

**ASSESSMENT OF TRANSFER OF AGRICULTURAL TECHNOLOGIES BY
EXTENSION AGENTS TO CROP FARMERS IN OGUN STATE, NIGERIA**

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ABSTRACT

The study assessed Agricultural technologies transferred by Extension Agents to crop farmers in Ogun State, Nigeria. Data was collected from sixty one (61) respondents with the aid of questionnaire. Findings revealed that mean age of Extension Agents in the study area was 40.3 years. The mean years spent in formal school was 16.30 years and the mean annual income was N479,080.00. The key agricultural technologies transferred to crop farmers were hybrid maize (WMS =1.95) and technology on plant population (WMS=1.93). Face to face (92.4%) and Demonstrations (96.7%) were the two major communication channels employed by respondents in transferring Agricultural technologies to crop farmers. Significant relationship existed between selected socio economic characteristics such as age ($r = 0.277$, $p = 0.030$), years spent in school ($r = 0.713$, $p = 0.000$) and the level of transfer of Agricultural technologies by Extension agents. The study recommended that more extension agents should be recruited into extension services to expand their coverage in the state.

Keywords: Technology, Agricultural technology, Extension, Technology transfer.

1. INTRODUCTION

Agricultural extension is essentially a service as well as learning process for farmers. It is the basis of the transfer of agricultural technologies to farmers' populace and to persuade them to utilize those agricultural techniques. The traditional view of agricultural extension in developing countries was very much focused on increasing production, improving yields, training farmers, and transferring technology (Davis, 2008). Technological change and utilization of innovation production techniques are important steps in the development process of every agrarian economy. This is especially true for agricultural development in Sub-Saharan Africa, where crop output has largely been stagnant for many years due to a multiplicity of factors including poor adoption and inadequate use of improved production methods (Azumah *et al*, 2018).

Agricultural technology transfer methods connote techniques used by an extension system as it functions such as face to face, demonstration, mass media and so on. A combination of methods is considered suitable and appropriate for a given agricultural technology. Mgendi, Shiping and Xiang (2019) stated that Agricultural technology transfer plays a chief role in transforming agricultural productivity in rural areas especially in the current setting where food demand

surpasses the production capacity. Technology transfer facilitates the movement of soft and hard skills essential for improving farm production.

The issue of climate change which affects food production necessitates invention and transfer of suitable agricultural technologies to crop farmers. The challenges to the transfer of agricultural technologies in Nigeria can be grouped into four broad categories according to Ohikere and Arudi (2011) which are:

- The problem with the technology itself
- The problem with the technological transfer system
- Socio-economic attributes of farmers
- Local peculiarities and differences.

Technology transfer and utilization is one of the reasons yield gap exists. Farmers do not have sufficient economic incentives to adopt yield enhancing seeds or cropping techniques. This may be explained by numerous factors, including lack of access to information, extension services and technical skills. Poor infrastructure, weak institutions and unfavourable farm policies can also create huge obstacles to the adoption of improved technologies at farm-level. Other factors can be that available technologies have not been adapted to local conditions (Food and Agricultural Organization, 2009). However, extension agents are poorly motivated in terms of remuneration and provision of transport facilities to visit the farmers. Specifically, the study:

- Ascertained selected socio-economic characteristics of crop farmers.
- Determined the agricultural technologies transferred to the crop farmers.
- Determine the communication channels used to transfer agricultural technologies.

2. METHODOLOGY

The study was carried out in Ogun State, Nigeria. It borders Lagos state to the south, Oyo and Osun State to the North, Ondo state to the east and Republic of Benin to the west. The state is within the tropical rain forest with abundance of resources, which enables residents to produce Agricultural Cash crops like Oil palm and coconut, arable crops like yam, cassava, and maize, are widely cultivated there too. Ogun state is divided into four (4) Agricultural zones by Ogun State Agricultural Development Project (OGADEP) namely Abeokuata Zone, Ikenne Zone, Ilaro Zone and Ijebu Ode Zone.

Based on the population of Extension Agents in all the four Agricultural zones in the state, all Extension Agents (61) in the four zones, were used as respondents. Data was collected from the respondents through the administration of questionnaire. Two types of variables were considered in the study. They are dependent and independent variables. The dependent variable is level of transfer of Agricultural technologies to crop farmers by the respondents, which was measured on a 3 rating scale of Always transferred (2), Occasional transferred (1) and not transferred (1). The descriptive tools include mean, frequency counts, percentages. While Pearson Product Moment Correlation (PPMC) analysis was used to test for the hypothesis.

3. DISCUSSION OF RESULTS

Socio economic characteristics of respondents

Table 1 revealed the distribution of respondents according to their socio economic characteristics. It can be observed that mean age of Extension Agents in the study area was 40.3 years. This means respondents were in their active ages which could assist them to be productive in the transfer of latest agricultural technologies to farmers. The mean years spent in formal school was 16.30 years and the mean annual income was N479,080.00. The mean years spent in formal school was 16.30 years and this implies that respondents in the study area were highly educated. The mean household size was 4 persons and it implies that respondents in the study area had a very small household size.

Table 1: Distribution of respondents according to their socio economic characteristics n=61

Socio economic characteristics	Frequency	Percentage	Mean
Age (years)			
< 30	9	14.8	
31-40	25	40.9	
41 years and above	27	44.3	40.3
Sex			
Male	39	63.9	
Female	22	36.1	
Marital status			
Single	6	9.8	
Married	55	90.2	
Years spent in school			
< 12	3	4.9	
13-18	50	82.0	16.3
19 and above	8	13.1	
Household size (persons)			
< 4	34	41.7	4
5-8	23	37.7	
9 and above	4	6.6	
Annual income			
< N500,000	31	50.8	N479,080
N500,001 and above	29	49.2	

Source: Field survey, 2019

Agricultural Technologies transferred by Extension Agents to crop farmers.

Table 2 revealed the distribution of the respondents according to frequency of transfer of agricultural technologies to crop farmers in the study area and it indicated that the major agricultural technologies transferred to crop farmers was transfer of hybrid maize technology and was ranked first with a weighted mean score (WMS) of 1.95, followed by plant spacing

information was ranked second with a weighted mean score (WMS) of 1.93, followed information on plant population was ranked third with a weighted mean score (WMS) of 1.87, followed by technology on improved grains varieties and technology on improved cassava stem was ranked fourth with a weighted mean score (WMS) of 1.85 respectively while technology transferred on plant extraction and water melon were ranked least with the weighted mean score (WMS) of 0.48 and 0.23 respectively. The result of the findings shows that technology transferred on hybrid maize, plant spacing, plant population and improved grains varieties were the major Agricultural technologies transferred by Extension agent to crop farmers in the study area.

Table 2: Distribution of respondents according to Agricultural technologies transferred to crop farmers

Agricultural Technologies	Frequency of Transfer			WMS	Rank
	Always transferred	Occasional transferred	Not transferred		
Arable crops					
Improved grains varieties	52(85.2)	9(14.8)	0(0.00)	1.85	4 th
Spacing	57(93.4)	4(6.6)	0(0.00)	1.93	2 nd
Plant population	53(86.9)	8(13.1)	0(0.00)	1.87	3 rd
Weeding technique (chemical)	40(65.6)	13(21.3)	8(13.1)	1.52	10 th
Fertilizer					
Organic (quantity)	11(18.0)	18(29.5)	32(52.5)	0.66	14 th
Organic (quality)	5(8.2)	21(34.4)	35(57.4)	0.51	16 th
Inorganic (Adequacy)	29(47.5)	26(42.6)	6(9.8)	1.38	12 th
Inorganic (availability)	30(49.2)	25(41.0)	6(9.8)	1.39	11 th
Pesticides					
Chemical	51(83.6)	10(16.4)	0(0.00)	1.84	6 th
Plant extraction	3(4.9)	23(37.7)	35(57.4)	0.48	17 th
Improved seed distribution					
Hybrid maize	58(95.1)	3(4.9)	0(0.00)	1.95	1 st
Cassava stem	52(85.2)	9(14.8)	0(0.00)	1.85	4 th

Yam	4(6.6)	41(67.2)	16(26.2)	0.80	13 th
Water melon	1(1.6)	12(19.7)	48(78.7)	0.23	18 th
Agricultural mechanization					
Tractor	47(77.0)	13(21.4)	1(1.6)	1.75	8 th
Sprayer	53(86.9)	6(9.8)	2(3.3)	1.84	6 th
Food safety techniques	45(73.7)	14(23.0)	2(3.3)	1.70	9 th
Soil testing	4(6.6)	31(50.8)	26(42.6)	0.64	15 th

Source: Field survey, 2019

() represent percentage

WMS represent Weighted mean score

Communication channel employed by respondents in transferring Agricultural technologies to crop farmers

Table 3 revealed the distribution of respondents according to communication channel employed in transferring Agricultural technologies to the respondents and it was revealed that most (67.2 percent) of the respondents used of Television as a communication channel in transferring Agricultural technologies to crop farmers, 54.1 percent used of Radio as a communication channel, very few (1.6 percent) used Newspaper as a communication channel, 61.3 percent made use of bulletin as a communication channel, majority (92.4 percent) of the respondents used face to face communication channel in transferring Agricultural technologies to crop farmers, few (21.3 percent) of the respondents used internet as a communication channel while majority of the respondents in the study area employed Demonstration as a communication medium channel in transferring Agricultural Technologies to crop farmers. This implies that Extension Agents in the study area employed different communication channel in transferring Agricultural Technologies to crop farmers but majority employed Face to face and Demonstration channel in transferring Agricultural technology to their crop farmers.

Table 3: Distribution of respondents according to communication channel employed in transferring Agricultural technologies to crop farmers

Channels*	Frequency	Percentage (%)
Television	41	67.2
Radio	33	54.1
Newspaper	1	1.6
Bulletin	38	61.3
Face to face	57	92.4
Internet	13	21.3

Demonstration	59	96.7
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Source: Field survey, 2019

* represent multiple responses

Pearson correlation analysis showing the relationship between selected socio economic characteristics and frequency of transfer of Agricultural technologies by Extension agents

Pearson’s Product Moment Correlation analysis revealed that there is a positive and significant relationship between selected socio economic characteristics such as Age ($r=0.277$, $p= 0.030$), years spent in school ($r= 0.713$, $p=0.000$) and frequency of transfer of Agricultural technologies. This implies that increase in age of the respondent increases the level of transfer of Agricultural technologies to crop farmers. Also increase in the years spent in school of the respondent increases the level of transfer of Agricultural technologies to crop farmers.

Table 5: Pearson correlation analysis showing the relationship between the socio economic characteristics and the frequency of transfer of Agricultural technologies

Selected socio economic characteristics	Correlation(r)	P-value	Remark
Age	0.277*	0.030	Significant
Years spent in school	0.713**	0.000	Significant
Household size	-0.249	0.053	Not Significant
Annual income	0.185	0.154	Not Significant

Source: Field survey, 2019

*correlation is significant at the 0.05 level (2-tailed)

**correlation is significant at the 0.01 level (2-tailed)

4. CONCLUSION AND RECOMMENDATIONS

The study concluded that key agricultural technologies transferred to crop farmers were hybrid maize and technology on plant population. Face to face and Demonstration were the two major communication channels employed by respondents in transferring Agricultural technologies to crop farmers. Based on the findings of this study, the following recommendations were made:

- More extension agents should be recruited into extension services to expand their coverage in the state.
- Demonstration tools should be made adequate and accessible to extension agents to assist in transfer of agricultural technologies to farmers.

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