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EFFECTIVENESS OF FARM RADIO BROADCAST IN THE PROMOTION OF YAM MINISETT TECHNOLOGY AMONG FARMER IN BENUE STATE, NIGERIA

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ABSTRACT

The purpose of this study was to assess the effectiveness of farm radio broadcast in the promotion of yam minisett technology among yam farmers in Benue State, Nigeria. The specific objectives were to; describe socio-economic characteristics of respondents, examine the effectiveness of farm radio broadcasts in promoting yam minisett technology and identify the challenges faced by respondents in listening to farm radio broadcast on yam minisett technology in the study area. A purposive and random sampling was used to select four (4) LGAs (Oturkpo, Ohimini, Gboko and Ukum)from the 3 agricultural zones to get a sample size of 180 respondents. Objectives were analyzed using descriptive statistical tools such as percentages, frequency, mean and multiple regression. The results showed the mean age of respondents was 38 years, most respondents (65.00%) were males, and good number (41.67%) had tertiary education while most (57.78%) were married. Mean household size was 6 persons and mean farm experience was 10 years. Mean score from five point likert rating scale showed that Language used in broadcast (3.76), clarity of broadcast message (3.38), time of broadcast (3.06), duration of radio programme (3.06), skill of presenter (3.67), signal strength (3.64) and coverage of subject (3.32) were effective and efficiently promote yam minisett technology through the farm radio. The study concludes that farm radio is effective and positively influences the promotion of yam minisett technology. It is recommended that radio presenters that disseminate information about modern farming technology such as Yam Minisett Technology should use simple to understand packages and Radio stations should ensure farmers participation through feedback to various agricultural programmes and farmers adequately followed up.

Keywords: *Yam Minisett Technology, Promotion, Farm Radio broadcast*

INTRODUCTION

The most important objective of agricultural extension in developing countries is improving productivity and livelihoods of rural farm house holds and one of the ways to accomplish this important task is the exchange and sharing of information, knowledge and skills (Arokoyo, 2011). An effective transfer of agricultural technological innovation from the technology developers- research institutes, universities and Non-GovernmentalOrganizations to the technology users who are the farmers according to Nwachukwu (2017) is termed Agricultural communication. Agricultural communication is necessary in maintaining the status of Agriculture in the country. Findings from research institutions and University laboratories are usually not used by farmers because they are not cost effective and not relatively beneficial to the farmers, as reported in the case of the TMS 505 cassava variety (Onyemma *et al.,* 2020). Studies show that relevant research information on seed varieties, best farming practices, post-harvest activities and promotion is not available to farmer either as a result of the information provided not reaching them or because of a lack of understanding due to a lack of a skilled and organized delivery of extension service (Ango, Illo, Abdullahi, Maikasuwa, and Amina, 2013). Agricultural information is seen as a critical ingredient to improving small scale agricultural production especially among small scale/ peasant farmers (Odira, 2008). Farmers need to be informed and educated about improved agricultural practices to enable them increase their productivity and income. The transfer of recent research information to the farmers at the determined time can be easily done by the use of mass media depending on the purpose and the number of farmers to be reached (Nwachukwu and Onuekwusi, 2005).According to Nwachukwu(2017), the radio is a very effective channel for mass media communication of relevant agricultural information although, Lawal *et al,.*(2014) identified the radio as the second most popular form of transferring technologies after the extension agents. Regular transmission of radio programmes related to agriculture gives valuable information about new farming methods (Shree, 2011).Also as stated by Okwu *et al.* (2007), the radio is highly accessible in less developed area and this is attributed to its ability to be powered by batteries. Benue state is one of the largest Yam producing states in Nigeria, in which the plant material constitutes 50% of the cost of production and the cost of labour is 40% of the final cost of Yam (Akanji, Dauda, Anum, and Yakubu, 2003).According to Odiaka (2011), yam is the most important source of food in Benue state with several cultivated varieties of white yam ("gbangu", "pipa", "amula", "dan-anacha", "ogoja," and "the mumuye) but the majority of them are the genotypes and the selection of the species differs amongst communities because Benue produces about 2.8 million tons of white Yam annually.

Yam Minisett Technology (YMT) has been developed by the National Root Crops Research Institute (NRCRI), Umudike and the International Institute of Tropical Agriculture (IITA) in Ibadan in 1982, as a means of improving the reproductive performance of the seed-yams (NRCRI, 2005).Since then, there has been a total package, test of implementation and cost-effectiveness to show its suitability for a wider range of acceptability and application in Nigeria (Moses *et al.,* 2016).In the on-farm adaptive research, the Oyo state Agricultural Development Programme, estimated that each hectare of a yam minisett produce of seed yam to be planted on a 3.5 hectares, which is also claimed by Orkwo*et al*. (2007). Oluyomi, Audu, and

Aholibamah (2016) reported the wide acceptance and use of Yam minisett technology in the Study area.

It has been observed that production of yam in Nigeria is declining (about 2 tons/ha) substantially due to many factors, especially cost of planting materials and labour which account for majority of the total cost of production respectively, this decline is mostly due to poor yield occasioned by poor sprouting of deteriorating planting materials – availability of yam seeds is amongst the major problems faced by yam farmers. Yam Minisett Technology dates back to the late 1970s, although the level of awareness and the application in practices of seed yam production is still relatively low, despite the fact that institutions such as the National Root Crop Research institute (NRCRI), Umudike and the International Institute of Tropical Agriculture (IITA), Ibadan have popularized and distributed this technology to farmers in Nigeria for the use and acceptability (Lawal *et al.,* 2014).

Odiaka (2011) in his study stated that about 63% farmers in Benue state obtain their information on yam production from farm radio broadcast. Also, Okwu and Daudu(2011) and Daudu, Anum and Maduke,(2009) in their studies stated that Extension agents and Radio broadcasts are the most effective extension channels in terms of providing information on Agriculture and farming to farmers in the study area. Through radio programmes some technologies from government/private institutions were transferred to farmers one of which was the Yam MinisettTechnology (Agwu, Ekwueme and Anyanwu, 2008), although the intending result was not well known as records department of these organizations do not have significant results to show the extent of success or reach. This corroborates with a study by Odiaka (2011) who reported in his study that radio stations have been transmitting programmes with information on yam minisett technology but there is inadequate information concerning effectiveness of these broadcasts. The objectives for the study were thus to;

i. describe the socio-economic characteristics of the respondents;
ii. examine the effectiveness of farm radio broadcast in promoting Yam minisett technology in terms of feedback mechanism utilize by respondents;
iii. ascertain the relationship between effectiveness of farm radio broadcast and promotion of yam minisett technology; and
iv. identify the challenges faced by respondents in listening to farm radio broadcasts on Yam minisett technology in the study area.

METHODOLOGY

Study Area

The study was carried out in Benue state, Nigeria. It lies within the lower river Benue in the middle belt region of Nigeria. The geographical coordinates show the state lies between Longitude 6^0 $35^1$to 10^0 0^1 East of the Greenwich meridian and Latitude 6^0 30^1 to 8^0 10^1 N of the equator. The state occupies a land mass of about 33,955 $km^2$with current population of approximately 4,323,700 using estimated growth rate of 2.5%.The state has 23 Local Government Areas with its capital in Makurdiand is divided into 3 Agricultural zones. The tribes found in the state include; Tiv, Idoma, Igede, Etulo, Agatu, Akpa, Ofia and Jukun. Benue state is bounded by Nassarawa state in the North, Taraba state in the East, Kogi state in the

West, Cross- river state in the south, republic of Cameroun in the South east and Enugu state in the South west. Benue state experiences 2 distinct seasons; wet and dry season. The state is predominantly rural with 75% of the population engaged in rain fed subsistence agriculture. The major agricultural food crops produced in the state include yam, rice, beans, cassava, soy beans, beni-seed (Sesame), maize, sorghum, millet and tomato. The major tree crops grown in the state are cashew, mangoes and oranges of varied species.

Sampling and Data Collection

Respondents from four (4) L.G.As widely known for yam cultivation (Ukom L.G.A; Gboko L.G.A, Oturkpo and Ohimini L.G.As) were selected by purposive and stratified random sampling from the Agricultural zones.

A stratified- random sampling technique was used to select 180 respondents with the 3 zones forming the primary sampling strata. Firstly, 3 blocks were randomly selected from each zones, 2 cells from each block was selected at the second stage while 2 sub-cells from the cell was randomly selected in the third stage. Finally, 5 respondents were randomly selected from the sub-cell. The sample size of One hundred and eighty respondents was used for this study. Primary data were collected through a well-structured and validated questionnaire, and interview schedule was used to elicit information from the respondents. A five point Likert rating scale with bench mark mean of 3.0was used in arriving at decisions.

Method of Data Analysis

STATA and micro soft excel statistical was used to analyse data for this study. Data were collected and coded and imported into the statistical tools. Data was analysed using descriptive and inferential statistics (Multiple regressions model).

RESULTS AND DISCUSSION

Respondents Socioeconomic Characteristics

Table 1 represents the socio economic characteristics of respondents in the study area. Age distribution of respondent's showed thatthe age group 25-34 years was the highest frequency constituting 40.00% of the total number of respondents. The result implies that most of the respondents fellwithin the economically active age.This corroborates with a study by Lawal *et al.* (2014) who asserted that yam farming is still popular amongst the young and active in the villages around the major yam producing states.

Most of the respondents were males as they constituted 65.00% of the respondents. This could be attributed to the fact that yam farming is rigorous in nature and dominated by male farmers.This result is in consonant Moses *et al.* (2016) who in their studies asserted that yam farming was carried out mostly by male farmers due to the high energy requirement and tedious nature of yam farming activities.

A good number of respondents 41.67% had a tertiary education as their highest education level. This however disagrees with a study by Okwu and Daudu(2011) which opined that only a small fraction (12.66%) of respondents- farmers had a post secondary education.

Most of the respondents (57.78%) sampled were married and is in tandem with a study by Moses *et al.* (2016) asserting that majority of farmers were married which was necessary where farm labour was scarce.

Household size indicated that 38.89% of the respondents had 7-9 persons living with them. This is in tandem with a study by Tologbonse and Adekunle (2000) who reported that majority of the rural farmers had 6 or more people as dependants.
A substantial proportion of respondents (29.44%) had been into yam farming for between 13-15 years, implying that respondents had reasonable years of yam farming and agrees with a study by Moses *et al.* (2016) which asserted that majority of yam farmershad reasonable experience of yam farming.

Table 1 Socio economic Characteristics of Respondents

Age of respondents (Years)	**Frequency**	**Percentage %**	**Mean**
15-24	13	7.22	
25-34	72	40.00	38 years
35-44	60	33.33	
45-54	23	12.78	
55-64	12	6.67	
Sex			
Male	117	65.00	
Female	63	35.00	
Level of education			
No formal education	22	12.22	30
Primary school	30	16.67	
Secondaryschool	53	29.44	
Tertiary education	75	41.67	
Marital status			
Married	104	57.78	
Single	49	27.22	
Divorced	11	6.11	
Widow/widower	16	8.89	
House-hold size (Persons)			
1-3	34	18.89	
4-6	65	36.11	
7-9	70	38.89	6 persons
10-12	11	6.11	
Farming experience (years)			
4-6	42	23.33	
7-9	46	25.56	
10-12	39	21.67	
13-15	53	29.44	10 years

Source; Field survey, 2018

Effectiveness of Farm Radio Broadcast

Table 2 represents mean representation of the parameters captured using a five point likert rating scale used to measure effectiveness of farm radio broadcast in promoting Yam Minisett

Technology. Language used in broadcast had a mean score of 3.76, clarity of broadcast message had a mean score of 3.38, time of broadcast had a mean score of 3.06, duration of radio programme had a mean score of 3.06, skill of presenter had a mean score of 3.67, signal strength had a mean score of 3.64 and coverage of subject had a mean score of 3.32. These parameters were judged to be effective and positively promote yam minisett technology. Frequency of broadcast and Cost parameters had a mean score of 2.86 and 2.84 respectively showing they are not efficient to the scope of the study. This is justified by the findings ofAngo *et al.* (2013) that radio and radio agricultural programmes are an effective tool in creating awareness on improved agricultural programmes among farmers and when skilfully used can be the most effective medium of communication, which is essential for developing societies.

Table 2 Effectiveness of Farm Radio Broadcast

Parameters of effectiveness	**Σ**	$\bar{x}$	**Decision**
Language used in broadcast	677	3.76	Effective
Clarity of broadcast message	609	3.38	Effective
Time of the broadcast	551	3.06	Effective
Skilfulness of presenter	662	3.67	Effective
Programme duration	547	3.03	Effective
Frequency of broadcast	516	2.86	Ineffective
Strength of radio signal	655	3.64	Effective
Cost	511	2.84	Ineffective
Coverage of subject matter	598	3.32	Effective
Grand mean		3.28	

Source; Field survey, 2018

Relationship between Effectiveness of Farm radio Broadcast and Promotion of Yam Minisett Technology

Table 3 represents the relationship between effectiveness of farm radio broadcast and promotion of yam minisett technology in the study area. It indicated that the Double- log form of regression was used as the lead equation due to its relative high R^2 value. The result showed that Language used during broadcast, clarity of the broadcast, time of the broadcast, signal strength and coverage were statistically significant. According to the regression analysis Clarity of broadcast and signal strength had negative correlation with promotion of yam minisett technology which indicates that an increase in them will not cause an increase in the promotion of yam minisett technology and is in contrast with a study by Odira (2014) which opined that rural areas with a strong radio signal will be able to listen to agricultural programmes through rural radio transmission.

Furthermore the result showed that skill of presenter, duration of the programme, frequency of broadcast and cost were not significant and had no relationship to promotion of yam minisett technology. Implying they have little or no influence in promotion of yam minisett technology in the study area.

Table 3 Relationship between Farm radio Broadcast and Promotion of Yam Minisett Technology

Variables	Linear	Double-log +	Semi-log	Exponential
Constant	17.92461 (2.08)**	1.290159 (3.28)***	8.850474 (0.54)	2.41e+23 (0.29)
Language used in broadcast	2.213417 (16.78)***	1.053251 (15.63)***	29.38757 (10.57)***	0.0136742 (0.18)
Clarity of broadcast	-1.250542 (-1.89)*	-0.3883871 (-2.94)***	-11.21071 (-2.04)**	1.02e+20 (5.12)***
Time of broadcast	-0.0266176 (-0.18)	-0.250956 (-4.65)***	-5.437224 (-2.43)	20537.08 (0.16)
Skill of presenter	-0.09495016 (-0.81)	0.1740617 (1.43)	0.2496529 (0.05)	-1.33e+20 (-0.07)
Duration of program	-0.4726986 (-0.49)	-0.1200854 (-1.09)	-3.890907 (-0.85)	2.96e+19 (0.02)
Frequency of broadcast	-0.1083903 (-1.01)	-0.0794368 (-1.60)	-2.02039 (-0.98)	-38132.4 (-0.59)
Signal strength	-3.36803 (-2.96)***	-0.6459245 (-5.28)***	-22.37221 (-4.41)***	5.39e+18 (0.00)
Cost	1.721422 (1.56)	0.1225914 (0.93)	10.81965 (1.97)**	-1.22e+20 (-0.08)
Coverage	-0.2249819 (-1.90)*	0.1810678 (3.37)***	2.167883 (0.97)	-48904.49 (-0.66)
R^2	0.7640	0.8215	0.6460	0.1417
F-value	61.16***	86.91***	34.47***	2.97***
Sample size	180	180	180	180

Source; Field survey, 2018

Figures in parenthesis are t-ratios, ***=1% level of significance, **=5% level of significance and *=10% level of significance, + signifies the lead equation.

Challenges faced by respondents in listening to farm radio broadcasts on Yam minisett technology

Table 4 represents the mean of parameters of challenges faced by respondents in listening to farm radio broadcasts on yam minisett farming captured using the five point likert rating scale. The grand mean ($\bar{x}$=3.13) indicated that the challenges sampled by the researcher in this study strongly militate against the respondent's participation in farm radio broadcast in the study area. Respondents agreed that timing of programme, delivery by presenters, radio signals, follow- up, electricity and complex nature of subject matter were the constraints faced in listening to farm radio broadcast on YMT in the study area. This result is in line with a study by Familusi and Owoeye (2014) on the assessment of the use of radio and other means of information dissemination; they found out that poor signals amongst others were a limiting factor to farmers receiving information.

Table 4 Challenges faced by Respondents in Listening to Farm radio Broadcasts on Yam Minisett Farming

Challenges	∑	$\bar{x}$	Decision
Timing of programme	593	3.29	Agree
Delivery by presenters	554	3.07	Agree
Radio signals	615	3.42	Agree
Follow up by presenters	573	3.18	Agree
Electrical condition	682	3.78	Agree
Language barrier	462	2.57	Disagree
Complex nature of subject matter	544	3.02	Agree
Ownership of personal radio set	491	2.73	Disagree
Grand mean		3.13	

Source; Field survey, 2018

CONCLUSION

The study concludes that farm radio is effective and positively influences the promotion of yam minisett technology. Also, Yam farming in the study area is dominated by male farmers who are married with a house hold size of at least 6 persons and have been farming for an average of 10 years.

The study recommends that radio presenters that disseminate information about modern farming technologies should use simple to understand packages to avoid complexity of the technology thereby enhancing comprehension and adoption. Also, radio stations should ensure farmers participation through feedback to various programmes and farmers adequately followed up so as to ensure an effective communication and there should be further research carried out to discuss the effectiveness of other means of communicating agricultural information to the farmers to enable policy makers have adequate knowledge.

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