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RADIO AGRICULTURAL PROGRAMMES: A MEANS OF BRIDGING RESEARCH FINDINGS - RURAL FARMERS GAP. A CASE OF ZARIA METROPOLITAN AREA, KADUNA STATE, NORTH WESTERN, NIGERIA

[1]Ango, A. K., [2]Illo, A. I., [3]Yakubu, A. A., [4]F. J., Yelwa, & [5]Aliyu, A.
[1,3,4,5]Usmanu Danfodiyo University, Sokoto
[2]Kebbi State University of Science and Technology, Aliero

ABSTRACT
The study was carried out to examine the role of radio agricultural programmes in bridging gaps existing between research findings and the farmers of the study area. A sample survey was conducted with the aid of structured questionnaire to collect data through convenient sampling of 90 farmers. Descriptive and inferential statistics were used to analyze the data obtained. The findings of the research reveals that majority of the farmers were males (90%), 34.4% were within the active productive ages (31-42 years) and most of them had attained Islamic education (50%). Most of the farmers obtained agricultural information through radio agricultural programmes (97.8%) out of which majority had access to information through the format of presentation or discussion by an expert and or an extension worker through radio (77.8%). The finding also reveals that farmers adopted the information disseminated through radio, which was found to be highly relevant (32.2%) to the farmers' agricultural activities. Through the agricultural radio programmes aired, the farmers gained the knowledge of agricultural management practices (26.7%), prevention of post harvest losses (17.8%) and appropriate application of fertilizer (16.7%). The radio agricultural programmes were found to be very relevant linkage to agricultural information by majority (97.8%) of the farmers. The chi-square analysis depicts that there is significant relationship between the type of radio agricultural programmes aired and the knowledge gained by the farmers (X^2=94.2, $P< 0.03$). It is recommended that there is need for improvement on agricultural information programmes to farmers through radio and rural agricultural radio stations should be established in the villages to disseminate agricultural information and to teach farmers new science-base agriculture.

KEYWORDS: Radio, agricultural programmes, bridging gaps, research findings, rural farmers, Zaria, Kaduna State, N-W Nigeria

INTRODUCTION

If not for the development of mechanism that aids in transmitting meaningful stimuli among human beings, there could therefore, be no well defined societies and social structure, and the level of human relationships would be seriously hindered, and one of the greatest differences between man and other animals is that man developed communication systems that go beyond the mere expression of individual physiological as well as psychological reactions (Nwachukwu and Onuekwusi, 2005). It has been observed that of all the technological changes occurring in the traditional societies of the underdeveloped world, the most effective and the one that touches the livelihood of the people and their societies positively have been the changes in modes of communication (Nwachukwu and Onuekwusi, 2005). According to Rogers (1995) mass media channels are often the most rapid and efficient means to inform an audience of potential adopters about the existence of an innovation, which is to create an awareness or knowledge of the innovation. In recent decades, the widespread use of the mass media has resulted in heightening the level of public knowledge in different fields. Among the diverse mass media, radio and television, due to their wide and vast range of viewers, have an outstanding position particularly with regard to informal teachings, and are considered as the best cultural and educational media. Among the different modes of communication, radio has been acknowledged as a powerful communication tool (Nazimi and Hasbullah, 2010) that has proved to be the most effective media in promoting agriculture and the development in the rural areas (Nakabugu, 2001). FAO (2001) acknowledged radio as the most important communication medium for communicating with the rural populations of the developing countries. Adequate and relevant information from any means of communication is one of the key requirements for increased productivity, increased income and therefore leads to poverty reduction among the food producers (Nkrumah, 2008). The use of Information Communication Technologies - ICTs (Radio) can enhance, enlarge and contribute to efficient sharing of agricultural information. However, the relevancy of the information, the medium through which the information passed and the language used is central to how ICTs can be used as tools to meet the needs of the communities/farmers. As reported by Hambly (2002) radio is relevant to any strategy that involves rural development in Africa. Rural radio provides an opportunity to reach farmers irrespective of their literacy level and cultural diversities.

Despite the number of researches conducted by the research institutes and Universities that aimed at

improving the livelihood of the farmers through obtaining high yield, there exists a wide gap of disseminating the agricultural information discovered by scientific/agricultural researches to the ultimate users. A lot of findings from the research institutions and the University laboratories are not used by the farmers. Research information on improved seed varieties, better farming techniques, post-harvest and marketing are not within the reach of the farmers either because the information did not reach them, or because the implementation of the received information is not clear due to lack of competent and organized extension service delivery. The gap between the research findings and the farmers is even wider in the rural areas; large distances separate the researchers and the rural farmers (Nakabugu, 2001). Other barriers like language and diversity of cultures also come in to play making it even more difficult for the research information to reach the intended audiences.

In view of the vital role and potentials of research findings to farmers agricultural business, it's imperative to examine the gaps that exist and suggests possible ways of bridging the gap with the application of mass media extension teaching method (radio).

Objectives of the Study

The major objective of the research is to determine the means of bridging the agricultural information gap between the research findings and the farmers through the use of radio.

The specific objectives of the research are to:

1. Describe the socio-economic characteristics of the farmers in the study area.

2. Identify different agricultural programmes aired through radio.

3. Examine the accessibility of the farmers to new agricultural information through radio.

4. Investigate the format of presenting the agricultural programmes

5. Determine the knowledge gained through the agricultural programmes.

6. Find out the level of adoption of agricultural information aired

7. Examine the relevancy of radio agricultural programmes on agricultural production in the study area.

Hypotheses

i There is no significant relationship between the farmers socio-economic characteristics (age, education, marital status, gender) and access to agricultural information.

ii There is no significant relationship between the access to radio agricultural programmes and knowledge of agricultural information gained by the farmers.

METHODOLOGY

Study Area

The study was carried out in Zaria metropolitan area, consisting of Sabon gari, Kudan, Soba, Giwa,and Igabi Local Government Areas of Kaduna State, North-western region of Nigeria. The radio stations included in the study and from which various radio agricultural programmes were gathered are Radio Nigeria Kaduna; Zaria FM Radio and Queens FM Zaria. Zaria is located between latitude 11^0 - 4" North and longitude 7^0 - 42' 0" East. The study area lies in northern Guinea agro-ecological zone of Nigeria. The area experienced both the monsoon wind which blows from the Atlantic Ocean, brings rainfall to the area and the North-east trade wind that blows from the Sahara desert, resulting to Harmattan period (dry cold wind). The area experienced low temperatures of 21°C during harmattan period and high temperature of up to 42°C during the dry season. The rainfall in the area is experienced between the months of May to September; with an average rainfall of about 1050mm. Farming is the major occupation of the inhabitants. The economy of Zaria is based primarily on agricultural and industrial development. The chief agricultural products in Zaria are cotton, peanuts, hides and skins, ginger and bees wax.

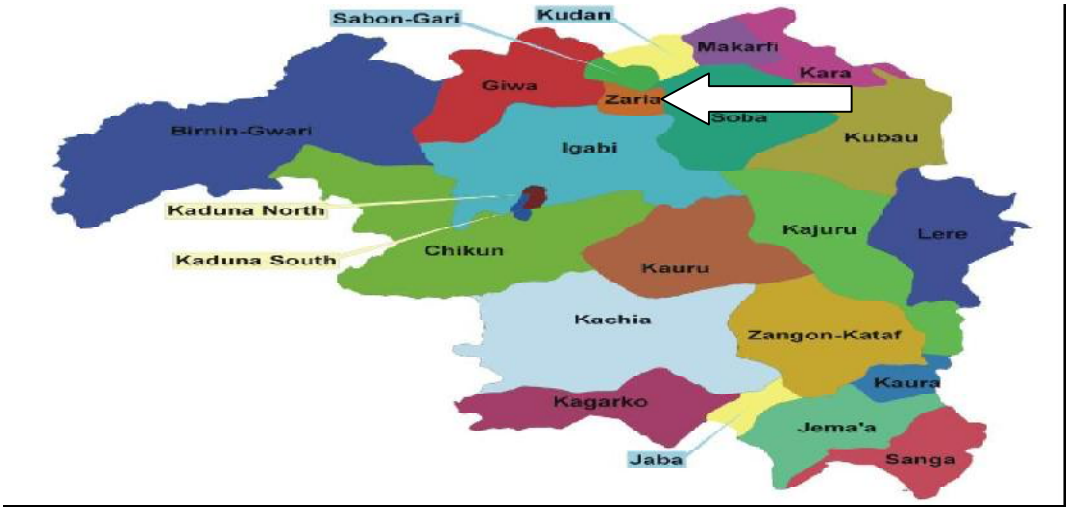

FIGURE 1: A map of Kaduna State indicating Zaria and its metropolitan areas

Sampling procedure and sample size

Zaria metropolitan Area comprises of five areas, these include Sabon gari, Kudan, Soba, Giwa,and Igabi. Three areas were purposively selected because of the abundance of farmers. Out of each of the selected areas, a convenient sampling of 30 farmers were chosen and administered with structured questionnaire, making a sample size of the study to constitute ninety (90) farmers.

Data Collection

The primary data for the study was sourced from a structured questionnaire administered to the farmers. While the secondary source was obtained from books, journals, conference proceedings, internet etc.

Measurement of variables

The socio-economic characteristics of the farmers featured issues like gender (male, female); marital status (married, single, divorced and widowed); age (in years); educational attainment in the form of Islamic education, adult education, primary, secondary or tertiary education as well as the income of the respondents per season (in naira/season). The nature of radio programmes and format of presentation were captured by asking farmers on whether or not listening to radio and programmes they listened to. The format for radio programme presentation features drama, interview, discussion and others. The agricultural programmes aired was measured based on the different agricultural programmes presented such as *daga kasuwannamu, makiyaya a rugga* etc. Relevance of radio agricultural programmes was rated through appropriate five point rating scale.

Data Analysis

Data collected for the study was analyzed with the use of descriptive statistics (tables, frequency counts and percentages) and inferential statistic (Chi-square).

RESULTS & DISCUSSION

Socio-economic Characteristics of the Farmers

Gender

Main farming activities were known to be practiced by the male farmers of northern Nigeria while females were in most cases left with processing and other value addition activities to the agricultural produce. The result in table1 indicates that majority (90%) of the famers were males while only few (10%) were females. This may be attributed to either the stress involved with farming activities, gender division of labour or access of women to lands due to their cultural background as well as prevailing norms and values of the people of the study area. This finding is in accordance with Crouch and Chamala (2001) who posits that a communicator needs to know the cultural content in which he or she operates either based on the dominant belief, norms or values of the society.

Marital status

Getting married by especially male child is an important aspiration of the parents in northern Nigeria, as this help in bringing more men and or females in to the family that provides cheap/free needed agricultural labour to the family. The result in table 1 indicated that majority (87.8%) of the farmers were married, 6.7% of them were single, and 3.3% of them were widowed, while only (2.2%) of the farmers were divorced. The higher percentage of married farmers in the study area may be attributed to the socio-cultural and religious believe of the community members where marriage is encouraged and is termed as a sign of responsibility and its one of the religious obligations of the farmers of the study area (Ango *et al,* 2011).

Age

The result in table 1 depicts that 34.44% of the farmers fall within the age group of 31- 42 years, 26.7% of them fall within the age group of 43- 54 years, 23.3% of the farmers fall within the age group of 18 to 30 years, and finally 15.6% of the farmers fall within the age range of 55 years and above.

The finding implies that most of the respondents were within the economically active age group of 31 to 54 years. Age factor was found to be significant in agricultural information accessibility and utilization and as such young people (farmers) are more responsive to new ideas and practice than older ones who were observed to be conservative and less responsive to adoption of new practices (Okwu *et al*, 2007).

Educational attainment

Attainment of education was found to have a positive relationship with the individual's attitudes towards change agents and as such favourable attitude to innovativeness. The findings in table 1 showed that most (50%) of the farmers had Qur'anic education, 20.0% of them attained tertiary education, 18.9%, 7.8%, and 3.3% of the farmers had secondary education, adult education and primary education respectively. The finding implied that almost all the farmers had attained one type of education or the other. This finding is in accordance with Okwu *et al* (2007) who reported that an individual's level of education was found to affect his or her access, comprehension and adoption of modern agricultural practices. The effect of education on adoption had been argued by several researchers. Voh (2002) reported a positive and significant relationship between formal education and adoption of agricultural innovation. This result was confirmed by Atala (1998) and Kidd (2001) in their separate studies.

Income of the farmers

The finding in table 1revealed that 36.7% of the farmers earned N22, 100 to N32, 000 in a growing season, 32.2% had a seasonal earnings of between N33, 100 to N60,000 and 22.3% of the farmers earned N12, 000 toN22, 000 per growing season while 7.8% of the respondents earned N72, 000 to N120, 000 per growing season. Those farmers with incomes between N22, 100 to N32, 000 constituted the highest population of the farmers. This indicates that the respondents generally were of low income which may affect their continuous production and adoption of capital intensive modern farm technologies (Okwu *et al*, 2007).

TABLE 1: Distribution of the farmers based on Socio-economic characteristics (n=90)

Variable	Frequency	Percentage
Gender		
Male	81	90.0
Female	9	10.0
Marital Status		
Married	79	87.8

Single	6	06.7
Divorced	2	02.2
Widowed	3	03.3
Age group		
18-30 years	21	23.3
31-42 year	31	34.4
43-54 years	24	36.7
55 years and above	14	15.6
Educational attainment		
Qur'anic education	45	50.0
Adult education	7	07.8
Primary education	3	03.3
Secondary education	17	18.9
Tertiary education	18	20.0
Income (N) /Season		
N12,000-22,000	21	22.3
N22,100-32,000	33	36.7
N33,100-60,000	29	32.2
N72,000-120,000	07	07.8

Source: field survey, 2012

Radio Agricultural Programmes Aired and Listened

As shown in the findings of table 2, 13.9% of the farmers listened to Agricultural commodity programmes, 13.2% of them listened to all the agricultural programmes aired, 10.4% of the farmers listened to *Daga Kasuwanninmu (*from our markets*)* agricultural programme, 7.6% of the them listened to *don makiyaya a rugga* (programme for nomads) agricultural programme, 6.9% of the farmers listened to *attajirin rani* (rich man of the dry season), *noman zamani* (modern farming) and lets go farming respectively. Lastly only (1.4%) of the farmers did not listen to any agricultural programme. This finding implies that almost all the farmers in the study area listened to one agricultural programme or the other. This finding is in agreement with Folarin (1990) that radio segment of electronic media has by far the larger audience of all the media.

TABLE 2: Farmers distribution based on radio programme listened to (n=90).

Radio Program listen to	Frequency	Percentage
No response	2	01.4
Agric commodity	20	13.9
Daga Kasuwanninmu	15	10.4
Noma Tushen Arziki	17	11.8
Ina manoma	18	12.5
Noman zamani	10	06.9
Attajirin rani	10	06.9
Let's go farming	10	06.9
Noma da kiwo	12	08.3
Don makiyaya a ruga	11	07.6
All the programmes	19	13.2
	*144	

Source: Field Survey, 2011 * multiple response

Accessibility of the farmers to new agricultural information

Due to lack of communication linkage and or effective extension delivery system, farmers are mostly left with their traditional method of agricultural production. The only possible alternative for the farmers to have access to new agricultural information is through radio, which mostly breaks literacy barriers for the westerly illiterate farmers that could not read and write formally. As shown in the findings of table 3, majorities (75.6%) of the farmers accessed agricultural information only through radio agricultural programmes and only (24.4%) of the farmers could not access agricultural information through radio agricultural programmes. As further shown in the findings of the research in table 3, most of the farmers (52.2%) relied on radio as the source of agricultural information and 24.4% of the farmers obtained their source of agricultural information through the extension workers while 14.4% and 8.9% obtained their source of agricultural information through market agents and their neighbours respectively. The findings imply that the most important alternative towards having access to agricultural information by the farmers is through radio. This may be attributed by the lack of competent trained extension workers and nonchalant attitudes of the various governments towards the agricultural sector of the economy.

TABLE 3: Farmers distribution based on their accessibility, source and type of agricultural information accessed and adoption of the accessed information (n=90)

Variable	Frequency	Percentage
Access to agricultural information		
Yes	68	75.6
No	22	24.4
Source of agricultural information		
Through mass media(radio)	47	52.2
Through the extension workers	22	24.4
Through neighbours	8	08.9
Market agents (dealers/middlemen)	13	14.4

Field survey, 2012

Format of presenting the Agricultural Programmes

In order to arouse the interest and create awareness among the listeners, radio stations normally presents their program in different formats. As indicated in Table 4 of the result, majorities (77.8%) of the farmers were of the view that the format of the agricultural programmes listened to was presented through talking/discussion in the radio, 11.1% of the farmers expressed that the agricultural programmes listened to was presented through the dramatic demonstration of the programme, 8.9% of the farmers listened to the agricultural programme through interviewing experts in the radio, while only (2.2%) of the farmers testified that they did not listen to any of the agricultural programmes aired. This implies that majority of the farmers' listened to agricultural programs that were presented in dramatic format which is more enticing fascinating to the listeners. This finding is in line with Valbuena (1993) who reported that radio programs are entertainment communications because its performance such as storytelling, interview and drama could facilitate development of agricultural extension programs through the rapid diffusion of new technologies.

TABLE 4: Distribution of the farmers based on the format the agricultural programs was presented (n=90)

Format	Frequency	Percentage
Drama	8	08.9
Interview	10	11.1
Talking/discussion	70	77.8
No response	2	02.2

Source: Field survey, 2011

Knowledge gained from agricultural programmes aired

The main essence of using radio of disseminating agricultural information to the farmers is to create awareness and convincingly demonstrate to the farmers on how such an improved technology could be practiced. The demonstrations could be made in different formant with the aim of attracting the interest of the farmers and ultimately create a conducive environment for them to change and adopt the technology disseminated. The findings in Table 5 showed that 26.7% of the farmers gained knowledge of agricultural practices through agricultural programmes aired by radio, 17.8% of the farmers gained knowledge on the prevention of post-harvest losses and 16.7% of the farmers gained knowledge on both appropriate and correct application of fertilizer and treatment for various animal diseases. The finding also revealed that 11.1% of the farmers gained knowledge on the accessibility to agricultural credit and other loan facilities and 8.9% of the farmers gained knowledge on disease; insects and pests control measures while only (2.2%) of the farmers did not gained any type of knowledge on agricultural activities as a result of the agricultural programmes aired.

The finding of the research indicated that the farmers in the study area attained some knowledge out of the agricultural programmes aired and also the knowledge gained had made impact on the farmer's agricultural practices. This finding is in line with Okwu *et al* (2007) who reported that the listeners of radio agricultural programmes gained knowledge of various improved practices and the knowledge gained was found very useful to their agricultural endeavours.

TABLE 5: Distribution of the respondents based on the knowledge gained through radio agricultural programmes (n=90)

Knowledge gain	Frequency	Percentage
Appropriate and correct application of fertilizer	15	16.7
Agricultural practices	24	26.7
Prevention of post- harvest losses	16	17.8
Appropriate treatment for various animals diseases	15	16.7
Access to agricultural credits and loans	10	11.1
No response	2	02.2

Source: Field survey, 2011

Adoption of information aired through radio Agricultural programmes

The main essence of creating awareness through radio agricultural programmes is to make the farmers aware and convincing through appropriate captivating format which subsequently convince the farmer to adopt the innovation. As indicated in Table 6 of the findings, majority (97.8%) of the farmers adopted the new practice disseminated through radio agricultural programmes while only (2.2%) of the farmers did not adopt the information obtained from the radio agricultural programmes. Farmers in the study area adopted the new technology disseminated through radio due to the availability of this media sources as well as its portability and the format in which the programme was aired. Drama as a traditional means of information dissemination allows different possible endings by encouraging audience participation which is aimed at changing the behaviour of participants of such means of communication (Panelist 2000; Adoyo 2004).

TABLE 6: Distribution of the farmers according to adoption of Agricultural information aired through radio programs (n=90)

Adoption of information	Frequency	Percentage
Yes	88	97.8
No	2	02.2

Source: Field survey, 2011

Relevance of Radio Agricultural Programmes Aired

The findings in table 7 indicates that 32.2% of the farmers expressed that radio agricultural programmes were highly relevant to their agricultural activities, 24.4% of the farmers were of the view that the radio agricultural programmes were very relevant to them, 22.2% of the farmers agreed that the radio agricultural programmes were partially relevant to their agricultural activities, 17.8% of the farmers were of the view that the radio agricultural programmes were relevant while only (3.3%) of the farmers were of the opinion that the radio agricultural programmes were not relevant to their agricultural activities.

The finding of the study implied that radio agricultural programmes are relevant as a result of the knowledge gained that helps in improving their agricultural activities. Omenesa (1997) observed that radio programmes are usually timely and capable of extending messages to the audience no matter where they may be as long as they have a receiver with adequate supply of power.

TABLE 7: Distribution of respondents based on the relevance of radio agricultural programmes (n=90)

Relevance of Radio programs	Frequency	Percentage
Highly relevant	29	32.2
Very relevant	20	22.2
Partially relevant	22	24.4
Relevant	16	17.8
Not relevant	3	03.3

Source: Field survey, 2011

Test of Hypotheses

Relationship between the farmers' socio-economic characteristics and the radio agricultural programmes aired

The nonparametric Chi-square analysis in table 8 indicated that the p- value indicated (0.99) on the age of the farmers greater than the significant level (0.05) therefore; the null hypothesis is rejected , indicating that there is significant relationship between the age of the farmer and his access to radio agricultural programmes. The analysis further revealed that the P- value (0.00) on the gender of the farmers is less than the significant level (0.05) therefore the null hypothesis is accepted. This expressed that there is no significant relationship between the gender of the farmers and their access to radio agricultural programmes. This implies that the access to agricultural programmes aired has no relation to the gender of the participating farmers, indicating that access to radio agricultural programmes is not gender bias.

TABLE 8: Relationship between access to radio agricultural programmes and socio-economic Characteristics of the farmers

Variables	X^2 values	Df	p-values
Age	18.422	40	0.99ns
Gender	57.600	1	0.00*
Marital status	189.556	3	0.00*
Education	59.778	4	0.00*

*Significant 5%, ns= Not significant, x^2 = Chi-square, Df=Degree of freedom

Relationship between radio agricultural programmes aired and knowledge gained (skill) by the farmers. The Chi-square analysis in Table 9 depicts that radio agricultural programmes aired is significantly ($p<0.01$) related to the knowledge gained by the farmers. It indicates that the more the agricultural programmes aired the more the knowledge gained.

TABLE 9: Relationship between the radio agricultural programmes aired and knowledge gained by the farmers

Variables	X^2 values	Df	P-value
Radio programmes aired and knowledge gained	94.216	60	0.03*

*Significant at 10%, x^2 = Chi-square, Df= Degree of freedom

CONCLUSION

Based on the findings of the study, it could be concluded that radio is relevant means of communicating agricultural information to the farmers and as such an effective tool in bridging the gap of unawareness of improved agricultural information most especially among farmers in the rural areas. It was also observed that the information disseminated through the farm radio was aired through discussions (talking) by an extension worker or an expert on the field. The programmes aired were found highly relevant and helped in acquiring agricultural skill which was utilized in solving farmer's agricultural problems.

RECOMMENDATIONS

Based on the findings of the study, it is deemed necessary to draw the following recommendations:

1. Agricultural farm radio stations should be established within the reach of the farmers, purposely to bridge the gap of not having access to improved agricultural information.
2. There is need for more effort in providing more agricultural information programmes to farmers through radio especially in the leisure periods of the farmers.
3. The public and Non-Government Organizations (NGO's) should endeavour to sponsor some agricultural programmes especially those that have strong bearing with the needs and interest of the farmers.

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