ATTITUDE OF RICE FARMERS TOWARDS UTILIZATION OF IRRIGATION TECHNOLOGIES IN KOGI STATE NIGERIA

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ABSTRACT

The study examined the attitudes of rice farmers towards utilization of irrigation technologies in Kogi State, Nigeria. The study employed a multi-stage sampling process to choose fifty-six respondents. The data collected for this study were analyzed using descriptive statistics including mean, percentage, and frequency. The participants were still in their prime working and active years, with larger percentage of them having one form of education or the other. The utilization of irrigation technologies by the farmers had improved food security, enhanced their capacity building and also encouraged them to invest more in agriculture. The study concluded that the respondents had positive towards the utilization of irrigation technologies.

Keywords: Attitude, Utilization, irrigation technologies

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1 | Introduction

Nigeria's agriculture sector is the country's top source of foreign exchange earnings in addition to making up around 40% of its GDP (Dossou et al. 2020). However, rural areas of the country are home to underpaid agricultural workers (Adeoye & Ugalahi, 2017). A major contributor to rural poverty, according to Balana & Oyeyemi (2022), is the inability to obtain agricultural loans. This results from these low-income households' inability to provide the collateral required for lenders to grant them loans. Perishable and non-durable collateral are commonly offered as security by agricultural households. Giving farmers access to financial services will greatly increase productivity and, consequently, reduce poverty. Throughout the world, rice is one of the most lucrative cereal crops grown and consumed. In many African countries, it is a staple item that regularly makes up a sizable amount of the diet (Silong & Gadanakis, 2019; Sennuga, et al. 2021). According to Mrindoko (2022), rice is one of the cereal crops that has attained cash crop status in Nigeria because of its substantial contribution to the agricultural sector and the activities that take place along the distribution chains from production to consumption. This is because it gives the local population up to 80% of the work in the producing areas. The public's demand for rice has not yet been met by local supplies, despite a steady increase in consumption in recent years.

It is important to note that a variety of reasons are responsible for Nigeria's growing rice demand. Because rice is easier to cook, especially in cities, consumers are choosing it over traditional carbohydrate sources,

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which increases complexity (Mestres *et al.*, 2019). The demand for rice has been increasing by about 10 percent since the early 1970s (Ekoh & Ilunga, 2021; Gbenga *et al.*, 2021), and its capacity to quickly adapt to the fast-paced urban lifestyle makes it an ideal choice for traditional uses as a nutritious dietary staple. This is due to fast urbanization, significant income growth, and Nigeria's growing population of 150 million people.

According to studies, employment in rice cultivation and its value chain is profitable, and it is crucial for farm households to have access to assets and higher incomes (Hussaini *et al*., 2021). Nwahia (2020) asserts that participation in rice production is profitable. According to literature assessment by Hussaini *et al.* (2021), employment in Nigeria's rice production and value-adding industries is profitable.

In response to Komolafe's (2021) recommendation that farmers be encouraged to take advantage of the benefits of value-added activities like rice production, harvesting, processing, and marketing in order to improve their livelihood activities and increase their income, which invariably reduced their poverty status, farmers in Kwara State's Patigi and Edu Local Government Areas have seized the opportunity presented by the current state of the rice industry to venture into rice-related businesses such as cultivation, transportation, processing, and marketing.

Therefore, research on irrigation technology utilization for rice production is necessary and the farmers' attitude towards irrigation technology is essential to the advancement of agriculture and the nation's economic prosperity.
In this context, the following are the objectives of the study:

1. ascertain the socio-economic characteristics of rice farmers in the study area; and
2. examine the respondents' attitude towards irrigation technology utilization in the study area.

2 | Materials and Methods

The study's location was Kogi State Nigeria. The North Central area of Nigeria is home to Kogi State (Kogi State, Government, 2022; Omole, 2022). Nasarawa State to the northeast, Niger State to the northwest, Edo and Ondo states to the southwest, Anambra and Enugu states to the southeast, Benue State to the east, the Federal Capital Territory to the north, and the states of Ekiti and Kwara to the west are its neighbors.

In Nigeria, it is the only state that shares ten borders. The name comes from the Hausa word for river, Kogi. Parts of Benue State, Niger State, and Kwara State were combined to establish Kogi State on August 27, 1991 The state is located geographically within the tropical Guinean forest–savanna mosaic ecoregion. Kogi State's economy is mostly dependent on agriculture, particularly the production of yam, coffee, cashew, groundnut, cocoa, and oil palm. The extraction of crude oil and the rearing of sheep, goats, and cattle are two more important enterprises (Akanbi, 2021).

2.1 | Population of the Study

Under the Lower Niger River-Basin Development Authority, rice farmers who use irrigation technologies were the target demographic. The Lower Niger River-Basin Development Authority office provided the list of farmers.

2.2 | Sampling Procedure and Sample Size

For this investigation, a multi-phase sampling

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process was employed. The first stage was the purposive selection of four LGAs which were Kotokarfe, Lokoja, Ajaokuta and Yagba West due to the fact that they are registered under the lower Niger-River Basin Development Authority. At the second stage, two communities were randomly selected from each of the four LGAs making a total of eight communities. The third stage was the random selection of seven farmers from each of the communities, making a total of fifty-six respondents.

2.3 | Instrument of Data Collection

An interview schedule was used to collect relevant information from the respondents with a well-designed questionnaire for the study.

2.3.1 | Source of Data

Primary data was used for this study.

2.4 | Method of Data Analysis

In order to analyze the data that was gathered for this study, descriptive statistics including frequency distribution, mean values, and percentages were used.

3 | Results and Discussion

3.1 | Respondents' Socio-economic Characteristics

The socioeconomic characteristics of the respondents were presented in this section. These include, as indicated in Table 1, age, marital status, education, household size, agricultural experience, and farm size.

The majority of farmers (50%) were between the ages of 47 and 57 years, according to the results in Table 1. According to this, the majority (50%) of respondents were still in the productive and active working age group, which allowed them to engage in or contribute to farming operations in order to generate some revenue. This result was consistent with that of Bzugu *et al.* (2005), who found that people who are productive and active are more likely to engage in community development and agricultural activities.

Furthermore, the vast majority (87.5%) of those surveyed were married. Given how labor-intensive most farm operations are, this might increase the amount of labor needed on the farms. As a result, spouses and kids can be used as inexpensive labor, which could grow the size of their farm, encourage the acceptance of new ideas, and raise overall farm productivity.

Additionally, it was shown that while the majority of respondents had some kind of education, only 12.5% lacked formal schooling. This may be because the majority of people who joined the Lower Niger River Basin Development irrigation project and recognized its benefits were civil servants and those with a considerable degree of education.

The educational background would undoubtedly aid in decision-making, particularly when it comes to leadership, investments, and important managerial decisions. This conclusion was in line with the findings of Idrisa *et al.* (2007), who found that 41% of the respondents had completed secondary school and 4% had a university degree. The majority (92.9%) of those surveyed had households with six to ten members. As a result, the comparatively big household size may favorably assist the farmers' already increased productive capacity because as the farmers increase in age, there will be need for increase in the family labor supply on the fields. Given the steady labor supply, this supports the findings of Adegbite *et al.* (2007) that the likelihood of sustainable labor efficiency on farmers' farms increases with household size.

The study also showed that the majority of

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respondents (50%) had been farmers for 21–30 years, with an average of 22.3 years. According to this finding, the majority of respondents had extensive agricultural expertise, suggesting that these farmers are likely to make choices that will boost their productivity and earnings. The results of Kebbeh *et al*. (2003), who discovered that farmers in Nigeria's Kaduna and Niger States had an average of 21 years of experience growing rice, are consistent with this conclusion.

Additionally, the majority (57.1%) had farms that were between 1.0 and 1.9 hectares in size, this suggests that farmers in the research area were exclusively small-scale farmers.

3.2 | Attitude of Farmers Towards Utilization of Irrigation Technologies

Table 2 below showed that farmers' opinions on the use of irrigation vary. The farmers agreed that using irrigation improved food security (mean=4.7), according to the results in Table 2. The availability and accessibility of food for households is the main focus of subsistence agriculture, and the main goal of any program

Table 1 | Socio-Economic Characteristics of Respondents in the Study Area

Socio-Economic Characteristics	Frequency	Percentage (%)
Age		
25-35	5	8.9
36-46	15	26.8
47-57	28	50.0
>57	8	14.3
Marital Status		
Married	49	87.5
Single	7	12.5
Educational Level		
No formal Education	7	12.5
Primary education	22	39.3
Secondary education	15	26.8
Tertiary education	12	21.4
Household Size (person)		
1-5	4	7.1
6-10	52	92.9
Farming experience (years)		
1-10	8	14.3
11-20	11	19.6
21-30	28	50.0
>30	9	16.1
Farm Size (hectares)		
1.0-1.9	32	57.1
2.0-2.9	13	23.2
3.0-3.9	7	12.5
4.0-4.9	2	3.6
>4.9	2	3.6

Source: Field Survey, 2024

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Table 2 | Attitude of Farmers Towards Irrigation Utilization

Attitude	SA F(%)	A F(%)	U F(%)	D F(%)	SD F(%)	Mean Score
enhanced food security	40 (71.4)	16 (28.6)	-	-	-	4.7
enhanced access to land	8 (14.3)	5 (8.9)	-	20 (35.7)	23 (41.1)	2.2
Improved access to extension services	30 (53.6)	15 (26.8)	-	8 (14.3)	3 (5.3)	4.1
Improved Capacity building	36 (64.3)	14 (25.0)	2 (3.6)	4 (7.1)	-	4.5
Improved investment in Agriculture	38 (67.8)	13 (23.2)	2 (3.6)	2 (3.6)	1 (1.8)	4.5
Increased diversification of Livelihood	35 (62.5)	16 (28.6)	-	2 (3.6)	3 (5.3)	4.6
Increased annual income	40 (71.4)	16 (28.6)	-	-	-	4.7
Increased crop Yield	38 (67.8)	14 (25.0)	1 (1.8)	3 (5.4)	-	4.6
Improved living condition	40 (71.4)	14 (25.0)	-	2 (3.6)	-	4.6

Overall Mean Weighted Sore = 4.3, Source: Field Survey, 2024

aimed at agricultural development is to enhance food production by making it easier for farmers to access productive resources and adopting contemporary farming methods. This demonstrates how farmers preferred to use irrigation technology in order to attain food self-sufficiency and security.

The use of irrigation technologies did not improve farmers' access to land (mean=2.2), according to Table 2's findings. The claim that using irrigation technology improves access to land was rejected by a larger proportion of farmers. This may be related to the region's primarily inheritance-based land acquisition system.

Using irrigation technologies has made it easier to receive extension services in the research area (mean=4.1), according to the majority of respondents. Extension efforts were helping the farmers, which improved their inclination to use irrigation technologies.

As indicated in Table 2, a higher proportion strongly agreed with the claim that the deployment of irrigation technology has enhanced user capacity building (mean=4.5). By equipping farmers with the information and abilities to efficiently manage water resources, irrigation technology promotes capacity building and improves food security, crop yields, and understanding of sustainable agricultural methods.

According to the majority of farmers, using

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irrigation technology has increased agricultural investment (mean=4.5). The use of irrigation technologies in the research area encourages farmers to invest their limited resources and labor in agricultural production, according to this finding. It was also discovered that the respondents believed that using irrigation has made their sources of income more varied (mean= 4.6). Utilizing irrigation technologies has improved farmers' production (mean=4.6), living conditions (mean=4.6), and yearly revenue (mean=4.7), according to the data. The farmers' positive attitude toward the use of irrigation technologies was suggested by the overall mean weighted score of 4.3. This implies that the respondents have favourable attitude towards the utilization of irrigation technologies in the study area.

4. | Conclusion

The findings of this study indicated that farmers had favourable attitude towards irrigation technology utilization and that the farmers' production, living conditions and annual income had increased due to utilization of irrigation technology. The study also concluded that the respondents were small-scale farmers due to their farm size.

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