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Full Length Research Paper

Adoption of improved farming practices among arable crop farmers in Iwo Zone of Osun State Agricultural Development Programme.

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This study measured the level of adoption of improved practices among arable crop farmers in Iwo zone of Osun State Agricultural Development Programme (OSADEP). Multistage sampling technique was used to select 110 arable crop farmers as sample for the study. Data were collected from respondents through personal interview. The results showed that the improved practices used by the farmers include use of improved varieties, use of herbicides and application of chemical fertilizers. However, none of the farmers prepared their land mechanically, dressed seed with chemicals, and used mechanical means of harvesting. Analysis of variance (ANOVA) showed that there is a significant difference between groups of farmers with low and average adoption scores ($F = 12.3$, $p < 0.05$). There are also significant differences between male and female farmers level of adoption of improved practices ($F = 76.4$, $p< 0.05$) and single and married farmers level of adoption of improved practices ($F = 76.00$, $p < 0.05$). the Pearson correlation coefficients showed that there is a negative and significant relationship between farmers; age and their level of adoption of improved farm practices $r = 10.197$, $p < 0.05$).

Keywords: improved farming practices, arable crop farmers, Iwo Zone, Osun State, Agricultural Development Programme.

INTRODUCTION

Nigeria is still battling with the problem of food security and sustainable agriculture, in spite of availability of a land mass that is about 80 per cent arable. According to (FMA and WR 2008), the crop production sector contributes about 85 per cent to Nigeria's agricultural Gross Domestic Product (GDP). Over 90% of the agricultural output in the country is from smallholder farmers who cultivated less than two hectares of land. It is estimated that out of 68 million hectares of the total land area which has potential for agricultural activities, only about 33 million hectares is under cultivation. Over the years, Nigeria has devoted large hectarage to the cultivation of arable crops, however, productivity has remained low, a phenomenon that has entangled the farmers in a vicious circle of poverty (Okoedo-Okojie, 2011a). Among factors accounting for the low productivity of these farmers are, the use of obsolete cultural practices, scanty plant stands, poor weed control, non-usage of fertilizer, organic manures and other improved agricultural inputs including the management of the crop under degraded soil condition (FAO 2003). Consequently, a determined and well-targeted effort must be made to improve on food security for the ever increasing Nigerian population (Okoedo-Okojie, 2011b). More than before, there is now an urgent need to optimize the use of available hectarage for arable crops production, since the current practice of increasing output by increasing the hectarage under cultivation is not sustainable, due to competing alternatives for land by other sectors of the economy in line with developmental trends.

It has been observed that modern technological advancements in agricultural production are yet to make major impact on crop production and productivity in Nigeria (Roy, 1990). The poor performance of the traditional methods of agricultural production has been

responsible for low yield and output of crops. Thus, there is need to replace the traditional methods of agricultural production with improved practices in order to improve the output levels of farmers (Daramola, 2007). However, sustained development of the country in a situation of accelerated social change must depend, to a large extent, upon expanding food production.

At the farm level, crop production and productivity can be increased by the introduction of modern farming technologies to small scale farmers who still hold the key to the nation's food supply (Federal Ministry of Agriculture, 2001).

Agricultural productivity is of serious concern to the government since Nigeria attained independence. This is because self-sufficiency in food production is directly linked to increase in agricultural productivity.

The importance of improved technology to agricultural development especially in less developed countries is widely recognized. This is predicated on the observed impact of these innovations and its potentials and actual contributions to the development of agriculture. In developing countries like Nigeria where a greater proportion of the population lives in rural areas, agricultural technologies could also provide a potential means of increasing production and subsequently raising incomes of farmers as well as their standard of living (Ayoade and Akintonde, 2012). The acceptance of improved agricultural production practices in any locality at any given time is as a result of the interaction of various factors including certain personal characteristics (Jibowo, 1992).

Presently, there is serious concern about the current productivity of crops in Nigeria, in spite of the abundance of improved farming technologies. The level of agricultural productivity is determined by the extent of use of improved agricultural production technologies (Daramola, 2005).

In order to increase the output levels of small holder's farmers, it is necessary to examine the level of adoption of improved farming technologies among the farming population. This study examined the level of deviation from traditional methods of farming to modern farming technologies among arable crop farmers in Iwo Zone of Osun Agricultural Development Programme (OSSADEP).

MATERIALS AND METHODS

The study was carried out in Iwo Zone of the Osun State Agricultural Development Programme (OSADEP). The local government areas in the zone are Aiyedaade, Ayedire, Ejigbo, Irewole, Isokan Ola Oluwa and Iwo. The people in the zone are predominantly Yoruba by tribe, mostly peasant farmers, specializing in the cultivation of both arable crops and tree crops. Agriculture and trading is the dominant economic activities of the people in the zone.

A multistage sampling technique was employed in the study. The first stage was random selection of four local government areas from the zone. The selected local government areas are Aiyedaadade, Ayedire, Iwo and Ejigbo. The second stage was the random selection of 11 communities from the selected local government areas. The final stage involved the random selection of 10 farmers from each community to give 110 arable crop farmers as the sample for the study.

Scores were awarded to individual arable crop farmers according to their farming practices. A pure indigenous practice was awarded a score of one, while a purely innovative practice was awarded a score of five. Between the two extremes on the scale are other points; highly indigenous practice which was awarded a score of two, moderately innovative practice which was awarded a score of three and highly innovative practice which was awarded a score of four. The aggregate of a farmer's score formed his/her level of adoption of improved farming practices.

Both descriptive and inferential were used in the analysis of the data. Percentages and means are the main descriptive statistic used to analyze independent variables. The inferential statistics were used to determine types of relationship and differences between variables.

RESULTS AND DISCUSSION

Areas of improved farming technologies adoption

Data in Table 1 reveal that majority (80.00%) of the arable crop farmers apply chemical fertilizers. About 8% uses pesticides on their farms, while 6.50% and 4.50% plant improved seeds and uses herbicides on their farm respectively.

However, none of the arable crop farmers prepare their land mechanically, dress seeds with chemicals and use mechanical means of harvesting.

Respondents Adoption Scores

Table 2 indicates that the majority (81.10%) of the arable crop farmers have low level of adoption of improved farm practices, scoring 1 to 2 out of the expected maximum score of 5. 19.00 % of the farmers do not use improved practices.

It can be implied that none of the arable crop farmers is purely innovative, while a few are still indigenous.

Analysis of Variance

The results of analysis of variance in Table 3 show that there is significant difference between groups of arable

Table 1: Rates of Use of Improved Practices by the Arable Crop Farmers

Improved Practices	Frequency	Percentage
Mechanical Land Preparation	0	0.00
Dressing seeds with Chemicals	0	0.00
Use of Improved Varieties	7	6.50
Use of Herbicides	5	4.50
Use of Pesticide	9	8.1
Application of Chemical Fertilizers	88	80.00
Mechanical means of Harvesting	0	0.00
Mechanical means of threshing	1	0.9

Source: Field Survey, 2014.

Table 2: Distribution of respondents according to their adoption scores

Adoption Scores	Frequency	Percentage
0	21	19.00
1	60	54.60
2	28	25.50
3	1	0.9
4	0	0.00
5	0	0.00

Minimum Score = 0, Maximum Score = 3

Table 3: Analysis of variance (ANOVA) test for variation in respondents' level of adoption of modern technologies.

Adoption Scores	Mean Score	F-value	Decision	Remarks
Low	3.45	12.3	Reject H_0	S
Average	3			

Tabular F-value = 3.92 at p = 0.05, S = significant

Source: Data Analysis, 2014.

Table 4: Analysis of variance (ANOVA) test for variation in the level of adoption of the categories of respondents.

Source of variation	Mean Score	F-value	Decision	Remark
Gender				
Male	1.09	76.4	Reject H_0	S
Female	0.5			
	Tabular F-Value	= 3.92	at p = 0.05	
Religion				
Islam	0.93	38.27	Reject H_0	S
Christianity	1.12			
Traditional faith	1			
	Tabular F-Value	= 3.92	at p = 0.05	
Marital Status				
Single	1.31	76.00	Reject H_0	S
Married	0.88			
	Tabular F-Value	= 3.92	at p = 0.05	

Source: Data Analysis, 2014.

crop farmers with low and average adoption scores. This is because F calculated (12.3) is greater than the Tabular F value (3.92).

Table 4 shows that there is significant difference between male and female arable farmers 'adoption scores. This is because F observed (76.4) is greater than tabular F-value (3.92) at p = 0.05. The mean adoption score for male and female arable crop farmers are 1.09 and 0.50 respectively. This supports the position that male farmers receive more information, training and technology than their female counterpart (World Bank, 2002). The table also shows that the mean

Table 5: Relationship between the arable crop farmer's adoption scores and their characteristics

Characteristics	Coefficients (r)	Decision
Age	-0.197	Reject H_0
Years of formal education	-0.141	Accept H_0

Tabular r value = 0.195 at P = 0.05.

Source: Data Analysis, 2014**.**

adoption score for Muslims, Christians and traditional worshippers are 0.93, 1.12 and 1.00 respectively. There is significant difference between Muslims, Christians and traditional worshippers' arable farmers adoption scores. This is because the F calculated (38.27) is greater than F table (3.92) at p = 0.05.

The results of analysis variance (ANOVA) in Table 4.10 indicate that there is significant difference between single and married arable crop farmers adoption scores, since the F calculated (76.00) is greater than F table (6.85) at p = 0.05. The higher level of adoption of improved practices of the single farmers can be attributed to their age; there is high tendency that younger farmers are more innovative than older farmers.

Relationship between the arable crop farmers' adoption scores and their characteristics

Data in Table 5 show that there is a negative and significant relationship between arable crop farmers' age and their adoption scores. It can be implied that younger the arable crop farmers, the higher their level of adoption of improved farming practices. The table also shows that there is negative but non-significant relationship between arable crop farmers' level of formal education and adoption scores.

CONCLUSION AND RECOMMENDATIONS

Majority (99.1%) of the arable crop farmers still employ low level of improved farming technologies. Chemical fertilizer application was embraced by the majority (80%) of the farmers.

Male arable crop farmers significantly used improved farming practices than their female counterpart. Age of the arable crop farmers has significant relationship with their level of adoption of improved farming technologies. The study recommends that more agricultural extension efforts should be concentrated on the diffusion of innovations in crop production to the farmers. Also, appropriate technology should be developed from the point of view of the users. This will go a long way to improve the level of adoption of these technologies among the farmers.

REFERENCES

Ayoade AR, Akintonde JO (2012). **'**Constraints to Adoption of Agricultural Innovations among Women Farmers in Isokan Local Government Area, Osun State'Int. J. Humanit. Soc. Sci. 2(8): [Special Issue – April 2012] 5.

David S, David Z (2000). ''The Agricultural Innovation Process: Research and Technology Adoption in a Changing Agricultural Sector'' *Handbook of Agricultural Economics,* University of California. Berkeley

Daramola B (2005) 'Competitiveness of Nigerian Agriculture in a Global Economy: any Dividend(s) of Democracy?', *Inaugural Lecture Series 36*, delivered at the Federal University of Technology, Akure, Nigeria.

Daramola A, Ehui S, Ukeje E, McIntire J (2007). "Agricultural Export Potential," in Collier P and Pattillo C (eds.), Economic Policy Options for a Prosperous Nigeria, London Palgrave Macmillan, 2007.

Federal Ministry of Agriculture (1996). "Agricultural Policy for Nigeria" Federal Republic of Nigeria, Abuja, Federal Government Press.

Federal Ministry of Agriculture and Water Resources (FMA and WR 2008). "National Programme for Food Security" Federal Ministry of Agriculture and Water Resources (FMA and WR), Abuja, pp.107.

FAO (2003). **''**Fishery Intensification in Small Water Bodies: A Review of North America''. FAO Fisheries Technical Paper no 33, Rome Italy.

Jibowo AA (1992). Essentials of Rural Sociology. Gbemi Sodipo press Ltd, Abeokuta,Nigeria, pp 224-227.

Oladele OI (2005). "A Tobit Analysis of Propensity to Discontinue Adoption of Agricultural Technology among Farmers in South Western Nigeria'' J. Centr. Eur. Agric. 6(3):249-254.

Osabuomen JI,. Okoedo-Okojie DU (2011). ';Analysis of the effect of arable crop production practices among farmers on environmental degradation in Edo State'' Nigeria Archives of Applied Science Research, 2011, 3 (2):353-360.

Rogers EM (1995). Diffusion of Innovations. The Free Press.

Sonnino A et al. (2009). 'Socio-economic Impacts of non-transgenic Biotechnologies in Developing Countries: The case of plant micro propagation in Africa'. FAO.