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Assessment of Communication Training Needs of Rice Farmers in Makurdi Local Government Area of Benue State, Nigeria

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Abstract

The study assessed communication training needs of rice farmer in Makurdi Local Government Area of Benue State, Nigeria. One hundred and thirty-four farmers were selected using multistage sampling technique and a well-structured questionnaire was administered to collect data from the respondents. Descriptive statistics were used to achieve the objectives of the study. The study revealed that majority of the respondents were male, accounting for (62.7%) of the surveyed population, with mean age of 46 years. Majority of the respondents (61.9%) were married and majority (74.6%) of the respondents surveyed attain formal education. Majority of the respondents (67.6%) has more than 20 years of farming experience, with most (59.6%) of the respondents having average farm size ranging from 1-3 hectares, and majority (72.1%) of the respondents indicating that they have average household size of 1-5 persons with mean household size of 6 persons. Most (52.2%) of the respondents have an estimated annual income of above N1,000,000 with mean annual income of N550,000. The result further shows that majority (61.1%) of the respondents do not belong to any rice farmers' cooperative society. Use of ICT tools, and interaction with extension agents are major existing communication skills in accessing agricultural information that long exist and are available to them in the study area. While use of ICT tools, and use of audio-visuals were identified by the respondents as their major communication training needs. The result also show that majority of the respondents indicated that the training they require will highly increase their yield, improve access to credit facilities, and increase their access to processing and storage facilities. And limited use of ICT tools by extension agents, high cost of trainings, lack of finance to attend training workshops, lack of access to digital and ICT tools, cultural and social barriers, and accessibility and availability of extension services were identified by the respondents as their major constraints to accessing the needed training. Given the high training needs in ICT use and constraints of limited access to digital tools, it was recommended that stakeholders should support farmers with affordable mobile devices, radios, and digital advisory tools. The results show high training needs in ICT and audio-visuals. Extension agencies should integrate digital capacity building into routine training programs. Improve farmers' access to extension agents and agricultural information services

Keywords: Rice farmers; Communication training needs; ICT adoption; Agricultural extension services; Smallholder agriculture

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INTRODUTION

Agriculture remains both a fundamental livelihood source and a major economic enterprise, employing nearly 60 per cent of the global population and maintaining a close relationship with food security, nutrition, and public health through direct consumption and market integration. Smallholder agriculture constitutes one of the world's principal economic activities and serves as the primary source of income and employment for approximately 70 per cent of the rural poor, who contribute significantly to global agricultural production. Globally, there are an estimated 500 million smallholder farms supporting the livelihoods of over 2 billion people, underscoring the strategic importance of smallholder farming systems in achieving sustainable

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food security and rural development (Mango et al., 2017). Recent reports by the Food and Agriculture Organization (FAO) further emphasise that smallholder farmers remain central to global food systems and poverty reduction efforts. Meanwhile, agriculture is the second-largest economic sector in Nigeria after petroleum, contributing more than 40 per cent to the Gross Domestic Product (GDP) and remaining a critical driver for the transformation of rural communities (USDA, 2015; Pool, 2017).

Rice (*Oryza sativa* L.) is one of the most important staple foods for more than half of the world's population (Abdulmumini et al., 2021). Amos (2014) observed that the total global area under rice cultivation is estimated at about 150 million hectares, with annual production averaging approximately 500 million metric tonnes (MT). In Nigeria, the demand for rice has increased considerably due to rapid population growth, urbanisation, and changing dietary preferences (Olomola, 2018). According to Randy and Madeleine (2023), rice production plays a significant role in addressing poverty and enhancing food security. Despite the strategic importance of rice production, many farmers continue to face substantial challenges in accessing and applying modern farming techniques, largely due to deficiencies in communication systems, inadequate extension services, and limited training opportunities (Adebayo and Olagunju, 2019).

Effective communication is therefore indispensable in agricultural extension services, particularly in the dissemination of improved rice production technologies to farmers. However, rice farmers in Makurdi Local Government Area face significant communication barriers that limit their ability to access, interpret, and apply relevant agricultural knowledge. Existing studies indicate that although traditional communication channels such as radio, television, and face-to-face extension services remain essential, their effectiveness is frequently constrained by low literacy levels, inadequate infrastructure, and an insufficient number of extension personnel (Okpachu et al., 2017; Ebewore et al., 2021). While digital communication platforms—including mobile phones, social media, and SMS-based advisory systems—present promising alternatives for agricultural information dissemination, their adoption among rural farmers remains uncertain because of limited digital literacy, poor network coverage, and inadequate awareness of their potential benefits (Olowu and Oyedokun, 2020).

Farmers are typically exposed to various forms of communication media through which they obtain agricultural information (Hossain et al., 2011). Information remains a critical resource for agricultural and rural development, particularly in developing economies where agricultural productivity is closely tied to access to timely and accurate knowledge. In this regard, Information and Communication Technologies (ICTs) have emerged as indispensable tools for development across all sectors, including agriculture. Olaniyi (2014) emphasised that ICTs constitute one of the major driving forces capable of facilitating socio-economic transformation in the digital age. The rapid advancement of ICTs has effectively reduced geographical and communication barriers, transforming the world into a "global village" where information can be accessed at any time and from any location (Onasanya et al., 2011). Nwafor et al. (2020) described ICTs as technologies and devices that facilitate communication and information exchange among individuals through diverse media platforms. Such technologies include radio, television, mobile phones, computers, tablets, networking systems, software applications, and satellite technologies, all of which support and enhance agricultural activities (Pande and Deshmukh, 2015). ICTs are therefore essential for sensitising, mobilising, persuading, and sustaining farmers' interest in adopting improved agricultural innovations and practices capable of improving livelihoods and reducing poverty (Itse et al., 2023).

Rice remains a highly valued staple food and an indispensable cash crop in Nigeria. Nevertheless, the rate of increase in domestic rice production remains considerably lower than the national consumption rate (USDA, 2019). This shortfall has been attributed partly to the inability of existing communication strategies employed by extension workers to achieve the desired impact on farmers' productivity and technology adoption (Akintayo, 2022). In response to this challenge, the Federal Ministry of Finance initiated arrangements to facilitate the establishment of 100 large-scale integrated rice mills with a combined processing capacity of 2.1 million metric tonnes nationwide, aimed at improving the industrial capacity for the production of internationally competitive, high-quality milled rice (Ado, 2014). Rice processing plays a crucial role not only in reducing post-harvest losses and strengthening food security but also in promoting economic growth, generating household income, stimulating local production, encouraging industrialisation, and enhancing participation in international trade (NCRI, 2009).

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Objectives of the Study

The broad objective of the study is to assess the communication training needs of rice farmers in the Makurdi Local Government Area, Benue State. The specific objectives of the study include:

i. Describe the socio-economic characteristics of rice farmers in the study area.
ii. Identify the existing communication skills of rice farmers in accessing agricultural information in the study area.
iii. Assess the communication training needs of rice farmers in the study area.
iv. Ascertain the constraints to rice farmers' training needs in the study area.

METHODOLOGY

The study was carried out in Makurdi Local Government Area of Benue State. Makurdi local government is located on the map of Benue State between latitude 7°44′N and longitude 8°30′E. The major ethnic groups in Makurdi are Tiv, Idoma, and Igede. Agriculture is a significant part of the local economy, with crops like yams, sorghum, millet, rice, cassava, and more being cultivated.

Purposive and simple random sampling were used in collecting data for the study. First, five districts were purposively selected due to the high intensity of rice production in those areas. Secondly, a proportion of 0.4 was used in selecting 134 respondents using a simple random technique. Data collected were analysed using descriptive statistics such as frequency distribution, percentages and mean scores.

Table 1: Sample Size Selection

S/No.	Communities	Sample Frame	Sample Size (0.4%)
1	Agan	68	27
2	Fiidi	73	29
3	Mbalagh	57	23
4	Modern Market	72	29
5	North-Bank II	66	27
	Total	**336**	**134**

RESULT AND DISCUSSION

Socio-economic Characteristics of the Respondents

The socio-economic characteristics of the respondents are presented in Table 2. The findings revealed that the majority (62.7%) of the respondents were male, indicating that men are more actively involved in rice production within the study area. This finding contradicts the report of Peterman et al. (2014), who observed that women constituted the major participants in rice farming activities. The predominance of male farmers in the present study may be associated with the labour-intensive nature of rice production and sociocultural factors influencing access to land and agricultural resources in rural communities.

The results further indicated that the majority (66.2%) of the respondents were within the age bracket of 41–50 years, with a mean age of 46 years. This suggests that most of the respondents are within their economically active and productive years, which enhances their capacity to participate effectively in rice farming activities and adopt improved agricultural innovations. This finding corroborates the study of Dontsop-Nguezet et al. (2012), who reported that younger rice farmers were significantly more likely to adopt NERICA (New Rice for Africa) varieties due to their greater willingness to embrace innovation and modern production practices.

With respect to marital status, the study showed that the majority (61.9%) of the respondents were married. This finding is consistent with Akinola et al. (2010), who reported that marital status influences household

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structure, labour availability, decision-making dynamics, and access to productive resources, all of which significantly affect farmers' capacity and willingness to adopt improved rice production technologies. Married farmers are often more economically responsible and may therefore demonstrate stronger commitment to sustaining agricultural productivity for household welfare.

The result on educational attainment revealed that the majority (74.6%) of the respondents had acquired formal education. This finding agrees with Ogunlade and Ajakaiye (2020), who asserted that higher levels of education positively influence the adoption of improved rice production practices and access to modern communication technologies. Education enhances farmers' ability to understand, interpret, and utilise agricultural information effectively, thereby facilitating informed decision-making and improved farm management practices. Furthermore, educational attainment is widely recognised as a critical factor in technology adoption and agricultural productivity enhancement (Feder et al., 1985).

The findings further showed that the majority (67.6%) of the respondents possessed more than 20 years of farming experience, with a mean farming experience of 25 years. This indicates that most of the respondents have substantial practical knowledge and expertise in rice farming activities. Experienced farmers are generally more resilient to production challenges, market fluctuations, feed shortages, and disease outbreaks due to their accumulated knowledge and adaptive coping strategies (Ayele et al., 2011). Such extensive farming experience may also enhance farmers' confidence in evaluating and adopting improved agricultural practices and communication technologies.

The result on annual income revealed that most (52.2%) of the respondents earned an estimated annual income of more than ₦1,000,000. Farmers with relatively higher income levels are more likely to participate in training programmes, demonstrations, and agricultural workshops, as well as adopt improved technologies that require initial financial investment (Kagundu et al., 2022). Higher income levels also enhance farmers' access to agricultural inputs, information resources, and communication technologies necessary for improving productivity and farm efficiency.

Table 2: Distribution of Respondents according to their Socioeconomic Characteristics
n=134

Variables	Categories	Frequency	Percentage (%)	Mean
Sex	Male	84	62.7	
	Female	50	37.3	
Age	31–40	31	22.8	46
	41–50	90	66.2	
	>50	13	9.6	
Marital status	Single	51	38.1	
	Married	83	61.9	
Level of education	Formal education	100	74.9	
	Informal	34	25.4	
Farming experience	11–15	1	0.7	25
	16–20	41	30.1	
	>20	92	67.6	
Farm size	1–3	81	59.6	3
	4–6	53	39.0	
Household size	1–5	98	72.1	6
	6–10	24	17.9	
	11–15	12	8.8	

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Variables	Categories	Frequency	Percentage (%)	Mean
42. J. Agric. Econs. Extens. Rural Dev				
Annual income (₦)	250,001–500,000	7	5.2	550,000
	500,001–750,000	12	9.0	
	750,001–1,000,000	44	32.8	
	>1,000,000	71	53.0	
Membership of cooperative group	Member	40	29.9	
	Non-member	—	—	

Existing communication skills of rice farmers in accessing agricultural information

Table 3 presents the results of the existing communication skills of rice farmers. The findings revealed that the majority (71.6%) of the respondents identified the use of information and communication technology (ICT) tools, while an even higher proportion (76.9%) identified interaction with extension agents as the major existing communication skill used by rice farmers to access agricultural information within the study area. This indicates that conventional extension contacts and basic ICT utilisation remain the predominant channels through which farmers obtain agricultural knowledge and advisory services.

The findings further showed that access to information through social media (54.5%) and the use of the internet for agricultural information (53.7%) were perceived by respondents as communication skills that are moderately available among rice farmers in the study area. This suggests that although digital communication platforms are gradually gaining recognition among rural farmers, their utilisation remains limited and has not yet attained widespread adoption. The moderate use of internet-based communication channels may be attributed to constraints such as inadequate digital literacy, poor internet connectivity, limited access to smartphones, and high data costs, which are common challenges in many rural communities.

In contrast, the study area identified a low level of participation (38.1%) in rice farming workshops. This finding implies that opportunities for formal capacity-building programmes, practical demonstrations, and organised training workshops are relatively inadequate for rice farmers. The limited availability of such workshops may negatively affect farmers' exposure to modern rice production techniques and innovations necessary for improving productivity and efficiency.

The high level of interaction with extension agents and the availability of ICT tools suggest that rice farmers in the study area still rely substantially on interpersonal communication and conventional information dissemination channels for agricultural information access. This finding aligns with Agwu et al. (2022), who asserted that although digital communication tools such as mobile-based advisory services and online training platforms have emerged as viable alternatives for agricultural information dissemination, their adoption among rural farmers remains relatively low due to unfamiliarity with digital technologies and infrastructural limitations in rural areas. Furthermore, the findings underscore the continuing relevance of extension services in bridging information gaps and facilitating technology transfer among smallholder farmers.

Table 3: Distribution of respondents existing Communication Skills of Rice Farmers in Accessing Agricultural Information

Variable	Frequency	Percentage (%)	Rank
Interaction with extension agents	103	76.9	1
Use of ICT tools	96	71.6	2
Access to information through social media	73	54.5	3
Use of internet for information	71	52.9	4
Rice farming workshops	51	38.1	5

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Communication Training Needs of Rice Farmers

The results on the communication training needs of rice farmers are presented in Table 4. The findings revealed that the majority (69.4%) of the respondents identified the use of Information and Communication Technology (ICT) tools and the use of audio-visual materials (82.1%) as their major communication training needs. This indicates a strong desire among rice farmers to acquire modern communication competencies capable of enhancing access to agricultural information, improving knowledge dissemination, and strengthening farm productivity.

The results further showed that most of the respondents expressed moderate communication training needs in the use of the internet (50.0%), access to extension agents and agencies (55.2%), and participation in rice farmers' cooperative societies (57.5%). These findings suggest that although some communication channels and support structures are available to farmers, there remains a considerable need for capacity building to improve farmers' ability to effectively utilise these resources for agricultural development.

The high level of communication training needs identified in this study implies that rice farmers in the study area are increasingly interested in modern and innovative communication approaches that can facilitate timely access to agricultural information and improve production outcomes. In particular, the demand for ICT and audio-visual training reflects farmers' recognition of the growing importance of digital technologies and multimedia communication tools in contemporary agricultural extension systems. Audio-visual tools, such as videos, radio programmes, and demonstration recordings, are especially valuable in rural settings because they simplify complex agricultural practices and enhance learning among farmers with varying literacy levels.

This finding is consistent with Ibrahim et al. (2019), who observed that although traditional communication methods remain relevant, they are insufficient to adequately satisfy the information needs of all rice farmers. The authors further noted that many rural farmers experience limited access to extension services due to geographical isolation, poor infrastructure, and the high costs associated with organising regular face-to-face training programmes. Consequently, strengthening farmers' communication capacities through ICT-based training and improved extension support systems is essential for promoting effective information dissemination, technology adoption, and sustainable rice production.

Table 4: Distribution of respondents according to communication training needs of rice farmers

Variable	Frequency	Percentage (%)	Rank
Use of audio-visuals	110	80.9	1
Use of ICT tools	93	68.4	2
Access to rice farmers cooperative societies	77	57.5	3
Access to extension agents/agencies	74	55.2	4
Use of internet	67	50.0	5

***Constraints to rice farmers' training needs*

Table 5 presents the results regarding the constraints to rice farmers' training needs. The findings revealed that the majority of the respondents identified limited use of ICT tools by extension agents (81.7%), high cost of training programmes (81.7%), lack of finance to attend training workshops (80.8%), limited access to digital and ICT tools (67.5%), cultural and social barriers (65.8%), and inadequate accessibility and availability of extension services (65.0%) as the major constraints affecting their access to the required communication training. These findings indicate that both economic and technological limitations continue to hinder farmers' participation in agricultural capacity-building programmes within the study area.

The high proportion of respondents identifying limited ICT use by extension agents as a major challenge suggests that agricultural extension delivery in the study area still relies predominantly on conventional communication methods. This limits farmers' exposure to modern digital communication platforms capable of

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facilitating timely and efficient dissemination of agricultural information. In addition, the high cost of training programmes and inadequate financial resources available to farmers imply that many smallholder rice farmers are unable to afford the expenses associated with attending workshops, acquiring communication devices, or accessing internet-based services. Furthermore, inadequate access to ICT facilities, poor infrastructure, unstable electricity supply, low digital literacy, and cultural or social barriers may further restrict farmers' ability to utilise modern communication technologies effectively.

The findings are consistent with Davis et al. (2012), who noted that rice farmers encounter several constraints that hinder their access to and utilisation of improved agricultural knowledge and innovations, particularly inadequate access to ICT tools and extension support services. The results therefore emphasise the need for improved investment in rural ICT infrastructure, enhanced digital capacity-building programmes, and stronger extension systems to improve communication effectiveness among rice farmers. However, respondents indicated that the accessibility and availability of training centers did not constitute a major constraint on their communication training needs, suggesting that the primary barriers are more financial, technological, and institutional than physical access to training facilities.

Table 5: Distribution of respondents according to constraints to rice farmers training needs

Constraints to Training Needs	Frequency*	Percentage (%)	Rank
Limited use of ICT tools by extension agents	98	81.7	1st
High cost of training	98	81.7	1st
Lack of finance to attend training workshops	97	80.8	3rd
Lack of access to digital and ICT tools	81	67.5	4th
Cultural and social barriers	79	65.8	5th
Accessibility and availability of extension services	78	65.0	6th
Accessibility and availability of training centers	60	50.0	7th

***Multiple responses recorded.*

CONCLUSION AND RECOMMENDATIONS

CONCLUSION

The findings of the study revealed that rice production in the study area is predominantly dominated by male farmers, with the majority of the respondents being married. The study further established that the use of ICT tools and audio-visual communication technologies constituted the major communication training needs of rice farmers. In addition, the findings indicated that farmers experienced several constraints in accessing communication training, particularly inadequate access to ICT facilities, limited extension support services, and financial challenges associated with participation in training programmes. The study therefore highlights the growing need for modern communication approaches and strengthened extension systems to improve information dissemination and enhance rice production among farmers in the study area.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Given the high training needs in ICT utilisation and the constraints associated with limited access to digital tools, relevant stakeholders, government agencies, and development organisations should provide farmers with affordable digital communication facilities such as mobile phones, radios, and digital advisory tools to improve access to agricultural information.
2. Since the findings revealed high training needs in ICT utilisation and audio-visual communication methods, agricultural extension agencies should integrate digital capacity-building programmes into their routine extension activities in order to improve farmers' communication skills and adoption of modern rice production technologies.

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3. Farmers' access to extension agents and agricultural information services should be strengthened through increased extension coverage, recruitment of community-based extension personnel, regular farm visits, and the establishment of mobile-based advisory systems for timely dissemination of agricultural information.
4. Considering that the majority of the respondents do not belong to cooperative societies, efforts should be made toward the establishment and strengthening of rice farmers' cooperative groups. Functional cooperatives will enhance information sharing, facilitate access to credit facilities, encourage collective participation in training programmes, and improve farmers' overall productivity and socio-economic well-being.

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