ROLES OF ADP IN THE TECHNOLOGY TRANSFER OF MAIZE INNOVATIONS TO FARMERS IN LAGOS STATE, NIGERIA

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Abstract

The study evaluated the roles of ADP in the transfer of agricultural technologies among maize farmers in Lagos state, Nigeria. The primary data was collected through the administration of a well-structured questionnaire that consists of both open and closed ended questions. All the ADP staff involved in the transfer of technologies to maize farmers constituted the sample size, (71respondents). Both descriptive and inferential statistics was used to analyze the data. Descriptive statistic used includes frequency count and percentages while the inferential statistics used is the Person Product Moment Correlation (PPMC). The result revealed a mean age of 39.8years. In terms of extent of maize technology transferred, Use of organic manure was ranked first with Weighted Mean Score (WMS) of 2.5. Use of agrochemicals ranked second with WMS of 2.4. Next is Use of hybrid maize which ranked third with WMS of 2.3 while the use of lime ranked fourth with WMS of 2.1. The result of Pearson Product Moment Correlation shows that some available agricultural technologies on maize such as lime use ($r = 0.523$, $p = 0.000$); planting of hybrid maize seed ($r = 0.303$, $p = 0.010$); crib use ($r = 0.426$, $p = 0.000$); silos use ($r = 0.503$, $p = 0.068$) and training on the safe use of agro-chemicals ($r = 0.272$, $p = 0.79$) were significantly related to the roles carried out by ADP in the transfer of these technologies to farmers. The study concluded that innovations on maize production are readily available in the Lagos state while inadequate funds and unstable government policies constituted the major constraints. It was therefore recommended that State government should see to providing more financial support to ADP staff to enhance their productivity.

Key words: Agricultural Technologies, Technology Transfer, Maize innovations, ADP Roles, Maize Farmers

Introduction

In the sub-Saharan Africa, considerable emphasis is placed on technology transfer. Technology is a set of tools and techniques for producing goods and services, including organizational and physical techniques (Loevinsohn *et al*., 2012). Technology is the knowledge/information that allows some jobs to be completed more quickly, some services to be provided, or a product to be manufactured more efficiently (Lavison, 2013). The goal of technology is to improve a situation or shift the status quo to a more acceptable level. It enables the applicant to complete tasks more quickly and efficiently than he would without it, therefore saving time and effort. Over the past few decades several technology transfer approaches has been tested. The first of this approach is the traditional extension system of the Ministries of Agriculture and Agricultural Development

Projects (ADPs) in the early 1960s (Doss, 2003).

In Nigeria, the concept of Agricultural Development Programmes was designed in response to a fall in agricultural productivity and hence a concern to sustain domestic and commercial food supplies. The basic concept was introduced to Nigeria in 1974, when the first three enclave projects were established in the country's northern regions. This comprises the Agricultural Development Programs in Funtua, Gusau, and Gombe. Agro-ecologically favorable locations in northern Nigeria were chosen as project regions. They were in the jurisdiction of numerous Local Government Councils (LGCs) in the states of Bauchi, Gombe, Kaduna, and Sokoto (Idrisa *et al.,* 2010). Because of the apparent success of these early initiatives, both the Nigerian government and the World Bank moved fast to replicate the Agricultural Development Program model in additional states. The ADP technique is reported to have originated in Malawi, East Africa, as a means of combating poverty. Economic development in the country's rural areas had been aided by a plan that emphasized the contribution of improved food crop technology, improved delivery networks for agricultural extension and input supplies, and improved infrastructure. This notion was implemented using a well-designed organizational structure and professional people (hired on purpose. The ADPs back then focused on modern technologies which led their agricultural research and extension services to focus on relatively high inputs technologies for sole cropping.

A complex combination of functions and interconnections make up an agricultural technology system. Farmers, researchers, extensionists, non-governmental organizations, and other agencies must work together in a coordinated manner with adequate feedback to increase agricultural productivity and farm household income while maintaining the resource base and addressing equity concerns (Swanson, 2005). Due to limited funding opportunities affecting the supply of essential inputs, ADPs are increasingly becoming commercial. With the recent economic condition of soaring inflation, famine, and food scarcity, the prices of numerous agricultural inputs have been steadily rising. This has a negative impact on technological development, adoption, and, of course, long-term use.

Farmers use their personal expertise into their farming procedures, and they manage their crops. Natural circumstances, resource availability, and possibilities are all changing, and farmers must adapt. Farmers learn about new technology via a variety of research, extension, and rural development organizations, programs, and projects (Biggs, 2015). These organizations work to create and promote new kinds, inputs, and management techniques. It is critical that such institutions track the outcomes of their work and comprehend how the technologies they promote contribute to the complex pattern of agricultural developments in which all farmers are involved.

In general, all Agricultural Development Programs have the same goal. Its goal is to improve the standard of living and welfare of the farming population in the defined project regions by increasing food production and farm incomes for the majority of rural households, with the goal of reducing abject poverty. However, certain factors impede the transfer of such technology which include; poor funding from their respective state governments which are inadequate and often disbursed lately. Other problems include inadequate qualified extension services, lack of payment of allowances which are motivation to extension staffs,

inadequate/late delivery of farming inputs to farmers, poor communication facilities among others have been found to be the cause of the ADPs inability to meet their required logistics and man power development needs (Adegboye, 2011). Therefore, the study examined the role of ADP in agricultural technology transfer of maize innovations to farmers in Lagos State. The study went further to describe the socio-economic characteristics of the respondents, determined the agricultural technologies available on maize production, examined the types of Agricultural technologies on maize that was transferred to farmers and examined constraints associated with the transfer of maize production technology.

METHODOLOGY

The study was conducted in ADP of Lagos state, Nigeria. The office is located at 371 Oko-Oba, Agege Motor Road, Agege, Lagos, Nigeria. Lagos state is located in the south west geo-political zone of the country and commercial nerve of the country. Lagos State Agricultural Development Project now known as Lagos State Agricultural Development Authority (LSADA) was established in 1987 and became a scheduled parastatal of the State Government with effect from 1st of April, 1995 as the implementation arm of the State Ministry of Agriculture. The Authority is one of the four Agencies of the Lagos State Ministry of Agriculture. It works to sustain the way of life and prosperity of the farmers in the State with a specific mandate of providing Agricultural Extension Services to improve the productivity, competitiveness, income, and sustainability of Agriculture, fisheries, livestock, crops, agro-processing, and farm mechanization and related sectors (LSADA, 2020). The primary data was collected through the administration of a well-structured questionnaire that consists of both open and closed ended question. All the ADP staff involved in the transfer of technologies to maize farmers constituted the sample size (71respondents). There are two major variables in the study. They are the dependent and independent variables. The dependent variable is the role of ADP in technology transfer of maize innovation. Various roles carried out by ADP were listed out and extent of carrying such roles were scored as follows. Very often (3), Often (2), Sometimes (1), Never (0). Both descriptive and inferential statistics were used to analyze the data. Descriptive statistic used includes frequency count and percentages while the inferential statistics used is the Person Product Moment Correlation (PPMC).

Data Analysis and Discussion of Result

Socio-economic characteristics of the respondents

The data in Table 1 shows the distribution of respondents according to their ages. The mean age was 39.8years. The study discovered that 59.2% of the respondents were male and 40.8% were female. Also, some of the respondents (35.7%) completed their OND/NCE, 45.7% completed their first degree/HND while, 11.4% completed their Ph.D programme. Religion is a very important aspect of people's lives because it is a means by which people have a personal relationship with God, 67.6% of the respondents were reported to be Christians while 32.4% were Muslims. Also, close to half of the respondents (48%) were married. Most respondents (67.6%) were having household size ranging from 6-10 persons.

Table 1: Distribution of respondents according to their social economic characteristics

n=71

Socio-economic characteristics	Frequency	Percentage
Age (years)		
≤ 30	12	16.8
31-40	27	30.8
41-50	23	32.2
51-60	7	9.8
61 and above	2	2.8
Sex		
Male	42	59.2
Female	29	40.8
Religion		
Christianity	48	67.6
Islam	23	32.4
Marital status		
Single	17	23.9
Separated	2	2.8
Divorced	3	4.2
Widow/widower	1	1.4
Married	48	67.6
Household size (persons)		
≤ 5	48	67.3
6 – 10	23	23.3

Source: Field Survey, 2021

Extent of transfer of maize technologies to farmers (roles carried out by ADP)

Table 3 indicates the extent to which the available maize innovations were transferred by ADP extension to farmers in the state. Use of organic manure was ranked first with Weighted Mean Score (WMS) of 2.5. Use of agrochemicals ranked second with WMS of 2.4. Next is Use of hybrid maize which ranked third with WMS of 2.3 while the use of lime ranked fourth with WMS of 2.1. Furthermore, maize, fertilizers and pesticide were jointly ranked fifth with WMS of 1.9, Use of local storage facilities ranked eighth with WMS of 1.5, Use of cribs ranked ninth with WMS of 1.1 while use of silo ranked last with WMS of 1.0. The result implies that organic manure was the technology mostly transferred to the farmers by the ADP.

Table 3: Distribution of Respondents According To Extent of Transfer (Roles) of Maize Technology to Farmers

Available Technology on Maize*	Very often	Often	Sometimes	Never	WMS	Rank
Soil improvement technologies						
Use of lime	23 (32.4)	25 (35.2)	8 (11.3)	15 (21.1)	2.1	4th
Use of organic manure	24 (33.8)	38 (53.5)	4 (5.6)	5 (7.0)	2.5	1st
Use of hybrid maize	21 (29.6)	35 (49.3)	6 (8.5)	9 (12.7)	2.3	3rd
Use of cribs	4 (5.6)	17 (23.9)	21 (29.6)	29 (40.8)	1.1	9th
Use of silo	9 (12.7)	10 (14.1)	17 (23.9)	35 (49.3)	1.0	10th
Use of local storage facilities	9 (12.7)	25(35.2)	13 (18.3)	24 (33.8)	1.5	8th
Distribution of inputs						
Maize seeds	11 (15.5)	38 (53.5)	11 (15.5)	11 (15.5)	1.9	5th
Fertilizer	13 (18.3)	37 (52.1)	13 (18.3)	8 (11.3)	1.9	5th
Pesticide	13 (18.3)	37 (51.2)	12 (16.9)	9 (12.7)	1.9	5th
Training						
Use of agrochemicals	19(26.8)	41(57.7)	5 (7.0)	6 (8.5)	2.4	2nd

Source: Field Survey, 2021 * Multiple response

Constraints faced by ADP in the transfer of maize innovations to farmers.

Table 4 shows the constraints faced by ADP staffs in the transfer of maize innovations to farmers in the state. The distribution of respondents by constraints associated with the transfer of maize innovation in Table 4 revealed that budgeting and appropriation ranked as the most serious constraint with the Weighted Mean Score (WMS) of 3.0. This was closely followed by Lack of incentives to extension while high extension to farmers ratio ranked 3rd with WMS of 2.6. Inconsistence government policies ranked 4th with WMS of 2.5 while corruption in the distribution of inputs, Late arrival of maize inputs (WMS=2.4), Willingness to adopt innovation (WMS =2.3) and Effectiveness of Extension programme (WMS=2.0) ranked 5th, 6th, 7th and 8th respectively. The result implies that budgetary provision and appropriate were the most challenging constraints to the transfer of maize innovation by the respondents. This will definitely affect the effectiveness and efficiency of delivery of innovation on maize farming to the respondents.

Table 4: Distribution of respondents according to constraints associated with the transfer of maize innovation

Constraints*	Serious	Mild	Not a constraint	WMS	Rank
Budgeting and appropriation	25 (35.2)	40 (56.3)	6 (8.5)	3.0	1st
Effectiveness of Extension programme	10 (25.4)	36 (50.7)	17 (23.9)	2.0	7th
Willingness to adopt innovation	11 (15.5)	45 (63.4)	15 (21.1)	2.3	6th
Inconsistent government policies	20 (28.2)	43 (60.6)	8 (11.3)	2.5	4th
Late arrival of maize inputs	12 (16.9)	51 (71.8)	8 (11.3)	2.4	5th
Lack of incentives to extension	23 (32.4)	40 (56.3)	8 (11.3)	2.7	2nd
High Extension to farmer ratio	21 (29.6)	43 (60.6)	7 (9.9)	2.6	3rd
Corruption in the distribution of inputs	9 (12.7)	53 (74.6)	9 (12.7)	2.4	5th

Source: Field Survey, 2021 *Multiple response

Pearson Correlation analysis showing relationship between numbers of available maize innovations and the roles carried out by ADP in the transfer of these technologies to farmers

The result of Pearson Product Moment Correlation in Table 5 shows that some available agricultural technologies on maize such as lime use ($r = 0.523$, $p = 0.000$); planting of hybrid maize seed ($r = 0.303$, $p = 0.010$); crib use ($r = 0.426$, $p = 0.000$); silos use ($r = 0.503$, $p = 0.068$) and training on the safe use of agro-chemicals ($r = 0.272$, $p = 0.79$) were significantly related to the roles carried out by ADP in the transfer of these technologies to farmers. This implies that the more available those technologies are, the higher the ADP continues to carry out their roles in the transfer of those technologies to farmers.

Table 5: Pearson Correlation analysis showing relationship between numbers of available maize innovations and the roles carried out by ADP in the transfer of these technologies to farmers

Variables	r-value	p- value	Remark
Lime use	0.523	0.000	Significant
Use of organic fertilizer	0.099	0.410	Not Significant
Use of hybrid maize seed	0.303	0.010	Significant
Use of crib	0.426	0.000	Significant
Use of silo	0.503	0.068	Significant
Use of local storage facilities	0.68	0.574	Not Significant
Hybrid maize seeds	0.271	0.255	Not Significant
Fertilizers	0.255	0.332	Not Significant
Pesticides	0.332	0.272	Not Significant
Training on the safe use of agro-chemicals	0.272	0.079	Significant

Source: Field Survey, 2021

Conclusion and Recommendations

The study concluded that innovations on maize production are readily available in the Lagos state ADP but the ADP staffs in the state are faced with many constraints such as inadequate funds, unstable government policies, lack of co-operation of the farmer with the extension agent, lack of incentives to the extension agent, which affects ADP from carrying out their roles in transferring technological innovations to maize farmers in the state.

.Based on research findings, the study suggested the following recommendations:

- State government should see to providing more financial support to ADP staff to enhance their productivity.
- The ADP staff should be well motivated and remunerated using the appropriate motivational strategies in order to effectively and efficiently transfer the available maize technologies to the farmers.

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