

ANALYSIS OF THE EFFECT OF RADIO – FARMER PROGRAMME IN DISSEMINATING IMPROVED TECHNOLOGIES TO FARMERS IN IMO STATE, NIGERIA.

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Accepted 26 April, 2016

This study investigated the effect of Radio-Farmer Programme in disseminating improved technologies to farmer in Imo State, Nigeria. Multi-stage sampling procedure was used to select 240 respondents. Data were analyzed using percentage, frequency, mean and probit regression analysis. The study observes that 85.5% of the farmers perceived effect that radio-farmer was a useful tool for improving agricultural production while 12.5% of the respondents did not. The study also observes that 21% of respondents testified that the radio-farmer was effective in disseminating agricultural technologies to farmers while 71% agreed that it was ineffective in disseminating agricultural technologies to farmers. The major constraints to the effectiveness of radio –farmer in disseminating agricultural technologies to the farmers were determined using decision rule mean of 2.5, thus; poor radio signals, (0.46) epileptic power supply (2.83), high illiteracy, (2.75), lack of awareness (2.66) and complexities of scientific language translation by presenters (0.79). The study therefore recommends that government should ensure regular supply of power. Finally incentives and motivations such as establishment of radio- listener groups, provision of radio sets and radio cassettes to farmers for them to participate in the radio-agricultural programme.

Keys words: Radio –farmer, disseminating, technologies farmers

INTRODUCTION

In Nigeria one of the serious constraints to agricultural development is the limited access to information. This has given rise to calls for establishment of sustainable agricultural extension policies. Effective communication of new findings and technologies in agriculture to rural farmers remains a promising strategy for increasing agricultural production in the country. Agricultural technologies are those materials techniques, practices and innovations used to maximize agricultural production, processing, storage and marketing, (Ifenkwe, 2013). Agricultural technologies focuses on technological processes used in agriculture to create an understanding on how processes involves equipment and structures are used by farmers. Technology transfer refers to the dissemination of agricultural technologies to farmers in a codified and understandable message through appropriate channel, (Mgbada, 2002). Dissemination of agricultural technology involves a practice that brings about interaction of individuals in agricultural production system. It deals with how new findings from research institutes are been transferred through different communication channels. Agricultural technology dissemination refers to the process of four stages namely; improved technology, its communication from individual, group, institution to another social system within which the process occurs and a time lag over which the process is effected, (Mgbada, 2010). Agricultural professionals and research institutes are equipped with knowledge of particular farm practice or technology and the effective dissemination of these technologies to farmer will bring about higher rate of adoption (CCTA, 1992). Agricultural technologies disseminated to farmers can be categorized into cultural operation technologies such as fertilizer use, manure application, crop varieties, seed bed preparation, seed treatment, seed rate, crop rotation etc. Crop based technologies such as improved seed varieties like SAMPEA 6 and 7 for cowpea and SAMMAZ 11, 12, 13 for maize, TMS 011 1368 for cassava. Some of the improved agricultural technologies

disseminated through Imo Broadcasting Service (IBS) in conjunction with Imo State Agricultural Development Programme (ADP) include: soil conservation practices such as mulching, planting of cover crops, improved cassava stems (TMS) yam minisett, vaccination of small ruminant animals, home stead fish pond etc. Rural farmers need to be informed and educated about the improved agricultural practices and technologies to enable them increase their productivities and income. Different mass contact and individual contacts have been widely used to pass information to farmers (Olowu and Oyedokun, 2000). Among the mass media communication channels, radio is the most preferred tool of mass communication which can help dissemination of information faster in Nigeria, (Ekumankama, 2000). Radio is a powerful communication tool, and experience with radio indicated great potential for agricultural extension to benefit from both coverage and the relevance that local broadcasting can achieve by using participatory communication approach (Nwachukwu, 2010). The use of radio-farmer programme in agriculture for agricultural development is very important. There is need for agricultural technologies in rural areas for increase in agricultural production especially in Imo State, in particular and Nigeria in general. Radio-farmer has provided access to agricultural information where farmers are getting many problems in connectivity of communication technologies (Girard, 2001). Radio-farmer programme have the potential to disseminate the agricultural systematic technology among small holder farmers, similarly the mobile phones, television, internet have the facility to transfer related and timely information that helps to make decisions to use resources in the most productive and potable way (Ekbia and Evans, 2009; Ommani and Chizari, 2008). Rural population mostly relies on radio to stay informed as well as to communicate with each other through agricultural talk shows. On the other hand television is limited by poverty, lack of quality reception outside urban centers and limited power supply limits the use of television outside the cities. Radio is the most widespread medium for mass communication, radio offers both the reach and relevance to its listeners when the programmes are generated in a community based and participatory fashion, more than any other mass medium radio speaks in the language and with the accent of its community, (Girard, 2001). Radio initiative as part of broader communication for disseminating of agricultural technologies has been used by international organization such as the United Nations Children and Education Fund (UNICEF), the United Nations Education on Scientific and Cultural Organization (UNESCO), the Food and Agriculture Organization (FAO) of the United Nations Services in the late 1960's (Qas Ghana, 2004). By broadcasting in local language, radio addresses the information, education and entertainment required of its audience (African Farm Radio Research Initiative (AFFRRI), 2001). Radio being the most preferred tool of mass communication in Nigeria helps in dissemination of new agricultural technologies to farmers. Illiteracy acts as no barriers to radio message since information can be passed in farmers own dialect. Radio overcomes distance and thus has immediate effect. It has been currently identified as the only medium of mass communication that the rural population is very familiar with (Kuponiyi, 2000). It is probably because of this that many government and non-government organizations accord high priority to radio medium as a major means of reaching out to farmers. Focused on innovation in communication to improve the points of interaction between research, extension and farmers to encourage a greater sharing of information. This is widely intended to replace the top down, one way technology transfer approach widely perceived to have failed to improve the prospects of most farmers and their rural communities. Radio-farmer programmes have receive less attention due to poor financing by government and non-government organization, lack of network linking extension workers and the programme host. Contact between the opposite ends of the chain was only through written reports. The production centres was also isolated from the listening groups and could not benefit from their feed back to improve the programmes. There is problem of wide spread illiteracy among farmers in Imo State, Nigeria. The majority of the rural farmers cannot read and understand the information at their disposes, most often, the few agricultural programmes are not timed to suit the farmers. Consequently most farmers are constrained to rely on third parties for agricultural information which may often be biased. Imo State Agricultural Development Programme (ADP) has through the radio-farmer programme disseminated improved agricultural technologies to farmers in order to alleviate the problem of food shortage within the area. Despite these efforts aimed at increasing/ improving food production in the area, there is still very low productivity. This gap between productivity and improved agricultural technologies disseminated call for the need to investigate the effect of radio-farmer programme in disseminating improved technologies to farmers in Imo state, Nigeria. Specific objectives included to; describe the characterization of the farmers in Imo state, ascertain perceived effect of radio-farmer programme on farm practices and identify the constraints to the effectiveness of the radio-farmer programme in the area. The study assumed that there was no significant relationship between the socio-economic characterization of the farmers and the effectiveness of radio-farmer programme in disseminating improved technologies to farmers in the study area.

METHODOLOGY

The Study Area

This study was carried out in Imo State, Nigeria. Imo state is one of the 36 states of Nigeria and it is located between

latitude 5° 45' N and 6° 35' E of the Greenwich Meridian (ISMISUP, 1999). It is bounded in the south east agro-ecological zone of Nigeria. The state has a population of 3,934,899 persons, with a total land area of 5,530km² (NBS, 2007). The state has a population density of 710 persons per square kilometer and the population predominantly rural farmers. The state lies within the rain forest belt of Nigeria, the temperature ranges between 20⁰c and 30⁰c with an average annual relative humidity of 75%, rises to about 90 percent. The state has two distinct seasons namely; the rainy season from April to October and dry season from November to March with short dry spell in August. The state is an agrarian state and the major food crops produced include; cassava, yam, cocoyam, maize, and melon. Cash crops grown include; oil palm, rubber and forest trees like Iroko, mahogany, obeche etc. The state is an inland state blessed with rivers, streams, flood, plain and body sites of water including; Urashi river, Oguta lake, Itu, Amamura and Ife water sites, Igwe and Orji (2004). The state is divided into three (3) agricultural zones namely; Owerri Agricultural zone which consist of (11) eleven extension blocks, Orlu agricultural zone which consist of (10) ten extension blocks and Okigwe agricultural zone which consist of (6) six extension blocks. The three (3) agricultural zones consist of 27 (twenty seven) extension blocks and 305 (three hundred and five) extension circles in Imo state. The twenty seven (27) extension blocks in Imo state, include; Aboh Mbaise, Ahiazu Mbaise, Ezinihitte Mbaise, Mbaitolu, Ngor Okpala, Owerri West, Owerri- North, Owerri Municipal, Ikeduru, Ohaji-egbema and Oguta Extension blocks in owerri- agricultural zone. Orlu agricultural zone consist of Isu, orsu, Ideato-south, Ideato-North, Orlu, Oru-west, Oru-East, Njaba, Nkwere and Nwangele extension blocks. The rest are Obowo, Ehime Mbano, Isiala Mbano, Okigwe, Ihitte Uboma and Onuimo Extension blocks. Specifically, Ohaji-Egbema, Ngor-Okpala, Obowo and Onuimo, Oru East and Njaba extension blocks formed the representative study area.

POPULATION AND SAMPLING PROCEDURE

The population for the study consisted of all farmers in Imo state, Nigeria; who are registered with Imo State Agricultural Development Programme (ADP). A multi stage sampling technique was used to select respondents in this study. The first stage involved six extension blocks from a total of (27) twenty seven extension blocks in Imo state, Nigeria. The second stage involved a random selection of twelve (12) extension circles in Imo state. The third stage consisted of twenty (20) farmers that were selected from each of 12 extension circles which constituted the sample size of the population of 240 respondents. The primary data for the study were sourced from a questionnaire administered to the farmers. While the secondary sources of information were obtained from books, journals conference proceedings, internet, extension bulletin and information from Agricultural Development Programme (ADP) office in Imo state.

Descriptive statistical tools such as frequency, percentage and inferential statistics were used in data analysis. The socio-economic characterization of the respondents featured issues like gender (male, female) marital status (married, single, divorced and widowed) age (in years); education level in form of adult education (Primary, Secondary, tertiary education); income (in naira per annual) nature of radio programme, format of presentation, membership of organization. Ownership of radio set (yes, no). To ascertain the effectiveness of radio-farmer programme on farm practice were actualized using descriptive statistics such as frequency percentage and probit multiple regression analysis was used to analysis the assumed hypothesis. The relevance and effectiveness of radio realized through appropriate four point likert type scale and the constraints limiting effectiveness of radio-farmer were captured using percentage and frequency. Decision rule of 2.5 in a four (4) point rating scale mean and scores. The assumed relationship between socio-economic characteristics of respondents and effectiveness of radio-farmer in the study area, were analysed using a probit multiple regression analysis. The probit regression model is implicitly specified as follows:

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_9, + e)$$

Where

Y= adoption index (number of technologies adopt by respondent)

X₁= age of formal (in years)

X₂= level of formal education (number of year pent in school)

X₃= farming experience (in years)

X₄= farmers income (in naira)

X₅= Gender (Male=1, Female=0)

X₆= Farmers Ownership of Radio (Yes=1 No= other)

X₇= do you listen to radio farmer program (Yes=1; Otherwise=0)

X₈= useful information from the programme (yes=1, otherwise =0)

X₉= utilization information from the programme (yes=1; otherwise= 0)

e= error term

RESULTS AND DISCUSSION

Table 1a: Distribution of respondents by socio-economic characterization of farmers (n=240)

Socio-economic characterization	Frequency	Percentage (%)
Gender		
Male	118	49.2
Female	122	50.8
Total	240	100
Marital Status		
Single	32	13.3
Widowed	4	1.7
Married	204	85
Total	240	100
Age (in years)		
21-30	34	14.2
31-40	88	36.7
41-50	70	29.2
51-60	12	5.0
61 and above	36	15.0
Total	240	100
Educational Level		
None	12	5.0
Primary School Level	54	22.6
Secondary school level	100	41.6
Tertiary institution	74	30.8
Total	240	100

Source; field survey, 2014

Table 1b: Distribution of respondents by socio-economic characterization of farmers (n=240)

Socio-economic characterization	Frequency	Percentage (%)
1-3	38	15.8
4-6	110	45.8
7-10	66	27.5
10 and above	26	10.9
Total	24	100
Primary Occupation		
Part time farming	90	37.5
Full time farming	150	62.5
Total	240	100
Farming experience (years)		
2-5	64	26.7
6-10	68	28.3
11-15	26	10.8
16-20	36	15.0
21-25	26	10.8
26-30	20	8.3
Total	240	100

Continuation of Table 1b

Farm size		
0-10	80	33.3
1.1-2.0	112	46.7
2.1-3.0	44	18.3
3.1-4.0	1.4	1.7
Total	240	100
Sources of fund		
Gift	8	3
Borrowed	46	17
Personal saving	186	79
Total	240	100

Source; field survey, 2014.

Data in Table 1 shows that majority (50.2%) of the respondents were females who were mostly married (85%) with a greater proportion (36.7%) of the respondents being between 31 and 40 years of age. This is an advantage for increased investment and adoption of improved technologies disseminated through radio-farmer and hence innovativeness. Similarly 29.2% of respondents were between 41 and 50 years of age. This implies that the younger respondents have less interest in farming as compared with middle-age and aged farmers in rural areas. Majority (41.6%) of the respondents obtained secondary education and this is an advantage for adoption of farm innovations as education has been shown to be a factor in the adoption of high yielding modern farm practices (Agwu, 2008). This high level of education would likely make more responsive to many agricultural extension programme and policies.

The table indicates that 45.8% of respondents had 4-6 persons per household. The implication of this is that majority of the farmers have more family labour ready to expand their farms. The table showed that majority (46.7%) of respondents had 1.0-2.0 hectares farm size. Table also shows that 62.57% of respondents engage in full time farming while 37.5% of respondents were part time farmers. This implies that that the more the full time farmers the greater the quantity of food produced. Similarly, majority (79%) of the farmers sourced their funds were personal savings while 17% of respondents borrowed from friends, banks and relatives for sustainable farming. Table also revealed that majority (28.3%) had between 6 and 10 years farming experience which can make them proven and efficient on their farm businesses.

Table 2. Distribution of respondents according to the effectiveness of Radio- farmer programme in disseminating improved technologies in Imo state, Nigeria

Effectiveness of Radio-farmer programme	Frequency	Percentage (%)
Not effective	190	79.0
Effective	50	21.0
Total	240	100

Source: Field Survey, 2014

Farmers responses to effectiveness of radio-farmer programme in disseminating improved technologies in imo state.

Table 2 shows that majority (79%) of the respondents testified that radio-farmer programme has not been effective in disseminating improved technologies to them while 21% of the respondents agreed that radio-farmer programme is effective in disseminating improved technologies to farmers. The reason for that could be due to the serious constraints like epileptic power supply, high illiteracy and method of presentation of the radio-farmer programme in the area.

Table 3: Farmers constraints to effectiveness of radio farmer programme

Constraint	Mean scores
Poor radio signals	0.46
Epileptic power supply	2.83
High illiteracy level of farmers	2.75

Continuation of Table 3

Lack of awareness of the programme	2.66
Inability to ask relevant questions	2.54
Lack of time to listen to the radio-farmers programme is not convenient	0.87
Complexities of scientific language translation by radio-farmer programme	0.79

Source field survey, 2014

Constraints limiting to effectiveness of radio- farmer programme in disseminating improved technologies to farmers in Imo state, Nigeria.

Tables 3 shows that out of eight possible constraints listed in the study, four were considered to be serious constraints to effectiveness of radio-farmer programme in disseminating improved technologies to farmers. They include; epileptic power supply ($x= 2.83$) high illiteracy level of farmers ($x=2.75$), lack-of awareness of the radio farmer programme ($x=2.66$), inability to ask relevant questions about improved technologies disseminated ($x=2.54$). While four were considered to be not serious (minor) constraint to effectiveness of radio-farmer programme in disseminating improved technologies to farmers. They included: poor radio signals ($x=0.46$), scientific language translation by presenters ($x=0.79$), timing of radio-farmer programme is not convenient ($x=0.87$), and lack of time to listen to radio-farmer programme ($x=1.29$). The constraints identified above seems to have affected the effectiveness of radio-farmer programme in disseminating improved technologies to farmers in Imo state. Findings from this study revealed that most farmers were illiterates cannot follow even the simplified form of scientific language used in the broadcast. Others who can follow the language were worried by the method of presentation. Finding also indicated that the time of airing the programme was not convenient for the famers. The reason is that most of them were often still in their farms while the radio-farmer programme presentations were made. Those that were back from the day's activities may be having their launch. This finding agrees with the observation of (Ekumankama , 2000) that farmers were not satisfied with the period (time) of the day they receive information on improved technologies from the radio-farmer programme.

Table 4: Probit multiple regression result of socio-economic characterization of farmers and effectiveness of Radio farmer programme in disseminating improved technologies to farmers in Imo state, Nigeria.

Parameter	Estimate form	Z-test form	Probability
Sex	0.311	1.854	0.064*
Age	0.024	2.580	0.010*
Marital status	0.291	2.082	0.037**
Household size	0.007	0.231	0.818
Educational Level	0.035	1.861	0.063*
Primary occupation	1.028	5.081	0.000***
Farming experience	-0.021	-2.238	0.025**
Sources of fund	0.443	2.690	0.007***
Intercept	-6.573	-8.117	0.000***

Source; Field survey, 2014

* Significant at 10% probability level

** Significant at 5% probability level

*** Significant at 1% probability level

Socio-economic characterization of farmers and effectiveness of radio-farmer programme in disseminating improved technologies to farmers in Imo state, Nigeria.

Table 4 shows the relationship between the socio-economic characterization of the respondents and effectiveness of radio-farmer programme in disseminating improved technologies to farmers in Imo state as follows; that sex of the farmer had a negative coefficient of (-0.311) that is significant at 10%. This implies that since sex is specified as (male=1 and female= otherwise=0) radio-farmer programme target on farmers will be more effective for females. Findings show that age had a positive coefficient (0.024) which is significant at 10%. This implies that there was a direct relationship between age and effectiveness of radio-farmer programme in disseminating improved technologies to farmers. This study shows that as age increases effectiveness of radio-farmer programme increase. This equally means that a marginal increase in age will lead to a 2.4% increase in the effective of radio-farmer programme in disseminating improved technologies to farmers. Further findings shows that marital status had positive coefficient of (0.291) which is significant at 5%. This implies that there was a direct relationship between marital status and effectiveness of radio-

farmer programme in disseminating improved technologies to farmers. This means that since marital status is specified/ as 1 for married and 0 for otherwise, then radio-farmer programme target on agriculture will be more effective on married farmers. An increase in farmers that are married will lead to 29.1% increase in effectiveness of radio-farmer programme in disseminating improved technologies to farmers. Findings further shows that education level of farmers had a positive coefficient of (0.035) which is significant at 10%. This means that there is a direct relationship between educational level and effectiveness of radio-farmer programme in disseminating improved technologies to farmers. This supports the assertion which states that knowledge is power. Findings show that primary occupation of respondents had a positive coefficient of (1.028) which is significant at 1%. This implies that there is a direct relationship between primary occupation and effectiveness of radio-farmer programme in disseminating improved technologies to farmers. Finding revealed that there was negative coefficient (-0.021), which is significant at 5%. This means that there is an indirect/negative relationship between farming experience and effectiveness of radio-farmer programme in disseminating improved technologies to farmers. Findings revealed that sources of fund had a positive coefficient of (0.443) that is significant at 1%. This means that positive relationships exist between sources of fund and effectiveness of radio-farmer programme in disseminating improved technologies to farmers. This study show that as sources of fund increases effectiveness of radio-farmer programme. This means that a marginal increase in sources of fund will lead to a 4.4% increase in the effectiveness of radio-farmer programme. These means that there is positive relationship between socio-economic characterization and effectiveness of radio-farmer programme in disseminating improved technologies to farmers in Imo State.

CONCLUSION AND RECOMMENDATIONS

The study determined the effect of radio-farmer programme increase in disseminating improved agricultural technologies to farmers in Imo state, Nigeria. From the results obtained the study concluded as follows; the socio-economic characterization of the farmers such as education, age, marital status, source of fund, farm size and household size positively have significant effect on radio-farmer programme in disseminating improved technologies to farmers in the study area. The effectiveness of radio-farmer programme in disseminating improved technologies to farmers in the study was very low.

That the constraints to effectiveness of radio-farmer programme in disseminating improved technologies to farmers were grouped into major and minor constraints. That there was positive relationship between socio-economic characteristics of farmers and effectiveness of radio-farmer programme in disseminating improved technologies to farmers in Imo state, Nigeria. The study therefore recommends.

That government should ensure regular supply of power especially when radio-farmer messages are been aired. This will enable farmers to participate in agricultural messages aired through radio-farmer programme.

That sponsors should encourage and establish farmers listening groups, and in places where they have already been formed, it should be strengthened by extension services and Non Governmental Organizations (NGOs).

That Agricultural Development Programme (ADP) should ensure that its extension agents are attached to each of the farmers listening groups and stay with them from the beginning to the end of the radio-farmer programme

That ADP extension agents should be able to answer the farmers questions to clarify them on certain issues concerning improved technologies disseminated through radio-farmer programme.

That ADP extension agents, radio-presenters and contact farmers should collaborate on suitability timeliness and simplicity of radio-farmer programme

That awareness creation and publicity on the existence of radio-farmer programme should be sustained.

That NGOs, private and government agencies should jointly assist in the funding and sponsoring of the radio-farmer programme to ensure duration and regularity of the radio-farmer programme.

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