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Factors affecting adoption of Improved Agricultural Technologies among farmers in Kajola Local Government area, Oyo State, Nigeria

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Abstract

Agricultural development is a necessity for national development and for agriculture to develop, farmers should be able to adopt improved agricultural technologies. This study investigated factors affecting adoption of improved agricultural technologies among farmers in Kajola Local Government Area, Oyo state, Nigeria. Collected data were analyzed using frequencies and percentages. The result of this study revealed that most of the respondents were between the ages of 45-54 years. The result equally showed that the respondents' source information mostly from radio and television. On adoption of improved technologies, the farmers in the study area adopted cassava processing technique, improved planting space for crops, use of agro chemical, etc. The respondents then identified inadequate capitals, low level of education, farm size, insufficient land, poverty, inadequate extension agents, religions, farmers' conservative attitude and others as the factors that affect their adoption of improved technologies. The study thereby recommended that adequate training should be organized for farmers regularly to update them and to increase their knowledge and skill acquisition so as
to embrace innovations as early as possible, farmers should be given adequate financial support to expand their farmland as this will enable them to accept innovation, Government should try to sponsor various programmes for farmers which will enable them to travel widely in order to enhance their exposure as this will enable them to accept innovations.
Keywords: Adoption, Improved Agricultural Technologies, farmers, innovation.

Introduction

Agriculture still retains its position as the bulk walk upon whose solid foundation the economy of Nigeria is based [1]. Thirtle, Lin and Piesse [12] observed that development in agricultural sector has a powerful impact on poverty because it helps majority of poor people compared with development sectors of the economy. It is therefore paramount that the enterprises in the agricultural sector in Nigeria keep up with the current developments in the world. For this development to be sustainably attained in the agricultural sector, new agricultural technology must form an important part of efforts to improve food availability, crop production and enhancement of soil quality in a bid to reduce food and nutrient insecurity which is currently threatening human right to food accessibility in developing countries [8] cited in [11]. For agricultural development to be improved new commodities and new methods of production must be developed. These new commodities and new methods

of production must be adopted to bring about changes to human life.[4] cited in [6] defined adoption as a mental process by which first knowledge about innovation is acquired to its final utilization. The process of adopting an idea or new innovation does not happen as a single unit act but as a mental process that consists of five stages of awareness, interest, evaluation, trial and adoption [3], [9] cited in [8] Adoption of improved agricultural technology according to [10] has been associated with higher earnings and lower poverty, improved nutritional status, lower staple food prices, improved employment opportunities and earnings for landless labourers

Several organizations and research institutes are responsible for the generation of these improved agricultural technologies. It is the responsibility of the agricultural extension agent or change agent to adequately disseminate these improved agricultural technologies or innovations and ensure they are properly adopted and utilized by the farmers to bring about transformation in the agricultural sector of the economy.

Agricultural innovation adoption is highly essential for sustainable agricultural productivity. Despite the effort of research institutes towards increased agricultural production, farmers' productivities are still low. This can be attributed to the conservativeness of the farmers or as a result of their low level of education. This is because some farmers still find it difficult to accept innovation even when their colleagues do. The effort of agricultural extension agents and other change agents to convince some farmers to accept innovations proved abortive. Non-adoption of innovation ability of farmers has drastically affected their productivity and their standard of living. According to [5], sustainable agricultural technology for Nigeria is important for the country's effort at achieving food security. So it is very essential that researched technologies should be adequately adopted by farmers for meaningful and sustainable agricultural development. This study therefore attempts to answer the following questions. What are the personal characteristics of the respondents in the study area? Are the farmers aware of the improved technologies in the study area? What are the sources of improved technologies available to farmers in the study area? What are the improved technologies adopted by farmers in the study area? What are the factors affecting adoption of improved technologies by farmers in the study area?

Methodology

The study was carried out in Kajola Local Government Area of Oyo State, Nigeria. The Local Government has an area of 1,218km^2 and a population of one hundred one thousand and ninety two (National Population Commissions, NPC, 2006). The vegetation is mainly tropical forest and few part are derived savannah, cassava , yam, maize, vegetable, plantain, mango, cashew etc. are commonly grown in the Local Government. The population of the study is all farmers in Kajola Local Government Area of Oyo State. Simple random sampling technique was used to select eight villages in Kajola Local Government. Ten households were randomly selected from each of these villages to make a total of eighty respondents for the study. The instrument for this research was interview schedule. The interview schedule was designed to obtain data from respondents. It was divided into five sections. Section A contained demographic information of the respondents, section B, contained respondents awareness of improved technologies, section C contained information on the various sources of information available for the respondents on improved technologies while sections D and E contained information on improved technologies adopted by the respondents and factors affecting adoption of technologies by the respondents respectively. Descriptive statistics such as frequencies and percentages were used to analyze the data.

Results and Discussion

From table 1 below it is shown that 35% of the respondents were between the ages of 55-64 years, followed by those between the ages of 45-54 years with 27.5%, 21.35% were between the ages of 35-44 years, 10% of them were 65 years and above while only 6.25% were between the ages of 25-34 years. (62.5%) of the respondents were male while 37.5% of them were female. This is consistence with [2] cited in [6] who reported that there are greater percentage of maize farmers in the Savannah zone of Nigeria. Majority (76.25%) of the respondents were married, 35% of the respondents have primary education followed by those with no formal education (27.50%) and secondary education (26.25%). This indicates that most of the respondents were educated and this will enable them to easily accept any improved technology taking to them. 41.25% of the respondents have between 5 to 9 hectares of land, 33.50% of them have less than 5 hectare while 25.25% of them have between 10-14 hectares of lands.

Table 1: Distribution of respondents according to personal characteristics

Variables	Percentage	Frequency
Age		
25-34	05	6.25
35-44	17	21.25
45-54	22	27.50
55-64	28	35.00
65 and above	08	10.00
Sex		
Female	30	37.50
Male	50	62.50
Marital Status		
Single	03	03.75
Married	61	76.25
Widow	00	00.00
Divorced	07	08.75
Separated	09	11.25
Educational Qualification		
NFE	22	27.50
PE	28	35.00
SE	21	26.25
PSE	09	11.25
Farm Size in hectare		
< 5	27	33.50
5-9	37	41.25
10-14	16	25.25
15-19	0	0.00

Source: field survey, 2020

From table 2 below, 80% of the respondents revealed that they are aware of improved spacing of crop, 61.25% were aware of use of agro chemic, 56.25 claimed that they were aware of cross breeding of livestock, 50% revealed that they were aware of modern processing techniques, 48.75% of the respondents were aware of organic farming, 43.75 were aware of pest and disease control while 30% of the respondents were aware of use of improved crop varieties.

Table 2: distribution of respondents according to awareness of improved agricultural technologies.

Improved Agricultural Technologies	Frequency	Percentage
Improved spacing of crop	64	80.00
Use of agrochemicals	40	61.25
Pests and diseases control methods	35	43.75
Practicing of organic farming	39	48.75
Modern processing technique	40	50.00
Use of improved crop varieties	24	30.00
Crop rotation	52	65.00
Cross breeding of livestock	45	56.25

Multiple responses recorded
Source: Field survey, 2020

From table 3 below, majority (93.75%) of farmers indicated that they get information from radio. This agrees with [7] that farmers got agricultural information through radio due to availability of transistor radio set at cheaper price in the markets, easy maintenance and operation that may not necessarily be electricity dependent 65% of them revealed that they obtain information from television, 58.75% of the respondents got information from fellow farmers, 53.75% and 52, 50% of the respondents obtained their information from neighbours and friends respectively while 47.50% and 45% claimed extension agents and agro dealer as their respective source of information.

Table 3: Distribution of respondents according to sources of information on improved agricultural technologies.

Sources of information	Frequency	Percentage
Radio	75	93.75
Television	52	65.00
Neighbour	43	53.75
Fellow farmers	47	58.75
Agro dealers	36	45.00
Friends	42	52.50
Extension Agents	38	47.50

Multiple responses recorded
Source: Field survey, 2020

From table 4 below, 85.00% of the respondents revealed that they adopted modern processing technique, 77.50% indicated that they adopted improved crop spacing, 58.75% stated that they adopted use of agro chemicals. Others are those that adopted pest and diseases control methods and crop rotation with 37.50% respectively, practicing of organic farming with 30.00% and use of improved crop varieties with 16.25%

Table 4: Distribution of respondents according to improved agricultural technologies adopted.

Improved agricultural Technologies	Frequency	Percentage
Improved spacing of crop	62	77.50
Use of agrochemicals	47	58.75
Pests and diseases control methods	30	37.50
Practicing of organic farming	24	30.00
Modern processing technique	68	85.00
Use of improved crop varieties	13	16.25
Crop rotation	30	37.50
Cross breeding of livestock	25	31.25

Multiple responses recorded

Source: Field survey, 2020

From the ranking of the respondents responses on the factors that affect adoption of improved technologies on table 5 below, the respondents ranked inadequate capital first followed by low level of education, farm size, insufficient land, which were ranked second, third and fourth respectively. Others were poverty,

low farmers exposure, absence of extension agents, religions, farmers' conservative attitude which were respectively ranked fifth, sixth, seventh, seventh eighth and ninth

Table 5: distribution of factors affecting respondents' adoption of improved agricultural technologies

Factors affecting adoption of Technologies	Frequency	Ranking
Inadequate capital	56	1st
Farm size	48	3rd
Low level of education	50	2nd
Farmers conservative attitude	25	8th
Low farmers exposure	36	6th
Insufficient land	44	4th
Poverty	37	5th
Inadequate Extension Agent	27	7th
Cultural belief	25	9th
Religion	27	7th

Multiple responses recorded ***Source: Field survey, 2020***

Conclusion

The result of this study revealed that majority of the respondents are between the ages of 45-64 years. The result also indicated that farmers have been aware of improved technologies on various agricultural practices, The farmers in the study area also source information on improved agricultural practices from various channels such as radio, television, fellow farmers, neighbours, friends, extension agents and agro dealers .On adoption of improved technologies the farmers in the study area modern processing technique, improved spacing of crops, use of agro chemical, 37.50% claimed, pests and diseases control methods, crop rotation etc.

Recommendation

Based on the result of this study, the following recommendations were made

- Farmers should be adequately aware of improved agricultural technologies and they must be convinced to adopt them in order to increase their productivity.
- Training should be regularly organized for farmers to increase their knowledge and skill acquisitions so as to enable them accept innovations as early as possible.
- Farmers should be given adequate financial support to expand their farmland as this will enable them to accept innovation.
- Government should try to sponsor various agricultural programmes which will enable farmers to travel widely in order to enhance their exposure so as improve their ability to accept innovation.
- Innovations should be simple and have relative advantage to enable farmers adopt them.

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