

Farmers' Characteristics and Farm Practice Adoption in the Oke-Oyi Irrigation Scheme, Kwara State

USMAN, B.A.

Department of Geography, Faculty of Business and Social Sciences, P.M.B. 1515, University of Ilorin, Ilorin.

Abstract

The study examines Farmer's characteristics and the level of adoption of agricultural innovations. The spearman rank correlation analysis was used to establish the relationship between the adoption of modern inputs and some socio-economic parameters. The result of the correlation analysis show that a weak positive relationship exists between the level of adoption and the level of education of the farmers, size of their farms and the types of crops they planted. While a weak negative relationship exists between the level of adoption of agricultural innovation and the age of the farmers. The study suggests that, the socio-economic factors considered do not have any strong influence on the adoption of innovation by the farmers participating in the Oke-Oyi irrigation project.

Introduction

Modern agricultural projects are expected to serve as mechanisms for the spread of agricultural innovations. This is in addition to their contribution to agricultural production and the creation of employment and income for the people. A modern agricultural project is itself a form of agricultural innovation in the area where it is established. This is because, it will involve the introduction of modern irrigation system, use of modern machinery, application of modern inputs like chemicals and new seed varieties and the introduction of other modern ideas.

For an irrigation project to be successful it must involve more than just the application of water to the land. Arnon (1981) for instance, maintained that the most intensive cultural practices must be applied in order to achieve and maintain a high level of production. The pace of farmers' adoption of modern irrigation techniques is very important to the success of modern irrigation projects. (Etuk and Abalu, 1982).

Bosu (1969) and Alao (1973) observed that factors like farmers' age and level of formal education do not determine the adoption behaviour of farmers. They however, concluded that, frequency of contact with extension workers has a greater influence on adoption of innovation. Also (1975) identified other factors positively related to adoption of agricultural innovation in Nigeria. These include exposure to mass media, size of farms, participation in social organization and innovativeness. He explained innovativeness as the degree of willingness of farmers to adopt new farming ideas. Shand and Kalira Jan (1991) also noted that farmers with large plots tend to adopt modern technology faster than those with small plots.

In addition to being a contribution to the already existing literature, this study is expected to provide greater in-sight into the factors influencing the adoption behaviour of farmers in the Oke-Oyi irrigation project pertaining to modern agricultural innovation.

Study Area

The Oke-Oyi irrigation scheme is located at Oke-Oyi, about 20km to the North-East of Ilorin township ($8^{\circ} 31'N$, $4^{\circ} 33'E$), along the old Ilorin-Jebba road, (Figure 1).

It has a Tropical wet and dry climate. The wet season begins towards the end of March and ends in October while, the dry season lasts from November to February (Oyegun, 1983). The vegetation consists of wooded savanna. Trees like Locust bean; Shea-butter and Akee-ape are common. The topography consists of gently undulating plain occasionally broken by low hills. The drainage of the area is dominated by river Oshin and its tributaries.

The major occupation of the people in the area is farming. Major crops in the area include cowpea, maize, guinea corn, groundnut, cassava and yam. The Oke-Oyi irrigation projects is part of the Oshin-Oyun Valley Project of the Lower Niger River Basin Development Authority. When the scheme started in 1981, a total of 161 hectares of land was cleared, out of which 85 hectares was cropped. Construction of a concrete weir across the Oshin River was completed in 1985. The Weir is capable of impounding water to irrigate up to 100 hectares of farmland. This weir is 47 metres long and 3.5 metres high. It is capable of holding 200,000 cubic metres of water (Lower Niger R.B.D.A. 1985). 400 farmers participated in the project during the 1995/96 dry season.

The mode of irrigating the farms is through network of sprinklers whereby, water is sprayed on the crops from above in the fashion of natural rainfall. Water is pumped from the dam via a network of overland pipes. Dry season farming activities begin in November when ploughing of the land

allocated to farmers. Crops planted in the dry season include okra, cowpea, maize, vegetables and rice.

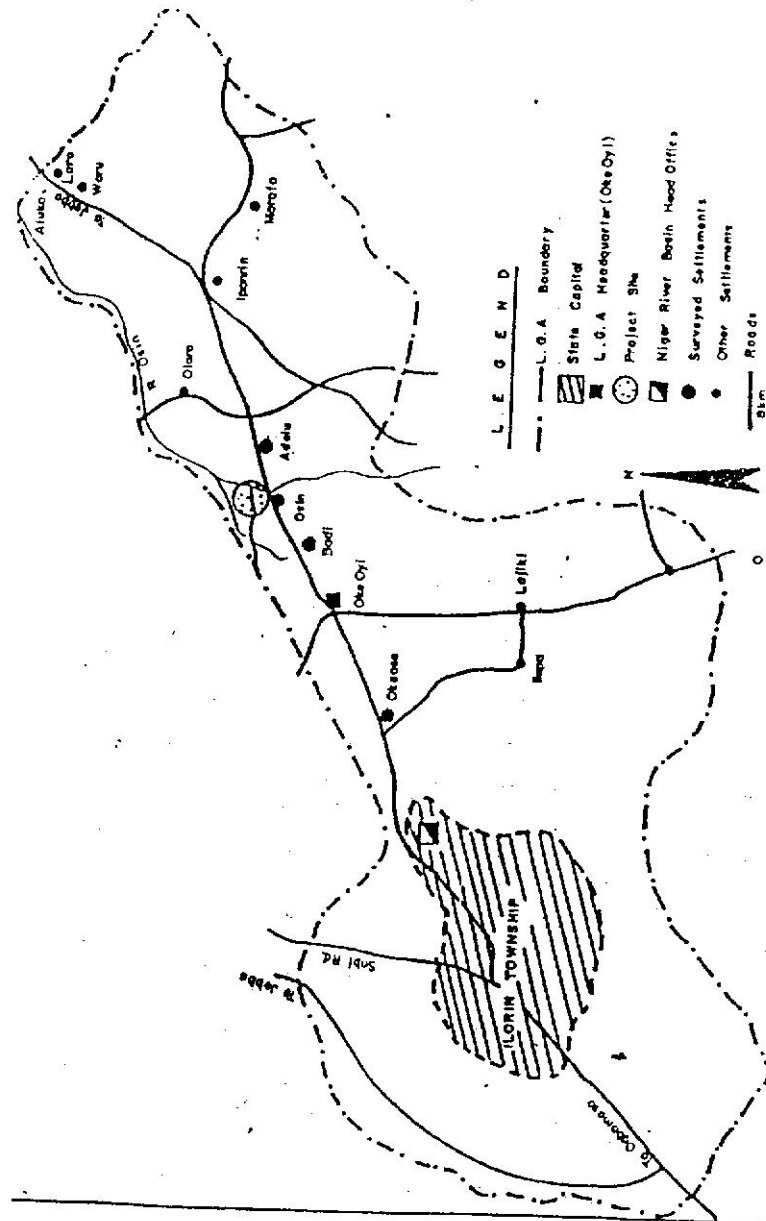


FIG. 1: MAP OF ILORIN EAST, WEST AND SOUTH L.G.A.S. SHOWING ILORIN, OKE-OYI AND ENVIRONS. SOURCE: LOWER NIGER R.B.D.A.

Methodology

Out of the 400 registered farmers in the study period, 100 of them were interviewed. This constituted 25% of the participating farmers, which were randomly chosen. The respondents on whom questionnaires were administered were visited on their farms. Though, the sampling procedure is simple random sampling, the respondents were believed to be representative of the parent population.

The information obtained from the structured questionnaire were analyzed with the aid of the statistical analysis system (S.A.S) programme. The spearman rank correlation was used to establish the relationship between the adoption of modern inputs like chemicals and the selected socio-economic parameters such as levels of education, size of plots planted and the ages of farmers.

Results and Discussions

The modern agricultural inputs considered are fertilizers, new seed varieties and chemicals. All the respondents indicated that they have been using at least one of these inputs. 67% of the respondents adopt all the three inputs. On the other hand 3% use only one of the inputs while, the remaining 30% use a combination of two of the inputs considered.

Size of Farms and the Adoption of Innovations

On the whole, only 12% of the sampled farmers cultivate above three plots, 6% farm three plots each while, 38% cultivate two plots. The remaining 44% cultivate only one plot each.

According to the survey 30 (68.2%) of the 44 farmers using only one plot each apply all the three inputs on their farms. While, as high as 83% of the 12 farmers cultivating over three plots each; use all the three inputs (Table 1).

Table 1: Use of Modern Inputs and The Size Of Farms

Number Of Plots	One Input	Two Inputs	Three Inputs	Total
One Plot	4.5%	27.3%	68.2%	100%
Tow plots	2.6%	31.6%	65.8%	100%
Three Plots	0%	17%	83%	100%
More than Three Plots	0%	17%	83%	100%

Source: Field Survey

When the spearman rank correlation was used to test the relationship between the size of farm and the use of modern inputs, a very weak positive relationship ($r = 0.07$) was indicated. (Table 2)

Table 2: Inputs Used and Some Socio-Economic Parameters

Socio-Economic Parameters	Spearman Rank Correlation
1 - Level of education	0.15
2 - Size of farm	0.07
3 - Crops planted	0.03
4 - Age of farmers	-0.04

Level of Education and Adoption of Innovation

The survey showed that 56% of the sampled farmers have no formal education while 17% have primary education. Those with secondary education also, constitute another 17% while, those with post secondary education constitute 10%.

A further analysis indicates that, 35 (62.5%) of the 56 farmers with no formal education use all the three inputs. On the other hand as high as 80% of the 10 farmers with post secondary education use all the three inputs on their farms (Table 3).

Table 3: Use of Modern Inputs and the Level of Education of Farmers

Level Of Education	One Input	Two Inputs	Three Inputs	Total
No Formal education	3.5%	34%	62.5%	100%
Primary Education	5.9%	23.5%	70.6%	100%
Secondary Education	0%	29.4%	70.6%	100%
Post Secondary Education	0%	20%	80%	100%

Source: Field Survey

As shown in Table 2, the Spearman rank correlation figure ($r = 0.15$) for the inputs used and the level of education of respondents is weak. The correlation coefficients at both 5% and 1% level of significance (0.205 and 0.267 respectively) still show a very weak positive correlation.

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Crops Planted and Adoption of Innovation

While some of the farmers planted just one type of crop, others planted more than one type of crop on their farms. For instance, 39% of the respondents planted both okra and vegetables together on their farms. 3% planted both rice and okra. While, 34% planted only okra, 13% planted vegetables only. The remaining 11% planted only maize.

In an attempt to find out whether relationship exists between types of crops planted and the use of modern inputs, the spearman rank correlation was applied. The figure $r = 0.3$ indicates a very weak positive correlation.

Age of Respondents and Adoption of Innovation

Out of the 100 farmers sampled in the survey, 17% are above 50 years old, 45% fall between the age of 41 to 50 years, while 34% are between 31 to 40 years old. The remaining 4% are below 31 years old.

Table 4 shows that, a very weak negative relationship exists between the age of respondents and the use of modern inputs ($r = 0.04$), which implies that as farmers' ages increase the rate of acceptance reduces.

Conclusion

This study indicated that all the respondent farmers apply at least one of these inputs on their farms. From the information available most of the respondents (67%) use all the three inputs considered. One can thus, safely conclude that, majority of the farmers are receptive to modern agricultural innovation.

A greater percentage of the farmers with large farms (83% of those with more than three plots) use all the three inputs when compared with those with small farms. However, when the data was subjected to the spearman rank correlation test, the relationship between the size of farms and the use of modern inputs was very weak.

The same kind of situation applies to the relationship between the use of modern inputs and the level of education of respondent farmers. Though, a greater part of the educated respondents use all the three inputs, the spearman rank correlation test also showed a very weak positive relationship between the use of inputs and the level of education of the farmers.

The age of the farmers and the types of crops planted by the farmers were also, found not to be having any strong influence on the adoption of modern inputs.

Though, majority of the farmers could be said to be receptive to agricultural innovation, the socio-economic factors considered are not strongly related to the level of farmers adoption of new innovation.

Generally, other factors not considered in this paper like exposure to the mass media, length of period of exposure to new ideas and participation in social organizations could positively influence the level of adoption of agricultural innovation. Of greatest importance however, is the frequency of contact with extension staff. Regular contact with agricultural extension workers would expose farmers to the benefits of new agricultural innovation.

There is therefore, the need to place more emphasis on providing well coordinated extension services in projects of this nature. This will go a long way in improving the quality and efficiency of the utilization of land and water resources in the country.

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