted to (61.67% and 38.33%) respectively.

The results in Table 1 also revealed that 82.5% of the respondents are married and 8.3% are single. (30.7%) of the respondents possessed non – formal education while the majority of the extension agents (51.45%) obtained a higher national diploma. These results are similar to the reports of Isiaka *et.al,* (2009), Adisa and Adekoya (2011) that, most extension agents (59.4%) obtained (HND) certificate This indicated that, majority of those who had a higher level of education access information easily. Okwu, *et.al,* (2007) also reported that individual levels of education can affect accessibility, comprehension and adoption of modern agricultural technology. Besides, Ofouoku, *et.al*, (2008) argued that the level of education in farmers has a significant effect on information utilization. Table 1 above also revealed that rice farmers in the study area had a mean 9 years of farming and extension agents 25years of working experience. The majority (32%) of the respondents were businessmen followed by a civil servant and students (28%) respectively.

The results in Table 2 indicated that rice farmers with a mean of 2.80 are of the view and agreed that, radio helps in creating awareness of research findings. This implies that a mean (2.80) of the respondents constituted the majority and had agreed that, radio is an important means of communication of relevant agricultural information in the study area. This is closely followed by a mean (2.77) of the rice farmers who also agreed to the view that radio could also serve as a panacea in closing the information gap among respondents. However, a mean (2.75) of the rice farmers are in the view that radio could help in accelerating information among rice farmers. This is followed by a mean of 2.19

Table 1: Socioeconomic characteristics of Rice Farmers and Extension Agents

Variables	Farmers		Extension agents	
	Frequency	Percentage	Frequency	Percentage
Gender				
Male	332	94.9	35	100
Female	18	5.1	0	0
Age				
<19years	2	0.6		
20-29	56	16.0	13	37.1
30-39	105	30.0		
40-49	111	31.7	16	45.7
50-59	61	17.4	6	17.2
>60years	15	4,3		
Marital Status				
Married	289	82.5	35	100
Single	29	8.3		
Divorce	9	2.6		
Widow/widower	23	6.6		
Educational Attainment				
Non- formal	107	30.7		
Primary	46	13.1		
Secondary	92	26.8	16	45.7
ND	96	27.4	18	51.4
B.Sc./HND	9	2.6	1	2.9
Household Size				
1 – 3	98	28.0	3	18.6
4 – 6	102	29.1	13	37.1
7 – 9	52	14.9	10	28.6
10-12	49	14.0	9	25.7
Above 12	49	14.0		
Farm size				
<1ha	139	39.7		
1.5-2ha	161	46.0		
2.5-3ha	34	9.7		
3.5-4ha	15	4.3		
>4ha	1	0.3		
Farming Experience				
1-5	111	31.7	1	2.9
6-10	102	29.1	11	31.4
11-15	52	14.9	8	22.8
16-20	81	23.1	15	42.9
Above 20years	4	1.1		
Working Experience				
1-9			1	2.9
10-19			11	31.4
20-29			8	22.8
Above 30years			15	42.9
Secondary ccupation				
Business	112	32.0	21	60
Civil servant	98	28		
Agric trading	4	1.1	10	28.6
None	136	38.9	4	11.4
Association Membership				
Member	222	63.4		
None	127	36.3		
Missing	1	0.3		

Table 2: Perceptions of Rice farmers in Accessing Agricultural Information via Radio set

S/N	Statements	Farmers perceptions					Total	Mean	Rank
		SA	A	UD	DA	SD			
1	Radio create awareness of research findings	46	120	361	261	194	982	2.80	1st
2	Radio is a panacea in closing the information gap in the study area	45	124	243	311	248	971	2.77	2nd
3	Radio helps In accelerating information in the area	99	134	340	219	172	964	2.75	3rd
4	Radio aids in behavioral changes	110	298	220	69	69	766	2.19	4th
5	Radio reaches a large no. of rice farmers irrespective of their location	110	316	110	123	76	735	2.10	5th
6	The Poor radio signal is the case in the area	119	302	80	147	60	708	2.02	6th
7	Radio saves time and resources of farmers	159	236	160	60	84	699	1.94	7th
8	Radio is cheap and affordable by rice farmers in the area	110	370	60	117	16	673	1.92	8th
9	Radio is accessible and usable by rice farmers in the study area	210	218	35	78	0	531	1.52	9th
10	Radio helps in mobilizing all stakeholders in the area	63	264	19	4	0	350	1.00	10th

Key: strongly agreed (SA) = 1,

Agreed (A) = 2,

Undecided (UD) = 3

Dis-agreed (DA) = 4,

strongly dis- agreed (SD) =5

Decision Rule:
Mean scores from 2.50 to 3.00 are considered to be agreed
Mean scores from 2.00 to 2.49 are considered to be undecided
Mean scores 1.00 to 1.99 are considered to be dis-agree

Table 3: Perceptions of Extension agents in the Dissemination of Agricultural Information via Radio set

S/ no.	Statements	Ext. Agents perceptions					Total	Mean	Rank
		SA	A	UD	DA	SD			
1	Radio is a panacea in closing the information gap in the study area	3	25	44	10	21	103	2.94	1st
2	Radio saves time and resources of farmers	9	31	12	27	9	88	2.51	2nd
3	Radio helps In accelerating information in the area	5	28	15	21	12	81	2.31	3rd
4	Radio is cheap and affordable by rice farmers in the area	5	44	15	12	8	80	2.29	4th
5	Radio reaches a large no. of rice farmers irrespective of their location	14	22	30	6	8	80	2.29	4th
6	Radio aids in behavioral changes	12	24	20	15	8	79	2.26	6th
7	Radio create awareness of research findings	6	8	14	36	12	76	2.17	7th
8	Radio is accessible and usable by rice farmers in the study area	16	20	0	21	8	65	1.86	8th
9	Radio saves time and resources of farmers	19	20	0	12	8	59	1.69	9th
10	Radio helps in mobilizing all stakeholders in the area	23	22	0	0	4	49	1.40	10th

Key: strongly agreed (SA) = 1,). Agreed (A) =2. Undecided (UD) = 3 Dis-agreed (DA) = 4, strongly dis- agreed (SD) =5

Decision Rule:

Mean scores from 2.50 to 3.00 are considered to be agreed
Mean scores from 2.00 to 2.49 are considered to be undecided
Mean scores from 1.00 to 1.99 are considered to be dis-agreed

Table 4: Spearman's Correlation Co - efficient (n= 10)

S/no.	Farmers mean scores	Ext. Agents Mean scores	D	D^2	Rank
1	2.80	2.94	0.14	0.019	9th
2	2.77	2.51	0.26	0.068	4rd
3	2.75	2.31	0.44	0.194	2nd
4	2.19	2.29	-0.1	0.01	10th
5	2.10	2.26	-0.19	0.036	7th
6	2.02	2.17	-0.24	0.058	5th
7	1.94	1.86	-0.23	0.053	6th
8	1.92	1.69	0.06	3.60	1st
9	1.52	1.40	-0.17	0.029	8th
10	1.00		-0.4	0.16	3rd
			$\sum D^2 =$	4.23	

who are undecided that, radio could serve as an avenue for a behavioral change in the study area respectively. These stakeholders include the rice farmers, radio programmers, governmental and non-governmental agencies who are ready to sponsor radio programs and extension agents. These results however emphasized that, since radio reaches a larger coverage, it will help in bridging the information gap in most rural and inaccessible areas as a result of the current security challenges in the state.

The results in Table 3 revealed that extension agents are having nearly the same perception as the rice farmers on the use of radio in the dissemination of agricultural information in the study area where a greater number of the extension agents, with a mean (2.94) had also agreed that, radio could serve as a panacea in closing information gap among stakeholders in the study area. The results also showed that a mean of 2.51 of the respondents had constituted the majority which also agreed that, radio is an important means of accessing and communicating relevant agricultural information to rice farmers and extension agents respectively, and rice farmers as well. This is followed by a mean of 2.37 and 2.31 of the extension agents who are undecided on whether radio could save time and resources and or radio do accelerated information among stakeholders in the study area. With the least number coming from a mean of 1.40 of the extension agents who however dis-agreed that, radio is an important tool in mobilizing all stakeholders in the study area.

Table 4 explains the level of correlation between the perceptions of rice farmers and that of extension agents in accessing and dissemination of agricultural technologies in the study area. Therefore, rs is calculated as 0.97, this implies that there is a statistically significant correlation between the perceptions of rice farmers and that of extension agents in accessing and dissemination of agricultural information in the study area.

Conclusion

Based on the findings from this study, it could be concluded that radio plays an important role in the dissemination of agricultural information in the study area. The results showed less female participation; this reflects the mode of land ownership operated in Nigeria where most lands are owned by men.

From this s study, the major perception of rice farmers and extension agents on the use of radio in the dissemination of agricultural information was that radio does help in creating awareness of research findings. Radio also served as a panacea in closing the agricultural information gap between the

rice farmers and extension agents in the study area. It also reaches a large number of rice farmers irrespective of their location. Since the extension agents are the most trusted sources of agricultural information by the rice farmers. It is, therefore, important that the agricultural policies in the study area should aim at empowering the extension agents with technical and logistics support to train rice farmers through radio agricultural programmes especially with the current security challenges that may not guarantee the conventional approach of extension service delivery in the study area.

Based on the findings from the research study, the following recommendations, were made.

1. Generally, farmers considered extension agents as the most trusted source of agricultural information to farmers despite its challenges, there is the need to integrate extension service with radio agriculture programmes to effectively communicate with the rice farming communities in the study area.

2. There is a need for effective partnership with the various agricultural institutions and radio stations in the study area to overcome the challenges that both of them experienced.

3. There is the need to develop Radio listening groups in the study area this will helps in carrying along with the majority of the non - farmers towards the contents of the programme

4. Public and non-governmental organization in the study area should be able to sponsor recast radio programs that are geared towards information on rice production technologies in the study area.

REFERENCES

Adisa, T. and Adekoya, A. (2011). Perception. A determinant of scientist participation in Agricultural biotechnology research and development. *Journal of Agricultural science* ***vol. 3(1)*** pp 45-53

Aina I. O (1989). Education and Training of librarian for Agricultural information works in Africa. Pp 22-

Asayehegon, K, weldegebriel, G and kaske D. (2012). Effectiveness of development agents, Performance in agricultural technology dissemination in Ethiopia. *A journal of agricultural economics and extension*

Deribe, K. (2011). Agricultural information networks of farm. Women in southern Ethiopia. Germany lambert academic publishing. Retrieved from http:// www.tandfonline.com.Discussion forum projects

Ezeh, N. (2013). Extension Agents access and utilization of information and communication technology(ICT) in extension service delivery in south east Nigeria. *Journal of agricultural extension and rural development*

Isiaka, B.T, Lawal Adebowale, O.A and Oyekunle, O. (2009). Agricultural extension agent's awareness of ICT potential and training needs on usage for improved extension service delivery in selected south west state of Nigeria. *Journal of humanities, social science and creative arts* ***vol. 4****(1)*

Kimaro, W. H, Mukandiwa I and Mario E, Z. (2010). Towards improving agricultural extension Service delivery in the SADC Region. Proceedings of the workshops on Information sharing among extension players in the SADC, region of Tanzania.

Ofuoku, A.U, Emah, G.N and Itedgere, B.L (2008). Information utilization and among rural fish farmers in central agricultural zone of Delta state, Nigeria. *World journal of agricultural science 4(5), pp 555 - 564*

Okwu, O.J, Kaku, A.A and Abba, D.J (2007). An Assessment of the use of Radio in Agricultural Information Dissemination. A case study of Radio Benue in Nigeria. *African journal of Agricultural research* ***vol. 2 (1)*** *14-19*

Tadesse, D. (2008). Access and utilization of agricultural information by resettles farming Household Ethiopia. A thesis submitted to the Haramaya University, Ethiopia.

http://en.m.wikipedia.org. Hypodermic needle model, retrieved from visited on 21/06/2019

Williams, K. (2003) Understanding Media Theory. New York, NY: Oxford University Press