Published September, 2012

EXTENSION AGENTS' PERCEPTION OF FACTORS AFFECTING DISSEMINATION OF IMPROVED FARM TECHNOLOGIES IN ADP SOUTH ZONE OF EDO STATE, NIGERIA

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ABSTRACT

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This study examined extension agents' perception of factors affecting dissemination of improved farm technologies in ADP South Zone of Edo State. The specific objectives were to: identify the demographic characteristics of respondents; identify the improved farm technologies being disseminated in ADP south zone of Edo State and identify the training programs undergone by respondents in the study area. Data collection was by the use of structured questionnaire and interview schedule from a sample of seventy (70) agricultural extension agents in the study area using random sampling technique. Data analysis was by the use of descriptive statistics such as percentages, frequency distribution, mean and standard deviation. Inferential statistics using Pearson Correlation was employed in testing the hypotheses at 5% level of significance. The results reveal that the mean age of respondents was 38 years, they were mostly males (77.1%), with most (91.4%) having NCE/OND qualification. Some major technologies regularly disseminated were land preparation, improved varieties, seed rate/plant population and post harvest technology. Most serious problems encountered were poor staff training and transportation. There was significant relationship between training programmes and frequency of disseminating farm technologies (r = 0.253; p = 0.035). It was recommended that more females be recruited and extension staff be exposed to relevant courses regularly.

***Keywords**: Extension agents, dissemination, improved farm technologies.*

INTRODUCTION

To supply food for and reduce poverty in a global population expected to reach 8 billion by the year 2025 (www.fao.org, 2009), the world will need substantial increases in agricultural productivity. This can be achieved through the promotion of the increased application of improved technologies to agricultural production which will not only increase food production but also liberate households from poverty, the drudgery of manual labour, ill health and early death. Technology dissemination is described as the movement or transfer of knowledge or technologies across contexts — inter-regional, intra-regional or organizational (Pineiro, 2007). Technology dissemination represents the greatest mechanism to stimulate and sustain rapid agricultural development within the country. Nearly 65% of Africans, over 400 million people, depend on agriculture as their primary source of livelihood. Of these, small-holder farmers account for more than 90% of total agricultural production. Together with the relatively small commercial farming sector they account for 27% of GDP in Africa (IBRD, 2008). This could be greatly increased if each African country could improve productivity which would be achieved through effective dissemination of improved farm technologies and thus also help in improving the standard of living of millions of people and rural development.

Although productivity does very much depends on the structure of soil and availability of irrigation water, extension services have an important role in increasing agricultural productivity as well. The major strategy of agricultural extension is to offer knowledge in a way that the farmers can utilize effectively (Onyia, 1998). Agricultural extension activities are mainly based on voluntary participation, therefore the wants and needs of farmers have to be taken into consideration (Ozowa, 1995). To date, efforts by the extension systems to transfer improved technologies to farmers have not yielded tangible results. This is due to some limiting factors and apparent constraints in agricultural information dissemination in Nigeria, including status difference between extension agents and their clients' agents' inadequate knowledge of how communication works; lack of inter-agency cooperation both in program planning and implementation (Zinnab, Steele and Mattocks; 1998). Ommani (2005) perceived that the present ratio of one extension worker to three thousand farmers is inadequate for effective agricultural information dissemination. Presently in Nigeria, the ratio is between fifteen thousand and twenty thousand farmers to one extension worker (15,000-20,000 farmer: 1 extension worker) in contradiction with the World Bank recommended ratio of one extension worker to one thousand farmers. (1 extension worker: 1,000 farmers). The problem is compounded by the paucity of women extension agents especially in a society where cultural and religious taboos make it impossible for male extension workers to reach small scale women farmers who out-number small scale male farmers.

The challenge to agricultural development is to maintain sustainable and progressive production increases and at the same time, to protect production resources and prevent their degradation (Baler, 1994). The sustainable

agricultural development demands practices and technologies which are technically appropriate, economically viable, environmentally non- degrading and socially acceptable for achieving food security and improved quality of life for present and future generation (Ozowa, 1995). This will not be possible without the effective dissemination of recommended and environment friendly agricultural technologies among the farmers (York, 1991). Unfortunately however, when planning research projects, policy makers give little or no consideration to information dissemination as a crucial aspect of research project implementation forgetting the fact that information dissemination is a critical tool for promoting national development (Gustafson, 1994). Keeping in view the importance of sustainable agricultural practices and their awareness among the farmers, there is the need to accelerate the pace of dissemination of the research findings to farmers.

Objectives of the study

The major objective of this research was to examine the factors that affect the dissemination of improved farm technologies in ADP South zone of Edo State. The specific objectives were to:

identify the demographic characteristics of respondents;

identify' the improved farm technologies being disseminated in ADP south zone of Edo State;

identify the training programs undergone by respondents; and

identify the challenges faced by respondents in technology dissemination to farmers.

Hypothesis

There is no significant relationship between the training programs undergone by respondents and the frequency of disseminating farm technologies.

METHODOLOGY

Edo South Zone of Edo State Agricultural Development Project consists of seven local government areas. They include; Egor, Ikpoba Okha, Oredo, Orhionmwon, Ovia North East, Ovia South West and Uhunmwode Local Government areas with their Capital located in Uselu, Idogbo, Benin City, Abudu, Okada, Iguobazuwa and Ehor respectively (www.ngex.com, 2010). The population of this study was all the extension agents involved in the dissemination of agricultural information to farmers in ADP South Zone of Edo State. A random sample often (10) extension agents was drawn from the population of extension agents from each of the seven (7) Local government areas making a total of seventy (70) respondents for the study. Primary and secondary data were used for this study. Primary data was sourced from copies of well structured questionnaire to solicit information from the extension agents. Secondary data was sourced from related manuals, journals and literature. The survey instrument used for this study was a well structured questionnaire covering five objectives.

Multi-choice question was used for the demographic characteristics of respondents. Three point likert type scale; Always, sometimes, not at all, was used to solicit questions regarding farm technologies disseminated, and the training programs undergone by respondents. A three point likert type scale anchored as; very serious, serious, not serious was used for questions regarding the challenges faced by respondents in technology dissemination to farmers. A three point likert type scale anchored as; very serious, serious, not serious was used for questions regarding the challenges faced by respondents in technology dissemination to farmers. Data was analyzed using descriptive statistics such as percentages, frequency distribution, mean and standard deviation. Inferential statistics using Pearson Correlation was used for test of the hypotheses at 5% level of significance.

Pearson Correlation

A correlation is a number between -1 and +1 that measures the degree of association between two variables (x and y)

$$r_{XY} = \frac{n\Sigma XY - \Sigma X \Sigma Y}{\sqrt{n\Sigma X^2 - (\Sigma X)^2}\sqrt{n\Sigma Y^2 - (\Sigma Y)^2}}$$

Where:

- r = correlation coefficient
- X = independent variable
- Y = dependent variable
- n = sample size

(http:/fwww.cmh.edu/stats/definitions/correlation.htm, 2009).

RESULTS AND DISCUSSION

Demographic characteristics of respondent

Table 4.1 shows the demographic characteristics of respondents. The results reveal that the mean age of respondents was 38 years. This result suggested that most of the extension agents were young, energetic and

active. The respondents were mostly males (77.1%) and this result is in support of Ommani (2005), who perceived that staffing problem is compounded by the paucity of female extension agents especially in a society where cultural and religious taboos make it impossible for male extension workers to reach women farmers who out-number male small scale farmers. All (100%) of the respondents were married which implied that they all had a sense of responsibility. Most (91.4%) of the respondents were NCE/OND holders while 8.6% were HND/First degree holders. This implied that most of the respondents were literate and had basic understanding of extension work. The mean years of experience was 9.8 years which implied that most of the respondents had experience as regards extension work.

Table 4.1: Demographic characteristics of respondents

Demographic characteristics	Frequency n= 70	%	Mean (years)
Age (years)			
30-40	50	71.4	38
41-50	20	28.6	
Sex			
Male	54	77.1	
Female	16	22.9	
Marital status			
Single	0	0	
Married	70	100	
Education			
SSCE/NECO	0	0	
NCE/OND	64	91.4	
HND/BSc	06	8.6	
Work experience (years)			
1-5	0.4	4.5	
6-10	43	61.4	
11-15	21	30.0	9.8
16-20	0.2	2.9	

Table 4.2: Improved farm technologies disseminated by extension agents

Farm technologies	Mean	SD
Land Preparation	3.00*	0.0
Improved varieties	3.00*	0.0
Seed rate/plant population	3,00*	0.0
Sowing methods	3.00*	0.0
Harvesting practices	3.00*	0.0
Post harvest technology	3.00*	0.0
Seed treatment before planting	3.00*	0.0
Improved seed varieties	3.00*	0.0
Processing of the produce	284*	0.4
Marketing of the produce	2.70*	0.5
Plant protection and disease control	2.57*	0.5
Cultural method for weed eradication	2.19*	0.4
Fertilizer application	2.19*	0.4
Application of weedicides	2.19*	0.4
Erosion control	2.14*	0.4
Crop rotation	2.00*	0.0
New method for handling manure	2.00*	0.0
Soil amendments	2.00*	0.0
Irrigation method	1.90	0.4
Mechanical control of insect	1.00	0.0
Biological control of insects	1.00	00
Integrated pest management	1.00	00

*Regular (mean ≥ 2.00)

Frequency of disseminating improved farm technologies to farmers by the extension agents

Table 4.2 shows that several of the technologies were regularly disseminated by extension agents to farmers. The major technologies regularly disseminated were land preparation, improved varieties, seed rate/plant population, sowing methods, harvesting practices, post harvest technology, seed treatment before planting having 3.00 as their means. The standard deviations of 0.0 also imply that all the extension agents always disseminate these technologies to farmers. However, irrigation methods (mean 1.90), mechanical and biological control of insects and integrated pest management all having 1.00 as their means were not regularly disseminated.

Training programs undergone by extension agents

Results in Table 4.4: shows that the training programs regularly undergone by respondents are twelve in number. The major ones were record keeping and reporting, orientation, improved agricultural technology having 3.00 as their means and standard deviation of 0.0 indicating that these trainings were always undergone by all the agents. Communication skills (mean 1.96) and program planning (mean = 1.87) are some of the training programs not regularly undergone. This is in support of Zinnah et al, (1998) who perceived that efforts by the extension systems to transfer improved farm technologies to farmers have not yielded tangible results due to inadequate knowledge of how communication works and lack of inter-agency cooperation both in program planning and implementation. This aligned with Baker and Villalobos, (1997) who perceived that many people in extension are ill-prepared for extension and extension communication job.

Table 4.4: Training programs undergone by extension agents

Training programs	Mean	SD
Record keeping and reporting	3.00*	0.0
Orientation	3.00*	0.0
Improved agricultural technology	3,00*	0.0
Concept of leadership	2.91*	0.4
Extension organization	2.84*	0.4
On-the-job learning	2.43*	0.5
Professionalism	2.43*	0.5
Food safety and nutrition	2.43*	0.5
Effective thinking	2.29*	0.9
Professional improvement	2.70*	0.5
Individual development	2.26*	0.6
Youth development	2.14*	0.4
Communication skills	1.96*	0.8
Program planning	1.87*	0.6
Educational processes	1.86*	0.6
Extension program development	1.86*	10.0
Organizational development 1.86 0.4	1.86*	0.4
Research	1.71	0.5
Human development	1.71	0.5
Social systems	1.71	0.5
In-service education	1.71	0.5
Economic and community development	1.71	0.5
Management skills	1.3.1	0.5
Extension policy	1.29	0.7
Environmental conservation	1.29	0.5
Agri-system productivity	1.29	0.5
Programme area training	1.17	0.4
History and tradition of extension	1.14	0.4

*Regular (mean ≥ 2.00)

Table 4.5: challenges faced by respondents iii technology dissemination to farmers

Challenges	Mean	Standard deviation
Poor training of staff	3.00*	0.000
Inadequate incentives to staff	3.00*	0.000
Lack of transportation	3.00*	0.000
Procurement of inputs	2.86*	0.352
Untimely and supply in delay in supply of inputs	2.50*	0.504
Lack of communication infrastructure	2.15*	0.359
Inadequate credit facilities	2.00*	0550
Inadequate staffing	2.00*	0000
Insufficient funding	2.00*	0.000
Indivisibility of innovation.	1.86	0.352
Cold attitude of farmers	1.85	0.359
Agrochemical	1.65	0481
Understanding of innovation	157	0.498
Research organization	1,45	0.501
Inadequate research work	1.40	0.494
Non-availability of genetic material	1.30	0.46
Non-availability relevant research	1.15	0.359
Lack of technology demonstration centre	1,00	0.000
Extension delivery methods	1.00	0.000
Agricultural policy	1.00	0.000
Socio cultural factors	1.00	0.000
Political and economic environment	1.00	0.000
Agro-ecological factors	1.00	0.000
Language barrier	1.00	0.000

*Regular (mean ≥ 2.00)

Challenges faced by extension agents in technology dissemination to farmers

Table 4.5 shows that the mean result of some of the challenges faced by respondents was serious. These included: poor training of staff inadequate incentives to staff, and lack of transportation having 3.00 as their means. Other serious challenges included; procurement of inputs (mean 2.86), untimely and delay in supply of inputs (mean 2.50), lack of communication infrastructure (mean = 2.15). Inadequate staffing, insufficient funding, and unavailability of credit facilities were challenges also found to be serious. Table 4.5: Relationship between the Training Programs Undergone by Respondents and the Frequency of Disseminating Farm Technologies

Results in Table 4.5 shows that there was significant relationship between training programs undergone by respondents and the frequency of disseminating farm technologies ($r = 0.253$: $p < 0.05$). The correlation coefficient was positive which implied that the more regular agents underwent trainings, the more frequently farm technologies were disseminated and the less regular trainings undergone, the less frequently farm technologies were disseminated to farmers. This result corresponds with the conclusion of the Commission for Africa (2005) that 'Skilled Professionals are the key to building improvements in the administrative and technical ability which Africa greatly lacks".

Table 5: Relationship between the training programs undergone by respondents and the frequency of disseminating farm technologies

Independent variable	Coefficient/ (r)	Prob. Level
Trainings undergone (total score)	0.253*	0.035

Correlation is significant at the 0.05 level (2-tailed)

CONCLUSION

The non provision of agricultural information is a key factor that has greatly limited agricultural development in Nigeria. It has impaired the visibility and relevance of many agricultural research and development organizations.

This study has shown that extension agents are not regularly trained on most of the training programs such as communication skills, program planning and educational process. Irrigation methods, control of insects and integrated pest management are some of the important farm technologies not properly diffused. This could be directly linked to the irregular training of respondents on agricultural system productivity. Major challenges were poor staff training and inadequate transportation.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made: More females should be recruited into the agricultural extension service systems. Extension staff should be well motivated with exposure to relevant training courses on regular basis to keep them abreast of any new technology for quick dissemination. Funding and mobility should be provided for extension agents for effective coverage of their catchment areas. Multi-media approach whereby all channels of the media for communication and interpersonal communication techniques are should be fully utilized to articulate the benefits of improved technologies in order to ensure food security, sustainable agricultural development and better living standard for Nigerian farmers.

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