ASSESSMENT OF SMALL-SCALE FARMERS WILLINGNESS TO PARTICIPATE IN RECEIVING NEW AGRICULTURAL INFORMATION PAIKORO LOCAL GOVERNMENT AREA OF NIGER STATE, NIGERIA

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ABSTRACT

This study assessed small-scale farmers' willingness to participate in receiving new agricultural information in Niger State, Nigeria. It aims at identifying the level of participation of small-scale farmers and their attitudes towards receiving new agricultural information in the study area. A multi-stage sampling technique was used to select the respondents who were interviewed with structured questionnaire to obtained primary data. Both descriptive and inferential statistics were used to analyze the data. Findings of the study revealed that the mean age of the respondents was 36 years, which implied that they were young and agile for agricultural production. Majority (81.4%) of the respondents were married, 70.9% had primary education, and household size was 1 – 5 people. Respondents had high level of willingness to participate in receiving information on eradication of pests and diseases (M = 4.24), vaccination of livestock (M = 3.78) and agrochemical application (M = 3.70) which ranked 1st, 2nd and 3rd respectively. Some of the constraints encountered by the respondents, and their mean scores were inadequate number of Extension Agents (M = 4.61), poor infrastructural facilities (M = 4.50) and high cost of extension service delivery (M = 3.79). The chi-square result of the hypothesis testing revealed that education and income had significant relationship with respondent's willingness to participate in receiving new agricultural information. It was therefore recommended that more Extension Agents should be posted to the study area in order to have a greater coverage of farmers, especially in the area.

KEYWORDS: Agricultural information, respondents, participation, small-scale farmers.

INTRODUCTION

Small-scale farmers are the major source of agricultural production in developing nations particularly in Africa (Nagayets, 2005). According to Food and Agriculture Organization (2008), estimated 36 million small-scale farmers in Africa had access to two or less hectares of land for agricultural production. Spencer (2004) posited that 90% of all the agricultural production in Africa is derived from the output of small-scale farmers. The roles of agriculture remain significant in Nigerian economy despite the strategic

importance of the oil sector. Nigerian small-scale farmers account for the cultivation of about 90% of the total cultivable land area and producing nearly 90% of the total agricultural output (EEPC, 2003). Crop production by small-scale farmers is characterized by low productivity, typically because of the adoption of low production inputs. Limited accessibility cuts small-scale farmers off from sources of inputs, equipment and new technology that keep their output low (Danilo, 2002). Sustainability and productivity of agricultural sectors world-wide depend on the quality and effectiveness of new agricultural information among other factors. Chukwudi (2008) posited that new agricultural information, wherever it existed, consists of those services which are set up in order to change the knowledge, skills and attitude of rural farmers. For many years, new agricultural information has been made available by the Government to the rural people without due consideration given to whether the clientele really need the information being provided. Therefore, farmers' need for new agricultural information is anticipated by relevant information on technologies that will reach a desired target effectively and efficiently.

Agwu et al. (2008) reported that public extension is known as extension activities provided by the Government under the authority of the Agricultural Development Programme (ADP) in all the States, to cater for agricultural needs and development of rural farmers. However, demand for new agricultural information has been known through establishing the willingness to pay for the services among rural farmers. Research had shown that farmers are willing to pay for extension services (Ajayi, 2006). According to Farinde and Ateh (2009) arable farmers in Niger State are willing to pay for new agricultural information through their cooperative societies. Rural farmers' willingness to pay for extension services will enhance their participation in successful and sustainable extension service delivery. It could be a more efficient way to achieve the goals of extension programme, than has hitherto been the situation.

In assessing the willingness of rural farmers to participate in extension activities, it is worthy to note that weaknesses of most new agricultural information in Nigeria are due to lack of Subject Matter Specialist (SMS). As a result of low level of training, most of the Village Extension Agents lack the capacity to actually discharge their responsibilities of disseminating new agricultural information to rural farmers. They are not highly motivated in their work and supervision is weak. The complex line of communication is too long and tends to distort information. This has lead to deterioration in dissemination of new agricultural information and also contributed to a decline in agricultural productivity, hence discourage rural farmers' willingness to participate in paying for new agricultural information. It was against the above background that this study was conceived to assess small-scale farmer's willingness to participate in receiving new agricultural information in Paikoro Local Government Area of Niger State, Nigeria.

Objectives of the study

The objectives were, to:

i. describe the socio-economic characteristics of small-scale farmers in the study area;

ii. assess the level of involvement of respondents in receiving new agricultural information, and

iii. identify constraints hindering respondents' participation in receiving new agricultural information in the study area.

Null hypothesis

The null hypothesis tested in this study was that there was no significant relationship between small-scale farmers' willingness to participate in receiving new agricultural information and their socio-economic characteristics.

Alternative hypothesis

The alternative hypothesis was that there was a significant relationship between small-scale farmers' willingness to participate in receiving new agricultural information and their socio-economic characteristics.

METHODOLOGY

Study area

This study was conducted in Paikoro Local Government Area (LGA) of Niger State, Nigeria, which is one of the 25 LGAs of the State. It is on the latitude $9^0 26^1$ and $9^0 47^1$ North and longitude $6^0 38^1$ and $7^0 02^1$ East of the equator. The land mass area is 2,066 kilometres square with a total population of 158,086 (NPC, 2006). The projected population in 2014, using 3.2% growth rate was 203,391. The study area is characterized by tropical climate marked by dry and wet weather. The predominant population are the Gwaris with small fraction of Koros, Fulanis and Nupes. Agriculture is the primary occupation of the people in the study area with few engaged in civil service and artisan activities such as tailoring, blacksmith, carpentry and others.

Sample selection

A multi-stage sampling technique was used to select respondents for this study. The first stage involved random sampling of six wards out of the eleven wards in Paikoro Local Government Area. Second stage was the stratified sampling of respondents into small-scale farmers who possessed farm size of less than two hectares. Third stage was the proportionate sampling of 40% of the respondents out of the list of 217 active farmers in both crop and livestock production, obtained from Niger State Agricultural Development Project (NSADP), to get 86 respondents for the study.

Data collection and analysis

Primary data was obtained directly from the respondents through interviews with the aid of a structured questionnaire. Data collected was analyzed using descriptive and inferential statistics. A 5-point attitudinal measuring scale of very high (5), high (4), moderate (3), low

...and very low (1) was also employed. The mean score for decision was 3.0 (5+4+3+2+1 = 15, 15/5 = 3). Calculated mean scores of 3.0 was considered moderate, above 3.0 as high, while below 3.0 as low.

Model Specification

Chi-squared was used to test the relationship between two or more samples under investigation. The model is mathematically expressed as:

$$\chi^2 = \sum \sqrt{\frac{(O - E)^2}{E}}$$

Where:

χ^2 = Chi Square

$\sum$ = summation sign

O = observed score

E = expected score

$\sqrt{}$ = Square root

RESULTS AND DISCUSSION

Socio-economic characteristics of the respondents

Socio-economic variables described were age, gender, marital status, educational level, farm size and others. The result of analysis in Table 1 reveal that majority (79.1%) of the respondents fall within the age range 21 – 40 years with a mean age of 37 years, which implied that they were in their productive age range. In addition, majority (90.7%) of the respondents were male, while 81.4% were married which implied that they should have a high sense of responsibilities to carry out farming activities. Majority (70.9%) had primary school education, and 10.5% had secondary school education, with 6 years the average period spent in schooling. Majority (72.1%) had farming experience ranging from 11 – 15 years with a mean 10.5 years. Oladele (2008) posited that level of education of farmers is positively related to their willingness to participate in extension services that bring about new agricultural information, and that the longer the farming experience the greater the willingness to participate in agricultural services. All the respondents were small scale farmers, with the majority (62.8%) having about one hectare of farm land. Over three-quarters (75.6%) had contact with Extension Agents on the course of seeking new agricultural information, while 77.9% of the respondents were not members of any cooperative society in the study area.

Table 1 Socio-economic characteristics of the respondents

Descriptions	Frequency	Percentages
Age (yrs)		
< 20	5	5.8
21 – 30	35	40.7
31 – 40	33	38.4
> 40	13	15.1
Sex		
Male	78	90.7
Female	8	9.3
Marital status		
Married	70	81.4
Single	9	10.6
Widowed	4	4.7
Divorced	3	3.5
Household size		
1 – 5	61	70.9
6 – 10	9	10.5
11 – 15	12	14.0
> 15	4	4.6
Education		
Non formal	16	18.6
Primary	61	70.9
Secondary	9	10.5
Farming experience		
1 – 5	18	20.9
6 – 10	6	7.0
11 – 15	62	72.1
Farm size		
0.1 – 0.5	27	31.4
0.6 – 1.0	54	62.8
1.1 – 1.5	5	5.8
Extension contact		
Had contact	65	75.6
No contact	21	24.4
Cooperative association		
Member	19	22.1
Not member	67	77.9
TOTAL	**86**	**100**

Source: Field Survey, 2014.

Level of involvement o
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Table 2. Distribution of respo
information

Level of involvement
New harvesting techniques
Eradication of pest and dis
New planting techniques
Skill acquisition on use of
Enlightenment programme
Fertilizer application
Agro-chemical application
Vaccination of livestock
Packaging and storage

Mean scores of 3.0 was considere
Source: Field Survey, 2014. M =

Constraints hindering resp
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Level of involvement of respondents in receiving new agricultural information

Small-scale farmer's level of involvement in receiving new agricultural information is presented in Table 2. It reveals that eradication of pest and diseases (M = 4.24), vaccination of livestock (M = 3.78) and agro-chemical application (M = 3.70) were found to be high among the various new agricultural information the respondents received in the study area. This implies that the respondents were very much concerned about problem of pest and diseases, vaccination and chemical application in the study area. Hence, respondents had high levels of involvement in receiving new agricultural information that would help tackle the aforementioned problems. Other new agricultural information they were involved in receiving included packaging and storage (M = 3.57), harvesting techniques (M = 3.17), while the least involvement was on new enlightenment programme on marketing (M = 2.29).

Table 2. Distribution of respondents based on their level of involvement in receiving agricultural information

Level of involvement	Sum Weight	Mean Score	Remark
New harvesting techniques	273	3.17	High
Eradication of pest and disease	365	4.24	High
New planting techniques	215	2.50	Low
Skill acquisition on use of farm machine	263	3.06	Moderate
Enlightenment programme on marketing	197	2.29	Low
Fertilizer application	252	2.93	Moderate
Agro-chemical application	318	3.70	High
Vaccination of livestock	325	3.78	High
Packaging and storage	307	3.57	High

Mean scores of 3.0 was considered moderate, above 3.0 as high, while below 3.0 as low
Source: Field Survey, 2014. M = Mean score on a scale of 1 - 5

Constraints hindering respondents' participation in new agricultural information

Constraints raised by the respondents in accessing new agricultural information are presented in Table 3. The constraints were categorized using 5-point Likert scale to make a decision on its levels of being high, moderate or low. The findings revealed that inadequate extension personnel (M = 4.61), poor infrastructural facilities (M = 4.50) and high cost service delivery (M = 3.79) ranked 1st, 2nd and 3rd respectively among the constraints the respondents encountered in accessing new agricultural information in the study area and were high. This implies that Extension Agents' ratio to farmers in the study area was very poor, which could necessitate high cost of services on the part of the small-scale farmers to get the required information that could help them improve their production capacity. The least constraint was low motivation from Extension Agents which could have resulted from poor staffing with the Extension Agents, and inadequate facilities for the Extension Agents to discharge their responsibility effectively.

Table 3. Distribution of respondents based on their constraints

Constraints	Sum Weight	Mean Score	Remark	Ranking
Inadequate extension personnel	396	4.61	High	1st
Poor infrastructural facilities	387	4.50	High	2nd
High cost of service delivery	326	3.79	High	3rd
Infestation of pest and diseases	307	3.57	High	4th
Problem of marketing	302	3.51	High	5th
Inadequate credit facilities	280	3.26	High	6th
Problem of flooding	156	1.81	Low	7th
Low motivation from extension agents	147	1.71	Low	8th

Mean scores of 3.0 was considered moderate, above 3.0 as high, while below 3.0 as low
Source: Field Survey, 2014. M = Mean score on a scale of 1 - 5

Test of hypothesis

The hypothesis tested using chi-squared was that there was no significant relationship between willingness to participate in new agricultural information and the respondents socio-economic characteristics. The results are presented in Table 4 which reveals that education ($p = 0.009$) and income ($p = 0.016$) of the respondents were significant at probability level of 5% ($p < 0.05$). This implies that the level of education and income of the respondents influence their willingness to participate in new agricultural information.

Table 4. Relationship between respondent's willingness to participate in receiving new agricultural information and their socio-economic characteristics.

Variables	DF	X^2 - value	P - value	Remark
Age	1	0.662	0.416	Not significant
Gender	1	0.060	0.807	Not significant
Education	1	2.565	0.009	Significant
Household	1	1.955	0.162	Not significant
Income	1	2.330	0.016	Significant

CONCLUSIONS

Most of the respondents were male and married. These implied that they had a high sense of responsibility and willingness to participate in receiving new agricultural information that will assist them to improve on their production capacities. Majority of respondents were non-members of cooperative societies. There was a high level of involvement by the respondents in receiving new agricultural information on how to eradicate pests and diseases, and vaccination of livestock. Farmers experienced many constraints in accessing new agricultural information including inadequate number of extension personnel, poor infrastructure and high cost of service delivery. Furthermore, there was significant relationship between some socio-economic variables namely, education and income of the respondents, and willingness to participate in receiving new agricultural information in the study area.

From the findings and con made:

1. There is need for the E agricultural cooperativ with regards to receivir
2. There is need for gov extension personnel to provide the Extension delivery and increase th
3. It is also recommende relevant stakeholders s road network that wil network for efficient dis

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RECOMMENDATIONS

From the findings and conclusions of this study, the following recommendations were made:

1. There is need for the Extension Agents to encourage the respondents to participate in agricultural cooperatives, in order to get access to better extension service delivery with regards to receiving new agricultural information.

2. There is need for government and other extension organizations to appoint more extension personnel to enhance a greater coverage of farmers. It is also necessary to provide the Extension Agents with logistic support to facilitate efficient service delivery and increase their motivation through various incentives and packages.

3. It is also recommended that Government, Non-Governmental Organizations and relevant stakeholders should assist in the provision of basic infrastructures like good road network that will enhance mobility of extension staff and communication network for efficient dissemination of new agricultural information.

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MEASREMENT TECHN
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ABSRACT

The purpose of this paper is
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Literature review, field expe
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major classes of challenges
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INRTODUCTION

Definition and characteristi
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