PERCEIVED EFFECT OF AGRICULTURAL EXTENSION PROGRAMME OF RADIO NIGER ON CROP PRODUCTION BY RURAL FARMER OF NIGER STATE, NIGERIA

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ABSTRACT

This study was carried out to examine the perceived effect of agricultural extension programmes (AEP) of radio Niger on crop production by rural farmers in Niger State, Nigeria. Multi-stage sampling technique was used to select 124 rural farmers. Primary data were collected with the aid of structured questionnaire complemented with an interview schedule, while data collected were analyzed using descriptive statistics. The result revealed that the majority (81.5%) of the respondent were males, 75.0% were married and 84.7% acquired formal education. Mean age, household size, farming experience and farm size of the respondents was 45 years, 8 people, 8.3 years and 3 hectares, respectively. Moreover, majority (91.9%) of the respondents owned and listened to AEP through radio station. There was high awareness of radio as a source of agricultural information ($\bar{X}$ = 2.27) as well as various AEP of radio Niger ($\bar{X}$ = 2.24) ranked 1st and 2nd, respectively in order of awareness. The main AEP usually disseminated through radio on crop production were Noma – tshonciniki (96.0%), Noma – fadama (60.5%) and Enunuci (55.6%). Majority (78.2%) benefited from few programmes, while only 7.3% benefited from all the programmes. The respondents perceived that information on pest and disease eradication ($\bar{X}$ = 2.31), information on timely planting ($\bar{X}$ = 2.30), information on improved crop varieties ($\bar{X}$ = 2.18) among others are the most effective AEP of radio Niger. The severe constraints in accessing AEP by the rural farmers are inadequate time for programmes transmission ($\bar{X}$ = 2.55) and poor radio signal ($\bar{X}$ = 2.35). It could be concluded that there was high awareness of various AEP in which Noman – tshoncinki and Noma – fadama was the most benefited one, while the programmes were perceived to be effective in enhancing crop production. It was recommended that, more AEP should be transmitted through radio stations, while extension agents should create awareness about time and content of the AEP.

KEY WORDS: Agricultural Extension Programmes (AEP), radio programmes, information, rural farmers

INTRODUCTION

Radio as one of Communication and Information Technologies (ICTs) is indispensable tool for transfer of new technologies designed to increase agricultural production (Ariyo *et al.*, 2013). There is a need for farmers to benefit from these ICTs. Thus, radio broadcasting plays an important role in providing information for the rural community to make informed decision concerning their farming activities (Mboho, 2009). Among the different mode of communication, radio has been acknowledged as a powerful communication tool (Nazim and Hasbullah, 2010). Radio is important as a medium of communication in rural communities because of the value attributed to it in form of exceeding the barrier of illiteracy and it require little intellectual spending than the other mass media (Oyeyinka and Bello, 2013). Agricultural information comprises of better farming methods, improved seeds, timely planting, agro-forestry, better harvesting methods, soil conservation, marketing, post-harvest handling and diversification.

However part of the advantage that radio has over other media is consideration of the large target audience which depends on the term of choice of language to be use in other to increase crop production (Oyeyinka and Bello, 2013). So, through Radio, it is very easy for an Igbo, Hausa and Yoruba man to know what is happening around him that affect his well-being. Adeyemi *et al.* (2008) posited that the Radio program stress the intellectual enhancement of the listeners and empower them with the knowledge in various domains. According to FAO (2001), radio is the most important communication medium in which information is been transfer to rural population in the developing countries like Nigeria. Any adequate and relevant information pass to the farmers are key for increasing productivities and income of the farmers therefore reducing the level of poverty of rural people (Nkrumah, 2008). Because there is a very large population of famer to be reached and the extension agents are limited, there is need for something or tools to disseminate this information to the farmers at appropriate time. Therefore, Okwu and Daudu (2011) ascertain radio to be one of the tools in reaching large number of Nigerian populace.

Mboho (2009) posited that the existing extension system cannot disseminate new Agricultural information to the farmers at the appropriate time, so there is need for Radio program that will disseminate information through Radio stations. Transfer of information with novel concept and farming technique bring new opportunity to the farmers (Mohammad *et al.*, 2010). Farmer that do listen to farming program on Radio has knowledge about new and modern method of farming than those that did not. Lwoga and Ngulube (2008) stated that farmers' access to information through radio will enable them to increase their production, links to profitable market and has reduce level of poverty. Agwu and Uche-Mba (2010) pointed that dissemination of agricultural information by ADPs in Nigeria is based on the Training and Visit (T&V) system which is traditionally supported by radio, cinema, video and telephone.

However, most of the developing countries have not achieved their goals about the progress of agricultural information service which has caused stagnancy in the development of agricultural production and marketing (Ekong, 2003). Nigeria as an example of developing countries and depend on face to face dissemination of information which make it difficult to cover large number of farmers who mostly live in rural areas. In order to avoid or tackle this problem there is need for the use of radio programme to bridge the gap between the researcher and farmers. It is on this backdrop that this study was conceived to examine the perceived effect of Agricultural Extension Programme (AEP) disseminated on new technologies in enhancing rural farmer's crop production in Niger State, Nigeria.

Objectives of the study

The specific objectives of the study are to:

i. describe the socio-economic characteristics of the rural farmers in the study area,
ii. access the level of awareness of AEP disseminated through radio Niger,
iii. examine the perceived effect of AEP disseminated on rural farmer's crop production, and
iv. identify the constraints of the rural farmer's in accessing AEP in the study area.

METHODOLOGY

The study area

The study was conducted in Bosso Local Government Area of Niger State, Nigeria which lies in between latitude 9° 31′ and 9° 40′ North of the equator and longitude 6° 29′ and 6° 35′ East of the Greenwich Meridian. It is one of the 25 Local Government Areas (LGAs) of Niger State and covers a total land area of 1,592 kilometer square (i.e. about 884 hectares). The LGA has a population of 147,359 (National Population Commission (NPC), 2006) which was projected to 201,917 as at 2016 using population growth rate of 3.2%. The major ethic groups in the LGA were Nupe, Gwari and Hausa. They are into crop production like yam, beans, rice, millet, groundnut, maize and sugarcane, and raised animals like; cattle, goat, sheep and poultry.

Sampling procedures

Multi-stage sampling technique was used to select respondents for the study. The first stage involved random selection of five communities (Maikunkele, Gidan-kwanu, Beji, Gidan-mangoro and Garatu) from Bosso LGA. The second stage involved obtaining the list of registered rural farmers in each of the communities from Niger State Agricultural Mechanization and Development Agency (NAMDA). The third stage involved proportionate sampling by 20% the rural farmers from each of the communities based on the list obtained from NAMDA to get a total of 124 respondents. Structured questionnaire complemented with an interview schedule was used to collect data which was analyzed using descriptive statistics (frequency distribution, percentages and mean) and attitudinal

measuring scale of 3 – point Likert type rating scale.

RESULTS AND DISCUSSION

Socio Economic Characteristics of the Respondents

The socio-economic characteristics of the respondents described include gender, marital status, age, household size, education and farm size. The socio-economic characteristics of the respondents described include age, gender, marital status, household size, education and farm size. As revealed in Table 1, majority (81.5%) of the respondents were males, while 18.5% were females implying that males are the dominant gender in crop production which could be attributed to factors such as norms and values, thus listen to agricultural extension programme air through Niger Radio station. More so, majority (75.0%) of the respondents were married, while 4.8% were divorced and 14.5% were single. The higher percentage of the married people could be due to socio-cultural and religious background of the people in the study area. This results is in line with the findings of Ango *et al.* (2013) who reported that communicators need to know the cultural background of the people he/she want to communicate to.

About half (47.6%) of the respondents were between the age range of 26 – 45 years with mean age of 45 years. This implies that the respondents are in their most active stage of life and has an advantage to increase their level of production through adoption of broadcasted innovation. This result is in agreement with Njoku (2016) who posited that farmers with mean age of 46 years are energetic and strong, and open to new innovation. In terms of education, majority (84.7%) of the respondents acquired formal education (comprising of primary, secondary and tertiary) implying that most of the respondents are literate. This is in line with the result of Miriam *et al.* (2013) who reported that improving educational level of rural farmers would probably increase their agricultural productivity and reduce poverty.

Furthermore, majority (69.3%) of the respondents had household size ranging between 1 – 10 members with mean household size of 8 members implying a fairly large household size. Large household size could ensure high access to information about agricultural innovations through Radio stations. This is in agreement with the findings of Shuaibu *et al.* (2011) who stated that large household size will serve as an advantage for adopting new technologies. More so, majority (83.1%) of the respondents had farming experience ranging between 1 – 10 years with mean of 8.3 years, while majority (75.8%) of the respondents had farm size ranging between 1 – 5 hectares with mean of 3.02 hectares implying that the respondents were small – scale farmers. Also, majority (91.9%) of the respondents in the study area own a radio set, while 8.1% do not own a set implying that most of the respondent owned and listen to AEP aired through Niger Radio station. This finding is in consonance with Miriam *et al.* (2013) who posited that must farmers in rural

area do listen to radio programmes because they own a radio set.

Table 1: Distribution of the respondents based on their socio-economic characteristics

Variables	Frequency	Percentages	Mean
Gender			
Male	101	81.5	
Female	23	18.5	
Total	**124**	**100.0**	
Marital status			
Single	18	14.5	
Married	93	75.0	
Divorced	6	4.8	
Widowed	7	5.7	
Total	**124**	**100.0**	
Educational status			
Non Formal	19	15.3	
Primary	39	31.5	
Secondary	34	27.4	
Tertiary	32	25.8	
Total	**124**	**100.0**	
Age (Years)			
<26	12	9.7	
26 – 35	22	17.8	
36 – 45	37	29.8	
>45	53	42.7	45
Total	**124**	**100.0**	
Household size (No)			
1 – 10	86	69.3	
11 – 20	36	29.0	
>20	2	1.7	8
Total	**124**	**100.0**	
Farming experience (Years)			
1 – 5	21	16.9	
6 – 10	32	25.8	
>10	71	57.3	8.3
Total	**124**	**100.0**	
Farm size (Hectares)			
1 – 5	94	75.8	
6 – 10	15	12.1	
11 – 15	6	4.8	
>15	9	7.3	3.02
Total	**94**	**100.0**	
Radio ownership			
Owned	114	91.9	
Not owned	10	8.1	
Total	**124**	**100.0**	

Source: Field Survey, 2016

Level of Awareness of the AEP disseminated on Radio Niger

This is the exposure of an individual farmer in the study area to agricultural exte on programme (AEP) disseminated through Niger radio station. Level of awareness o he respondents about programme disseminated through Niger radio station was clas ed using 3 – point Likert type rating scale with calculated mean score of 2.0. The dec on was that computed mean score value of 2.0 and above indicates high awareness, while at of less than 2.0 indicates low awareness. As revealed in Table 2, the respondents indic ed high awareness of the need for radio as a source of getting agricultural information ($\bar{X}$ = 2.27) ranked 1st, followed by awareness of various AEP disseminated through ra lio Niger ($\bar{X}$ = 2.23), significant of AEP ($\bar{X}$ = 2.24) and change in living standard thro gh AEP ($\bar{X}$ = 2.14) ranked 2nd, 3rd and 4th, respectively. The result shows that majority of the respondents knows the significant of radio as a means of accessing agricultural information disseminated through various AEP resulting to a change in their standard of living through practicing information from AEP disseminated through radio Niger. This result is in agreement with the findings of Lwoga and Ngulube (2008) who reported that farmers do access information through radio which enable them to increase their production and links to profitable market.

Table 2: Distribution of respondents based on the level of awareness of the AEP

Awareness	HA	A	NA	WS	MS	Remarks	Rank
Radio as a source of Agricultural information	165	96	21	282	2.27	High awareness	1st
Various AEP of Niger radio station	174	76	28	278	2.24	High awareness	2nd
Significant of AEP	132	128	16	276	2.23	High awareness	3rd
Change in living standard through AEP	144	90	31	265	2.14	High awareness	4th
Changes in output by adopting AEP	78	142	27	247	1.99	Low awareness	5th
Time of broadcasting AEP	96	118	33	247	1.99	Low awareness	5th
Reduction in cost of accessing agricultural information through AEP	78	140	28	246	1.98	Low awareness	7th

Source: Field Survey, 2016

HA = Highly Aware (3), A = Aware (2), NA = Not Aware (1), WS = Weighted Sum and MS = Mean Score

Furthermore, Table 3 revealed the agricultural extension programmes disseminated to the respondents in the study area. Majority (96.0%) of the respondents indicated that *Noman – tshoncinki* ranked 1st among the various AEP disseminated through radio Niger. This is followed by *Noman – fadama* (60.5%) ranked 2nd, while others are *Enunuci* (55.6%), Health is wealth (40.3%), *Noman – zamain* (26.6%) and *Eguwama* (12.1%) ranked 3rd, 4th, 5th and 6th, respectively. This implies that *Noman – tshoncinki and Noman – fadama* are the most effective agricultural extension programmes disseminated through radio Niger which could be due to fact that the programmes are disseminated using local dialect and centre on current agricultural activities with adequate funding.

Table 3: Distribution of respondents based on the AEP disseminated

AEP	Frequency*	Percentage	Rank
Noman – tshonciniki	119	80.6	1st
Noman – fadama	75	60.5	2nd
Enunuci	69	55.6	3rd
Heath is wealth	50	40.3	4th
Noman – zamain	33	26.6	5th
Eguwama	15	12.1	6th

Source: Field Survey, 2016 *Multiple responses

More so, Table 4 shows the distribution of respondents based on the numbers of agricultural extension programmes they benefited from in the study area. It revealed that majority (78.2%) of the respondents benefited from few AEP, while only 7.3% benefited from all of the AEP and 14.5% of the respondents indicated not to benefited from any of the AEP. This implies that most of the respondents benefited from at least one of the AEP disseminated through radio Niger which could be due that large number of people were covered through radio stations. However, few respondents did not benefit from any of the AEP disseminated through radio Niger. This is in agreement with the result of Ango *et al.* (2013) who posited that radio segment of electronic media has by far the larger audience of all the media.

Table 4: Distribution of respondents based on AEP benefited

Number	Frequency	Percentages
All	9	7.3
Few	97	78.2
Non	18	14.5
Total	**124**	**100**

Source: Field Survey, 2016

Perceived effect of AEP on crop production

The perceived effect of AEP disseminated through radio Niger on crop production by the respondents was categorized using 3–point Likert type rating scale with calculated mean score of 2.0. The decision rule was that computed mean score value of 2.0 and above indicated effective of AEP on crop production, while that of less than 2.0 indicates not effective. As revealed in Table 5, information on pest and disease eradication ($\bar{X}$ = 2.31), information on timely planting ($\bar{X}$ = 2.30) and information on improved crop varieties ($\bar{X}$ = 2.19) were the most perceived to be effective AEP on crop production in the study area ranking 1st, 2nd and 3rd, respectively. Others include information on new planting techniques ($\bar{X}$ = 2.18), new harvesting techniques and fertilizer application ($\bar{X}$ = 2.17) ranked 4th and 5th, respectively. This implies that majority of the respondents in the study area practice the information on pest and disease eradication broadcasted through AEP in radio Niger which help to increase the level of crop production. Timely planting and the use of improved varieties are also very useful in boosting level of production. This findings is in agreement with that of Myer (2008) who reported that through radio programmes, farmers have access to the agricultural information which help them to increase their production. Nakabugu (2010) also reported that information on better harvesting method, soil conservation, marketing, post-harvest handling, pest and disease eradication and diversification help to increases farmers level of production.

Table 5: Perceived effect of AEP disseminated on crop production

Practice	VE	E	NE	WS	MS	Remark	Rank
Information on pests & diseases eradication	186	78	23	287	2.31	Effective	1st
Information on timely planting	177	86	22	285	2.30	Effective	2nd
Information on improved crop varieties	153	92	27	272	2.19	Effective	3rd
Information on new planting techniques	129	120	21	270	2.18	Effective	4th
Information on new harvesting techniques	156	82	31	269	2.17	Effective	5th
Information on fertilizer application	123	126	20	269	2.17	Effective	5th
Information on market price	144	88	32	264	2.13	Effective	7th
Information on soil conservation	111	126	24	261	2.10	Effective	8th
Information on crop diversification	111	108	33	252	2.03	Effective	9th
Information on raising income and savings	69	156	23	248	2.00	Effective	10th
Information on improving living standard	84	92	50	226	1.82	Not Effective	11th

Information on capacity building	90	66	61	217	1.75	Not Effective	12th
Information on post harvest handling	63	90	58	211	1.70	Not Effective	13th
Information on access to agricultural loan	48	100	58	206	1.66	Not Effective	14th

Source: Field Survey, 2016

VE = Very Effective (3), E = Effective (2), NE = Not Effective (1), WS = Weighted Sum and MS = Mean Score

Constraints of the rural farmer's in accessing AEP

The constraints of the respondents in accessing AEP disseminated through radio Niger was categorized using 3 – point Likert type rating scale with calculated mean score of 2.0. The decision rule was that computed mean score value of 2.0 and above indicated severe constraints, while that of less than 2.0 indicates not severe. As revealed in Table 6, the most severe constraint the respondents are face with is inappropriate time of programme dissemination ($\bar{X}$ = 2.55) which ranked 1st among the constraints, while others are poor radio signal ($\bar{X}$ = 2.35), inadequate time for AEP ($\bar{X}$ = 2.20) and unstable power supply ($\bar{X}$ = 2.19) ranked 2nd, 3rd and 4th, respectively. These are the severe constraints among all the constraints identified in the study area. This implies that there is inconsistency in time of disseminating AEP, poor frequency and signal variation are usually problem associated with rural farmer's access to radio programmes. Time allocation and unstable power supply were also identified as severe constraints in accessing AEPs disseminated through radio Niger in the study area. Although, radio doesn't depend solely on power supply before utilization, the respondents may not have the resources to purchase battery in order to listen to AEP on radio station. This result is in agreement with the findings of Nwachukwu (2010) who reported that the major constraints farmers are facing in accessing AEPs disseminated through radio is that of inconsistency of time, while the time usually allocated for the programmes is too short.

Table 6: Distribution of respondents based on the constraints faced in accessing AEP

Constraints	VS	S	NS	WS	MS	Remarks	Rank
Inappropriate time of AEP	249	52	15	316	2.55	Severe	1st
Poor radio signal	198	72	22	292	2.35	Severe	2nd
Inadequate time for AEP	132	122	19	273	2.20	Severe	3rd
Unstable power supply	126	128	18	272	2.19	Severe	4th
Lack of trust for radio messages	87	106	42	235	1.90	Not severe	5th
Poor broadcast of AEP	45	140	39	224	1.81	Not severe	6th
Poor comprehension of AEP	78	96	50	224	1.81	Not severe	7th

Language barrier	81	64	65	210	1.69	Not severe
Inadequate access to radio	54	36	88	178	1.44	Not severe

Source: Field Survey, 2016

VS = Very Severe (3), S = Severe (2), NS = Not Severe (1), WS = Weighted Sum and MS = Mean Score

CONCLUSIONS AND RECOMMENDATIONS

Generally, it could be concluded that there was high awareness of radio as a source of agricultural information where various agricultural extension programmes are disseminated to the farmers to help them improve their level of crop production with the notable AEP being *Noman – ishomcinki* and *Noman – fadama*. uch an effective role in creating awareness about improved agricultural information must especially among the rural farmers in the study area. The respondents perceived AEP on pest and disease eradication, timely planting and improved crop varieties to be effective in enhancing the crop production of the respondents, while inappropriate time, poor signal and unstable power supply are the severe the constraints face by the rural farmers in the study area. Therefore, it was recommended that more AEP should be transmitted through radio stations, time allocated for the programmes need to be adjusted to suit the targeted audience and extension agents should create awareness about time and content of AEP. There is need for radio Niger to strengthen their signal in order to avoid signal fluctuation and enhance access the information disseminated.

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