Original Research Article

Assessment of Utilization of Information and Communication Technologies (ICTs) by Rice Farmers in Production in Nasarawa State, Nigeria

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Abstract: This study assessed the utilizations of Information and Communication Technologies (ICTs) by Rice Farmers in Production in Nasarawa State, Nigeria. The broad objective of the study is to assess the Utilizations of Information and Communication Technologies (ICTs) by Rice Farmers in Production in Nasarawa State, Nigeria. A multistage sampling technique was employed to sample 300 rice farmers. Descriptive statistics and logit regression analysis were used to achieve the specific objectives. The results showed that the majority (60.67%) of the rice farmers in the study area were married men, with a mean age of 41 years. The results revealed that most rice farmers show partial awareness of ICT. The result of the ICT tools available to the rice farmers in the study area showed that telephones are the most accessible ICT tool. The result of the Pairwise ranking for the most useful ICT tool revealed that the rice farmers in the study area find the telephone most useful with 125 frequency. The result of the logit regression showed that the negative coefficient of age (P<0.1) influenced the utilisation of ICT tools among the rice farmers in the study area, while poor electricity was the highest problem militating against the rice farmers' use of ICTs in the study area with 207 frequency and 17.01%. The study concludes that socio-economic factors, particularly gender and age, significantly influence the adoption and utilisation of ICTs among rice farmers. It also highlights a positive relationship between ICT availability and usage levels. Since most rice farmers are only partially aware of ICT tools, the study therefore recommends targeted awareness campaigns led by agricultural extension agents to improve farmers' understanding and effective use of ICT tools for agricultural development in the region.

Keywords: ICTs, Utilization, Rice, Farmers, Awareness, Adoption.

1.0 INTRODUCTION

The application of Information and Communication Technologies (ICTs) across sectors globally has brought about remarkable improvements in operational efficiency and productivity. In the agricultural sector, ICTs are becoming indispensable tools for managing key production factors such as land, labor, capital, and soil quality (Daum, 2018). These technologies address critical challenges in agricultural systems,

including unpredictable weather patterns, pest and disease outbreaks, limited market access, seasonal variability, and information asymmetry (Anh *et al.,* 2019). By integrating ICTs across the agricultural value chain from input sourcing, land preparation, planting, and harvesting to storage, marketing, and consumption stakeholders can access timely, accurate, and relevant information, thereby enhancing decision-making, productivity, and profitability while promoting food security and sustainable agriculture (Purnomo & Lee, 2010).

The past decade has witnessed a rapid technological transformation in agriculture, driven by innovations such as mobile applications, e-extension platforms, big data analytics, remote sensing, GPS-based farm monitoring, cloud computing, and social media-based knowledge sharing. These ICT tools are revolutionizing how farmers interact with information, extension agents, researchers, and markets (Wolfert *et al.,* 2017). Among these tools, mobile phones especially internet-enabled smartphones remain the most accessible and widely adopted ICT devices across the globe. Statistic (2021) reported that the number of smartphone users increased from 3.2 billion in 2019 to an estimated 3.8 billion in 2021, with significant growth in developing countries. In Africa, mobile phone technology has become one of the most common, available, and accessible forms of ICT in rural areas, thanks to the relatively low cost of deploying cellular infrastructure and the affordability of prepaid services (Carmody, 2013).

To accomplish this, the following specific objectives are put forward to:
i. Describe the socio-economic characteristics of Rice Farmers in Production in Nasarawa State:
ii. Assess the level of awareness of ICTs by Rice Farmers in Production in Nasarawa State;
iii. Identify the available ICTs tools to Rice Farmers in Production in Nasarawa State.
iv. Investigate the most useful ICTs tool use by Rice Farmers in Production in Nasarawa State;
v. Assess the factors influencing the utilization of ICT tools among the rice farmers in the study area, and
vi. Evaluate the key problems militating against the use of ICTs by Rice Farmers in Production in Nasarawa State;

2.0 MATERIALS AND METHODS
2.1 Study Area
The study was conducted in Nasarawa State, located in the North Central region of Nigeria. The state was established on October 1, 1996, following its creation from the western part of Plateau State. It shares borders with Taraba and Plateau to the east, Kaduna to the north, Benue and Kogi to the south, and the Federal Capital Territory to the west. Nasarawa comprises thirteen local government areas, with Lafia as its capital and Karu Urban Area serving as a key economic hub.

2.2 Sampling Procedure and Sample Size
This study adopted a four-stage multi-stage sampling technique. The first stage was the purposive selection of one Agricultural Development Programme (ADP) zone, specifically the Southern Agricultural Zone, because it is the largest producer of rice in Nasarawa State. The second stage involved the purposive selection of three Local Government Areas (LGAs) within the Southern Agricultural Zone. In the third stage, four villages were randomly selected from each of the chosen LGAs. The final stage involved proportional random sampling (stratified random sampling) of 324 rice farmers from the selected villages, drawn from a population of 3,600 rice farmers in the area. However, only 300 duly completed questionnaires were retrieved. The sampling process was guided by data obtained from the Rice Farmers Association of Nigeria (RIFAN), Nasarawa State chapter.

2.3 Data Collection and Analysis
Primary data were used for this study. Data were collected through a semi-structured questionnaire complemented by an interview schedule. The questionnaires were administered to respondents with the assistance of trained enumerators in the study area. The study focused on major themes, including the socio-economic characteristics of respondents, their level of awareness of ICTs, available ICT tools used, the most useful ICT tools, factors influencing the utilization of ICT tools among rice farmers, and key challenges militating against the use of ICTs in the study area. Data were analyzed using descriptive and inferential statistics. Descriptive statistics such as frequencies, counts, and percentages were used to address objectives i, ii, iii, and vi. Objective iv was achieved using the Pair-Wise Ranking (PWR) technique, while objective v was analyzed using the Logit Regression Model.

2.4 Model Specification
A logistic regression model was used to achieve objective (v), which focused on identifying the factors influencing the utilization of ICT tools among rice farmers. This model is appropriate for the study as it explains the relationship between a binary dependent variable (whether a farmer utilized ICT tools or not) and multiple independent variables, including socio-economic and institutional factors. This model appropriately captures how socio-economic characteristics influence the probability

that a rice farmer utilized ICT tools. The implicit form of the model is specified as:

$$P(Y=1|X) = \frac{1}{1+e^{-(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_n X_n)}} \ldots\ldots\ldots \text{ Eqn (1)}$$

The explicit form of the Logistic model is given as:

$$\text{Ln}\left(\frac{P(Y=1|X)}{1-P(Y=1|X)}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_7 X_7 + u_i$$

.... Eqn (2)

Where:

$P(Y=1|X)$ = Probability that a rice farmer utilises ICT tools

β_0 = Constant (intercept)

Ln = denotes the natural logarithm.

β_1 to β_7 = Coefficients of the independent variables

e = Error term

Y = ICT Utilisation Status (1 = Yes, 0 = No)

X_1 = Age (years)

X_2 = Sex (1 = Male, 0 = Female)

X_3 = Level of education (years)

X_4 = Marital Status (1 = Married, 0 = Otherwise)

X_5 = Farm Size (hectares)

X_6 = Rice farming experiences (years)

X_7 = Annual income Level (Naira)

β_0 = Constant (intercept)

3.0 RESULTS AND DISCUSSION

3.1 Socio-economic Characteristics of the Rice Farmers in the Study Area

The socio-economic characteristics of rice farmers examined in this study included sex, age, marital status, level of education, household size, rice farming experience, annual income, and off-farm income source. As shown in Table 1, 60.67% of the respondents were male, while 39.33% were female. This gender imbalance has significant implications for the utilization of Information and Communication Technologies (ICTs) in rice farming across Nasarawa State. Gender disparities in agricultural engagement may reflect broader societal inequalities, where men often have greater access to productive resources such as land, credit, and training opportunities, which enhance their likelihood of ICT adoption. This finding is consistent with Ogunniyi and Ajao (2023), who observed that cultural and socio-economic barriers frequently limit women's access to technological innovations in rural areas.

In terms of age distribution, 13.33% of the farmers were between 20 and 29 years, 40.33% were between 30 and 39 years, and 27.67% were aged 40 to 49 years. A smaller proportion of the farmers (8.33%) were between 50 and 59 years, while 10.33% were aged between 60 and 69 years. The average age of the farmers was 40.70 years, indicating an active and economically productive population involved in rice farming. This demographic profile is crucial, as younger and middle-aged farmers are generally more open to

innovation and technological change. Adegbite, Adebayo and Fashola (2023) argue that younger farmers often demonstrate greater readiness to adopt ICTs due to their exposure to formal education and digital technology. Nevertheless, farmers in this age range also possess substantial field experience, which may enhance their appreciation for ICTs designed to solve practical farming challenges such as access to market information and pest control.

Marital status analysis revealed that 60% of the rice farmers were married, 21.67% were single, 12.67% were divorced, and 5.67% were widowed. The high proportion of married respondents may reflect a relatively stable socio-economic status, with potential access to shared household resources. According to Allioui and Mourdi, (2023), such stability can improve the likelihood of investing in ICT tools, which often require upfront financial commitments for devices, software, and connectivity.

Educational attainment among respondents was relatively high. About 11.33% of the farmers had primary education, 49% had secondary education, 27% had tertiary education, 7.33% had adult education, while 5.33% had Quranic education. The implication is that most rice farmers possess some formal education, positioning them well for engaging with ICTs. Educated farmers are more capable of interpreting and applying complex information delivered through digital platforms. This aligns with Petridis *et al.,* (2020), who posited that educational level significantly influences the capacity to utilize ICTs effectively for agricultural innovation.

Household size data revealed that 40.33% of the respondents had between 1–5 household members, 49.67% had 6–10 members, and 10% had 11–15 members. The mean household size was seven persons. Large households can have dual effects: they may face financial burdens that limit ICT access, yet they also offer a reservoir of human capital with diverse skill sets, potentially facilitating the integration of ICT tools in farming operations (Nwafor and Okeke, 2023).

Regarding rice farming experience, 39.33% of the respondents had 1–5 years of experience, 39.67% had 6–10 years, while 21% had 11–15 years of experience. The average farming experience was approximately seven years. This suggests that the respondents had gained enough practical knowledge to recognize inefficiencies in traditional practices and are likely to be open to ICT innovations. Ibrahim and Lawal (2023) confirmed that moderately experienced farmers are more likely to adopt ICT tools to address persistent productivity constraints.

The off-farm income sources of the respondents indicated that 59% were civil servants, 38% were engaged in business, and 9% were artisans. The average annual income was ₦134,433. Off-farm employment provides farmers with supplemental income that can enhance their financial ability to invest in ICT infrastructure, such as mobile phones, data subscriptions, and software applications. As Olowogoke and Adewale (2023) noted, dual engagement in farming and other occupations improves farmers' exposure to modern communication tools and increases their capacity to integrate such tools into farming operations.

Table 1: Frequency Distribution of Socioeconomic Characteristics of Respondents in the Study Area

Variables	Frequency	Percentage	Mean
Sex Distribution			
Male	182	60.67	
Female	118	39.33	
Age Distribution			40.70 years
20 – 29	40	13.33	
30 – 39	121	40.33	
40 – 49	83	27.67	
50 – 59	25	8.33	
≥ 60	31	10.33	
Marital Status			
Single	65	21.67	
Married	180	60.00	
Divorced	38	12.67	
Widowed	17	5.67	
Level of Education			
Primary Education	34	11.33	
Secondary Education	147	49.00	
Tertiary Education	81	27.00	
Adult Education	22	7.33	
Qur'anic Education	16	5.33	
Household Size			7 persons
1 – 5	121	40.33	
6 – 10	149	49.67	
11 – 15	30	10.00	
Rice Farming Experience			7.08 years
1 – 5	118	39.33	
6 – 10	119	39.67	
11 – 15	63	21.00	
Annual Income			₦134,433
₦10,000 – ₦50,000	34	11.33	
₦60,000 – ₦100,000	61	20.33	
₦110,000 – ₦150,000	87	29.00	
₦160,000 – ₦ 200,000	89	29.67	
₦210,000 – ₦ 250,000	17	5.67	
₦260,000 and above	12	4.00	
Off-Farm Income Sources			
Business	114	38	
Civil Servant	177	59	
Artisan	9	3	
Total	**300**	**100**	

Source: Field survey, 2024.

3.2 The Level of Awareness of ICTs by Rice Farmers in the Study Area

The result of the rice farmers' level of ICT awareness is presented in Table 4.2. The findings show that 11% of the farmers are "not aware," 82% are "partially aware," and only 6% are "totally aware" of ICTs. This indicates a significant gap in comprehensive awareness, with most farmers having limited exposure or knowledge about the full range of ICT tools available for agricultural use. This partial

awareness aligns with recent studies, which suggest that while access to ICTs is growing, significant gaps in digital literacy and in-depth understanding persist, particularly among underserved populations (World Bank, 2023; Smith, Brown and Johnson, 2022). Additionally, the data reflects ongoing disparities in ICT adoption and awareness levels, emphasizing the need for targeted awareness campaigns. Despite the growing influence of ICTs, initiatives aimed at improving accessibility and digital competencies still appear underutilized in specific demographics (UNESCO, 2022).

The results further revealed varying levels of ICT usage among the rice farmers. A small proportion (3%) report not using ICTs, indicating minimal exclusion. Meanwhile, the majority (62%) partially use ICTs, reflecting moderate engagement. Furthermore, 29% demonstrate total use of ICTs, signifying frequent and comprehensive application, while 6% reported an average level of use. The predominance of partial users suggests that while ICT adoption is widespread, integration into daily activities remains incomplete for many. This finding aligns with recent studies by the International Telecommunication Union (ITU) (2023) and Smith *et al.,* (2022), which highlight that users often engage with ICTs for specific tasks, such as communication or social media, but may lack advanced utilization skills for productive purposes. The relatively small proportion of total users reflects the gradual

transition toward full ICT integration. Similarly, the average users represent those whose interaction with ICTs lies between occasional and extensive usage, potentially influenced by age, education, and occupation (Carlo and Buscicchio, 2023). The low percentage of non-users (3%) signals a positive trend toward decreasing digital exclusion, supported by global efforts to expand ICT accessibility (UNESCO, 2022).

Table 2 further highlights specific benefits rice farmers derive from using ICTs in agricultural activities. Among the respondents, 13% noted the spread of farming information as a primary benefit, 61% identified awareness of innovations as the most significant advantage, and 26% cited access to market information as crucial. The majority benefiting from awareness of innovations underscores the transformative role of ICTs in disseminating advancements in farming techniques, tools, and practices. The World Bank (2023) confirms that mobile technologies, online platforms, and digital resources have become critical in increasing knowledge of agricultural innovations, particularly for smallholder farmers. Benefits from market information have been highlighted by Aker *et al.,* (2022) as enabling farmers to access real-time data on commodity prices, demand trends, and buyer networks, thereby improving profitability and reducing market inefficiencies.

Table 2: The frequency distribution of level of rice farmers' ICT awareness

Practices	Frequency	Percentage
Level of awareness of ICTs		
Not aware	34	11
Partially aware	247	82
Totally aware	19	6
Level of usage of ICTs		
Not use	10	3
Partial use	187	62
Total use	86	29
Average use	17	6
The benefit derived from the use of ICTs		
Spread of farming information	38	13
Awareness of new innovation	184	61
Market information	78	26

Source: Field survey, 2024.

3.3 ICT Tools Available to the Rice Farmers in the Study Area

The result of the ICT tools available to rice farmers in the study area is presented in Table 3. The table illustrates the accessibility of various ICT tools and the extent of their availability among the respondents. Among specific tools, telephones were the most widely available, accessible to 33.67% of rice farmers, underscoring their central role in rural

communication due to their affordability, portability, and user-friendliness. This finding aligns with the report of the International Telecommunication Union (ITU, 2023), which identified mobile phones as the most widely adopted ICT device across both rural and urban regions globally.

Social media platforms followed closely, with 30.67% of respondents reporting access. This reflects

the increasing integration of social media into rural life, where platforms such as WhatsApp and Facebook are used for both communication and the dissemination of agricultural information. This trend is supported by Statista (2021), which attributes the rise in social media access to the proliferation of low-cost smartphones and more affordable internet data plans.

Access to the internet was reported by 17% of rice farmers, while radio, a traditional ICT medium, was accessible to 10%. Television was the least available, reaching only 8.67% of farmers. The lower presence of television may reflect a transition from traditional to mobile and internet-based platforms, particularly among younger and more mobile farming populations.

In terms of overall ICT availability levels, 84.67% of rice farmers classified ICT tools as "averagely available," suggesting moderate access across the study area. Meanwhile, 10.67% perceived them as "available," and only 4.67% considered them "highly available." These findings are in line with the World Economic Forum (2023), which noted persistent disparities in ICT infrastructure and service distribution, especially in underserved rural communities.

Table 3: The frequency distribution of ICT tools available to the rice farmers

ICTs Tools	Frequency	Percentage
The most available ICT tool(s)		
Radio	30	10.00
Telephone	101	33.67
Internet	51	17.00
Social media	92	30.67
Televisions	26	8.67
The ICT tool(s) level of availability		
Available	32	10.67
Averagely available	254	84.67
Highly available	14	4.67

Source: Field survey, 2024

3.4 The Most Useful ICT Tool Use by Rice Farmers

The analysis of the most useful ICT tools adopted by rice farmers in the study area was conducted using Pairwise Ranking, and the result is presented in Table 4. This method provided a systematic evaluation of preference levels, allowing for a clearer understanding of the relative importance of each ICT tool in agricultural activities.

The result shows that the telephone ranked 1st, emerging as the most preferred and widely used ICT tool by rice farmers. This reflects its centrality in day-to-day agricultural operations, especially for communication with buyers, suppliers, extension agents, and fellow farmers.

The internet ranked 2nd, indicating growing adoption among rice farmers. Though not as universally used as mobile phones, the internet provides a wider scope of information from e-learning modules to market intelligence and remote advisory services. Its utility in improving agricultural decisions is well documented. Jena *et al.,* (2021) found that farmers with internet access demonstrated better decision-making, especially in the areas of pest control, climate adaptation, and market timing.

Television, ranking 3rd, remains a significant medium for agricultural education. It is especially useful for broadcasting programs on new technologies, input use, and policy awareness. Chakraborty *et al.,* (2021) affirmed the value of agricultural television programs in enhancing farmers' knowledge and encouraging the adoption of improved farming techniques.

Radio ranked 4th, indicating its continued relevance, particularly in low-literacy and off-grid rural areas. Radio programs are often delivered in local languages and provide timely content on farming practices, weather updates, and policy changes.

Social media platforms such as WhatsApp, Facebook, and Twitter were ranked 5th. Though these platforms offer unique opportunities for peer-to-peer learning, group-based communication, and access to informal networks of agricultural information, their current adoption rate remains relatively low. This may be due to information overload, digital literacy gaps, and low trust in informal sources. Nonetheless, Morris and James (2017) noted that social media platforms are emerging tools for linking farmers with experts, innovations, and marketplaces, particularly among younger or more educated farmers.

Table 4: The result of the pairwise ranking for the most useful ICT tool

The most useful ICT tools		ICT tools Usage Number						
	Frequency	1	2	3	4	5	Score	Rank
1. Radio	35		2	3	4	1	1	4th
2. Telephone	125			2	2	2	4	1st
3. Internet	68				3	3	3	2nd
4. Televisions	39					4	2	3rd
5. Social media	33						0	5th

Source: Field survey, 2024.

3.5 The Factors Influencing the Utilization of ICT Tools among the Rice Farmers in the Study Area

The results of the Logit regression analysis on the factors influencing the utilization of ICT tools among rice farmers in the study area are presented in Table 5. The explanatory variables in the model explain the farmers' decision to utilize ICT tools, as indicated by the Log-likelihood value of -193.6712 and the Wald chi-square value of 12.98, which is statistically significant at the 5% level. This implies that the model fits well and that the socioeconomic characteristics included significantly influence the utilisation of ICT tools among the rice farmers.

The coefficient of age (-0.1854) was negative and statistically significant at the 10% level, indicating an inverse relationship with ICT utilisation. This suggests that as the farmers grow older, the likelihood of utilising ICT tools decreases. This finding aligns with Oladele *et al.,* (2022), who reported that younger farmers tend to adopt ICT tools more readily due to better familiarity with digital technologies and higher adaptability. Older farmers may face barriers such as lower digital literacy, resistance to change, and preference for traditional methods, which limit their use of ICTs.

The coefficient of sex (-0.4118) was also negative and statistically significant at 10%, indicating that female farmers are more likely to utilize ICT tools than their male counterparts. This result contradicts much of the existing literature on the digital gender divide, which typically emphasizes that women face more barriers including financial constraints, lower digital literacy, cultural norms, and restricted mobility that reduce their access and use of ICT tools (FAO, 2023).

The coefficient of marital status was positive and statistically significant at the 5% level, indicating that married farmers have a higher likelihood of utilizing ICT tools than unmarried farmers. This positive relationship may be due to married individuals having greater household responsibilities, motivating them to seek information to improve farm productivity and income. Studies by Manda *et al.*, (2021) and the World Bank (2023) support the view that marital status is linked with better financial stability and social networks, which facilitate access to ICT resources.

Therefore, the results indicate that among the seven socioeconomic variables included in the model, age, sex, and marital status significantly influenced the utilization of ICT tools by rice farmers. Specifically, age and sex were statistically significant at the 10% level, while marital status was significant at the 5% level. These findings suggest that demographic characteristics play a crucial role in shaping farmers' adoption of ICTs in the study area.

Table 5: The result of the factors influencing the utilisation of ICT tools among rice farmers

Variables	Parameters	Coefficient	Robust Std. Err	z-value
Age (X_1)	β_1	-0.1854	0.1037	-1.79*
Sex (X_2)	β_2	-0.4118	0.2487	-1.66*
Level of Education (X_3)	β_3	-0.0078	0.1346	-0.06
Marital Status (X_4)	β_4	0.3523	0.1615	2.18**
Farm Size (X_5)	β_5	0.2319	0.2307	1.01
Rice Farming Experience (X_6)	β_6	0.0904	0.1851	0.49
Annual Income Level (X_7)	β_7	0.0526	0.1009	0.52
Constant	β_0	0.1388	0.6663	0.21
Diagnostics Statistics				
Pseudo R-Square	-193.6712			
Wald Chi-Square (8)	12.98			
Prob > Chi-Square	0.0325			
Observation	300			

*** = significance at 1%, ** = significance @ 5% and * = significance @ 10%.

Source: Field survey, 2024.

3.6 The Key Problems Militating Against the Use of ICTs by Rice Farmers in the Study Area

The result of the key problems militating against the use of ICT tools among rice farmers in the study area is presented in Table 6. The distribution highlights several critical challenges that hinder effective ICT adoption and utilization. Among these, poor electricity access ranks highest with a frequency of 207 (17.01%), followed by poor road network (15.53%), and a very bad economy (12.82%). The predominance of electricity-related issues highlights the crucial role of reliable power infrastructure in facilitating digital agriculture. Consistent electricity is essential for operating mobile phones, radios, computers, and internet-enabled devices on which modern agricultural extension increasingly relies (FAO, 2023).

Poor road network, with a frequency of 189 (15.53%), further impedes physical access to markets, extension agents, and ICT support services. The World Bank (2023) notes that rural infrastructure deficits create compounded difficulties for smallholder farmers, including delays in accessing services and reduced incentives to adopt innovations. More so, economic constraints are also significant. A "very bad economy" was cited by 156 respondents (12.82%), suggesting macroeconomic instability that diminishes farmers' purchasing power and confidence in long-term investments. Similarly, poor rice output (10.02%) and poor yield (7.72%) are perceived as major limitations. These factors may demotivate farmers from adopting ICT tools, as low productivity could lead them to prioritize basic farm inputs over digital innovations. This relationship between output levels and technology adoption is supported by UNESCO (2022), which suggests that without guaranteed returns, investments in ICTs appear risky to resource-constrained farmers.

Furthermore, insecurity, cited by 111 respondents (9.12%), represents a growing threat to ICT utilization. In areas plagued by conflict or criminal activity, farmers may avoid the use of expensive or traceable technologies for fear of theft or exposure. Curry *et al.,* (2021) affirm that such instability disrupts agricultural activity and reduces the perceived benefits of technological adoption. Cost-related challenges are also evident. The high cost of ICT devices (8.05%) and lack of access to loans and grants (6.74%) hinder many smallholder farmers from acquiring or upgrading essential tools. Without financial support, farmers remain excluded from the digital revolution in agriculture.

Lastly, 5.92% of respondents cited "discouraged farming" as a barrier, indicating psychological and motivational issues that might deter ICT adoption. This aligns with broader findings on rural disillusionment and the need for more targeted extension and mental health interventions (UNESCO, 2022).

Table 6: Distribution of the key problems militating against the use of ICTs by Rice Farmers

Problem	Frequency	Percentage	Rank
Poor Electricity	207	17.01	1st
Poor Road Network	189	15.53	2nd
Very Bad Economy	156	12.82	3rd
Poor Rice Output	122	10.02	4th
Insecurity	111	9.12	5th
High Cost of ICT Device	98	8.05	6th
Poor Yield	94	7.72	7th
Poor Return After Sales	86	7.07	8th
No Acces to Loan and Grants	82	6.74	9th
Discourage Farming	72 2	5.92 5	10th

Source: Field survey, 2024**Multiple response was allowed

4.1 CONCLUSION

The findings reveal that although the majority of rice farmers are partially aware of ICT tools, their actual usage remains moderate.

4.2 RECOMMENDATIONS

Based on this findings, the study recommends that efforts should be intensified to raise awareness of ICT tools among rice farmers through targeted campaigns facilitated by agricultural extension workers and local organizations.

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