

Reliability of Agricultural Information Generated by Researchers through AI Platforms in Forest Research Institute of Nigeria

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Abstract

Human research can suffer from perspective or intuitive bias, while AI outputs depend on the quality of training data, risking faulty generalizations in research and technical writing. This study assessed the reliability of agricultural information generated by researchers using AI platforms at FRIN. Objectives were to describe respondents' socio-economic characteristics, identify AI platforms available and used, examine agricultural information generated via AI, and assess constraints to accuracy and reliability. Data were collected from 62 FRIN researchers using structured questionnaires and analyzed with frequency counts, percentages, means, and Pearson Product Moment Correlation (PPMC). The mean age of respondents was 34 years. Google Earth Search, ChatGPT, and Gemini were the most available and used AI platforms. AI-generated information on forest extension services, new forestry technologies, and climate-smart agriculture showed high reliability. PPMC results showed significant relationships between high cost of maintenance ($r = 0.374$, $p = 0.003$), extent of AI complexity ($r = 0.351$, $p = 0.005$), and the reliability of AI-generated agricultural information. The study concluded that several AI platforms have strong potential to improve agricultural research by providing reliable information on forest extension and new forestry technologies. However, power instability and privacy/security concerns remain key challenges to reliability. It recommends that AI platform developers integrate robust cybersecurity protocols such as data encryption, secure authentication, and regular system audits to protect user data and build trust among agricultural researchers and extension workers.

Keywords: Reliability, Agricultural Information, Ai Platforms, Forest Research Institute Of Nigeria, Forestry Technology.

Introduction

In recent years, there has been growing interest in the application of Artificial Intelligence (AI) in education and research (Banker and Lihitkar, 2023). Artificial Intelligence refers to computer systems designed to simulate aspects of human intelligence and perform specific tasks with high levels of accuracy. For example, AI can analyze large datasets and identify patterns and trends that may be difficult or impossible for humans to detect. In

contemporary terms, AI generally pertains to machines that respond to stimuli in ways comparable to human reasoning, judgment, and decision-making. These systems are capable of supporting problem-solving and generating insights in real time, thereby contributing to discoveries in fields such as healthcare, environmental science, and the social sciences (Banker and Lihitkar, 2023).

Within the educational sector, different forms of Artificial Intelligence in Education (AIED) have emerged, including collaborative learning support systems and individualized tutoring platforms (Zawacki-Richter *et al.*, 2019). The integration of AI into education reflects the broader convergence of technological innovation and professional practice, offering opportunities to enhance learning experiences, academic performance, and research productivity. However, despite these benefits, concerns remain regarding the reliability, accuracy, and potential biases of AI-generated information. While human-generated research may be influenced by personal perspectives and intuitive bias, AI systems are similarly limited by the quality, scope, and neutrality of the data on which they are trained.

Statement of Problem

Beyond education, the growing capabilities of Artificial Intelligence (AI) have also expanded its relevance to scientific and applied research fields, including agriculture. Agricultural research increasingly relies on AI tools for data analysis, predictive modeling, precision farming, crop monitoring, and decision support systems (Bhat and Huang, 2021). AI-driven technologies such as machine learning, remote sensing, robotics, and the Internet of Things (IoT) have transformed modern agricultural practices by improving efficiency, sustainability, and productivity through real-time data analysis and informed decision-making (Zhang *et al.*, 2021; Bhat and Huang, 2021). Similarly, AI applications in precision agriculture support crop surveillance, smart irrigation, disease detection, and yield prediction, thereby enhancing agricultural innovation and food security (Garg *et al.*, 2021). However, despite these advantages, concerns remain regarding data reliability, ethical considerations, transparency, accountability, and the trustworthiness of AI-assisted outputs in agricultural systems (Gardezi *et al.*, 2024). On this note credibility of agricultural information generated through AI platforms by researchers needs to be examine in a systematic manner, if there is going to be an effective use of this modern day tool and dissemination of accurate information to farmers by the researchers.

To bridge this gap, the study provided answers to the following research questions:

- what are the socio-economic characteristics of the respondents?
- what are the available and used AI platforms by the respondents?
- what are the agricultural information generated through AI platform by the respondents?
- what are the constraints affecting accuracy and reliability of AI generated agricultural information?

Hypothesis of the Study

Ho: There is no significant relationship between the constraints affecting accuracy and reliability of AI generated agricultural information and the level of reliability of agricultural information generated through AI platforms.

Theoretical Framework

Information Quality Theory

This study is anchored on Information Quality Theory developed by Wang and Strong (1996), which posits that the usefulness and reliability of information depend on quality dimensions such as accuracy, relevance, timeliness, consistency, and credibility. The theory is relevant to this study because it provides a framework for assessing the reliability of agricultural information generated through AI platforms by researchers at the Forest Research Institute of Nigeria (FRIN).

According to the theory, information users evaluate the reliability of information based on how well it satisfies these quality dimensions. In the context of the Forest Research Institute of Nigeria (FRIN), researchers increasingly use AI platforms to generate, analyze, summarize, and disseminate agricultural and forestry-related information. These AI systems can support activities such as data analysis, crop and forest monitoring, predictive modeling, and scientific writing. However, the reliability of the information produced depends largely on the quality of the datasets, algorithms, and sources upon which the AI systems are trained. Information Quality Theory therefore helps explain why some AI-generated agricultural information may be considered reliable, while other outputs may contain inaccuracies, inconsistencies, outdated content, or biased interpretations.

The theory is particularly relevant to this study because it provides criteria for assessing the quality and dependability of AI-generated agricultural information used by researchers in FRIN. For example, researchers may evaluate whether AI-generated outputs are: accurate and scientifically valid, relevant to agricultural and forestry research needs, timely and up to date, complete and sufficiently detailed, consistent with existing scientific knowledge, and credible enough for research and policy purposes. Furthermore, Information Quality Theory highlights that poor-quality information can negatively affect decision-making, research outcomes, and knowledge dissemination. In agricultural research, unreliable AI-generated information could lead to incorrect recommendations regarding crop management, forestry practices, environmental conservation, or rural development strategies. Consequently, the theory supports the need to critically evaluate AI platforms before integrating their outputs into scientific and agricultural research activities.

Conceptual Framework

The conceptual framework for this study is based on the assumption that the reliability of agricultural information generated through AI platforms depends on several interrelated factors. The framework identifies the use of AI platforms by researchers as the major

independent construct influencing the reliability of agricultural information. The extent to which AI-generated information is considered reliable may be shaped by factors such as the quality of input data, researchers' level of AI literacy, frequency of AI usage, verification practices, and institutional support.

The framework further assumes that when researchers effectively utilize AI platforms with proper validation and high-quality datasets, the resulting agricultural information is more likely to be accurate, relevant, timely, credible, and complete. Conversely, poor-quality datasets, inadequate AI skills, lack of verification, and overdependence on AI systems may reduce the reliability of generated information.

It also illustrates the relationship between the utilization of AI platforms by researchers and the reliability of agricultural information generated within the Forest Research Institute of Nigeria (FRIN). The framework assumes that factors such as AI literacy, quality of input data, verification practices, institutional support, and frequency of AI usage significantly influence the reliability of AI-generated agricultural information. Reliability is conceptualized in terms of information accuracy, credibility, relevance, timeliness, consistency, and completeness. The framework therefore suggests that effective and responsible use of AI technologies may enhance the quality and dependability of agricultural research outputs, whereas poor AI practices may compromise information reliability.

Literature Review

Empirical studies have increasingly examined the use of Artificial Intelligence (AI) in research, education, and agriculture, particularly regarding the reliability and effectiveness of AI-generated information. Salvagno *et al.*, (2023) examined the possible advantages of applying AI in scientific writing and observed that AI technologies such as machine learning, natural language processing, and data mining can support researchers in literature review, summarization, citation analysis, and manuscript preparation. The study noted that AI tools may improve the efficiency and accuracy of scientific writing, especially for researchers with limited writing experience or non-native English speakers. However, the study also emphasized concerns regarding the reliability and authenticity of AI-generated content, as AI systems may generate misleading or inaccurate information when trained on incomplete or biased datasets. This study is relevant to the present research because it relates to the reliability of information generated through AI platforms and the extent to which researchers can depend on such outputs in agricultural research activities.

Similarly, Hammad (2023) examined the impact of AI on scientific writing and research communication. The author discussed both the opportunities and limitations associated with AI use in academic work. The study found that AI applications can enhance research productivity, information accessibility, and content generation. Nevertheless, the study cautioned that excessive dependence on AI may affect the originality, credibility, and trustworthiness of research outputs if proper human verification is not carried out.

In the agricultural sector, Dinrifo *et al.*, (2022) investigated the applications of AI in Nigerian agriculture and reported that AI-powered technologies are increasingly used for crop and

animal monitoring, disease and pest detection, smart irrigation, aerial mapping, intelligent chemical application, and produce grading. The study demonstrated the growing availability and usage of AI platforms in agricultural activities and emphasized their potential to improve productivity and decision-making. However, the authors noted that challenges such as poor technological infrastructure, limited technical expertise, inadequate training, and concerns about data quality may hinder the effective adoption and reliability of AI systems in Nigeria. This study directly relates to the present research because it addresses AI platform availability, usage, and the types of agricultural information generated through AI technologies.

Although previous studies have explored AI applications in scientific writing and agriculture, most of them focused on the benefits and adoption of AI technologies with limited attention to the reliability of agricultural information generated through AI platforms in research institutions. In addition, few empirical studies have specifically examined this issue within the context of Nigerian agricultural research institutes such as FRIN. Therefore, this study seeks to fill this gap by assessing AI platform availability, usage patterns, types of agricultural information generated, and the reliability of AI-generated outputs among researchers in the Forest Research Institute of Nigeria.

Methodology

This study was carried out in Forest Research Institute of Nigeria, Ibadan (FRIN). The study made use of simple random sampling. There are seventy-five (75) researchers in FRIN, from the sample frame of 75 respondents, 83% were randomly selected to make 62 researchers to form the sample size for this study. The dependent variable is the reliability of agricultural information generated by researchers through AI platforms, which was measured by listing out information generated by researchers through AI platforms, and the reliability of these information were scored on a three (3) point rating scale of Very reliable=2, Reliable= 1 and Not reliable=0. However, 2.13- 2.06 was categorized as high reliability, 2.05-2.00 as moderate, 1.95-0.00 as low level of reliability.

Validity and Reliability of the Research Instrument

Validity

Before proceeding with this research, the research instrument which was designed in accordance with the specific objectives of the study was presented to professionals in the field of Agricultural Extension and Rural Development for further examination and scrutiny to improve both its content and face validity. Needed adjustments were made based on the recommendations and suggestions of the experts.

Reliability

A reliability test (test-retest) was conducted on the instrument in order to determine its degree of consistency (i.e., the degree to which a measurement, given repeatedly, remains the same; the stability of a measurement over time; and the similarity of measurement

within a given period of time). The instrument was pre-tested in another research institute. The instrument was re-administered after a period of two (2) weeks on the same set of target respondents. A correlation analysis using Pearson product moment correlation was used to test the result of the two set of research instrument and it was found to have a reliability coefficient of 0.80, which implied that the instrument is reliable.

Result and Discussion

Socio-economic Characteristics of the Respondents

Table 1 shows the distribution of the respondents according to their socio-economic characteristics. 51.6% of the respondent were female, while 48.4% were male, an indication that research section in FRIN comprises of both male and female, also, 42% of the respondents were less or equal to 30 years of age, 32.2% were between the ages of 31-40 years, 25.7% were 41 years and above, with a mean age of 34 years. This implies that researchers in FRIN were young and agile, which could have effect on the level at which they utilized AI platforms, as younger people tend to explore new things, this is in line with Ebadi and Schiffauerova (2016) reported a decline in research productivity as age increases, especially, after the chronological age of 40 years.

Also, 80.6% of the respondents were Christian, 16.1% were muslim, while 3.2% were traditional worshippers, 35.5% of the respondents had less or equal to 3 people in their household, 64.5% had 4 and above individuals, with a mean household size of 4. An indication that respondents have an average household size. It was also observed that 38.7% of the respondents were single, 3.2% were separated and divorced respectively, 54.8% were married. With respect to their academic qualification, 9.7% had less or equal to 6 years of schooling, 16.1% had between 7-12 years of schooling, 16.2% had 13-17 years, 58.1% had 18 years and above schooling, with a mean 17 years, an indication that respondents were well educated, which could be an additional advantage, in using AI powered platform. Furthermore, Table 1 shows that 32.3% of the respondents were less or equal to level 8 in service, 48.5% were between the level of 9-12, 19.4% were in level 13 and above. Lastly in Table 1, 50% of the respondents claimed to belong to a social organization, while 50% does not.

Table 1: Distribution of the Respondents according to their Socio-economic Characteristics

n = 62

Socio-economic Characteristics	Frequency	Percentage	Mean
Sex			
Male	30	48.4	
Female	32	51.6	
Age			
≤30	26	42.0	
31-40	20	32.2	34 years
41 and above	16	25.7	

Socio-economic Characteristics	Frequency	Percentage	Mean
Religion			
Christian	50	80.6	
Muslims	10	16.1	
Traditional	2	3.2	
Household size			
≤3	22	35.5	
4 and above	40	64.5	4 people
Marital Status			
Single	24	38.7	
Separated	2	3.2	
Divorced	2	3.2	
Married	34	54.8	
Highest education qualification			
First degree	30	48.4	
MSc	20	32.2	
PhD	12	19.4	
Years spent in schooling			
≤6	6	9.7	
7-12	10	16.1	
18 and above	36	58.1	
Grade/ Level in service			
≤8	20	32.3	
9-12	12	48.5	
13 and above	12	19.4	
Membership of social Organization			
Yes	31	50.0	
No	31	50.0	

Source: Field survey, 2025.

AI Platforms Available and Used by the Respondents

Table 2 shows the distribution of the respondents according to AI Platforms Available and Used. 66.1% of the respondents claimed that Google earth search was available, 21.0% claimed IBM Watson decision platform for agriculture was available, 53.2% Microsoft AI for earth was available, 17.7% claimed availability of Sagemaker, 37.1% claimed Farmlogs is available, 83.9% claimed Chatgpt is available, 22.6% claimed availability of Perplexity, 29.0% claimed m that Thrive Agric AI platform was available, 29.0% of the respondents claimed that Farmcrowdy AI platform is available. Also, 35.5% claimed that Cash2crop is available, 29.0% claimed that AirSmart is available, 22.6% claimed Kitovu, 67.7% claimed Gemini AI was available, 62.9% claimed Microsoft Bing AI is available and lastly on availability, 41.9% of the respondents claimed that You.com was available.

For AI Platforms Used by the respondents. 56.5% claimed to be using Google earth search, 27.4% claimed to be using IBM Watson decision platform for agriculture, 33.9% claimed Microsoft AI for earth, 12.9% claimed Amazon Sagemaker, 25.8% claimed Farmlogs, 72.6% of the respondents claimed Chatgpt, 40.3% claimed Perplexity, 25.8% claimed Thrive Agric AI platform, 32.3% claimed Farmcrowdy, 32.3% claimed Cash2crop, 12.9% claimed AirSmart, 19.4% claimed Kitovu, 45.2% claimed Gemini AI, 51.6% claimed Microsoft Bing AI, while 35.5% of the respondents claimed You.com.

Summarily, result in table 2 revealed that there are series of AI powered platform available to respondents, as platform such as: Google earth search, Chatgpt, Gemini AI and Microsoft Bing has highest percentage. However, for AI platform used, Google earth search and Chatgpt has high percentage recorded for used. This implies that some of this AI powered platforms were available, but most were not been used by the respondents.

Table 2 Distribution of the respondents according to AI Platforms Available and Used

AI Platforms	Available		Used	
	Frequency	Percentage	Frequency	Percentage
Google Earth Engine	21	66.1	35	56.5
IBM Watson Decision Platform for Agriculture	13	21.0	17	27.4
Microsoft AI for Earth	33	53.2	21	33.9
Amazon SageMaker	11	17.7	8	12.9
FarmLogs	23	37.1	16	25.8
ChatGPT	52	83.9	45	72.6
Perplexity AI	14	22.6	25	40.3
Thrive Agric	18	29.0	16	25.8
Farmcrowdy	18	29.0	20	32.3
Cash2crop	22	35.5	20	32.3
AirSmat	18	29.0	8	12.9
Kitovu	14	22.6	12	19.4
Gemini AI	42	67.7	28	45.2
MicrosoftBing AI	39	62.9	32	51.6
You.com	26	41.9	22	35.5

Source: Field Survey, 2025.

Agricultural Information Generated through AI platform by the Respondents

Table 3 shows the distribution of the respondents according to Agricultural information generated through AI platform. 66.1% of the respondents claimed to had generated forest inventory data, 61.3% claimed forest growth and yield models, 71.0% generated climate smart agricultural information, 58.1% generated soil health and fertility prediction information, 61.3% generated genetic diversity of tress species information, 67.7% generated information on new forestry technologies, 64.5% generated best practices and case studies, 51.6% generated market and price information on forest product, 45.2% generated regulatory and certification forest information, 74.2% generated forest

extension services information, 67.7% generated agroforestry practices and systems information, lastly 79.0% of the respondents generated tress pest and diseases information. This implies that respondents in the study area generated series of information from AI platforms, information that ranges from: forest inventory data, forest growth and yield models as well as climate smart agricultural information. This result underscores the usefulness of AI platforms in data processing and storage, models and climatic information.

Table 3: Distribution of the respondents according to Agricultural information generated through AI platform

Agricultural Information	Frequency	Percentage
Forest inventory data	41	66.1%
Forest growth and yield models	38	61.3%
Climate smart agricultural information	44	71.0%
Soil health and fertility prediction information	36	58.1%
Genetic diversity of trees species information	38	61.3%
Information on new forestry technologies	42	67.7%
Best practices and case studies	40	64.5%
Market and price information on forest product	32	51.6%
Regulatory and certification forest information	28	45.2%
Forest extension services information	46	74.2%
Agroforestry practices and systems information	42	67.7%
Trees pest and diseases information	49	79.0%

Source: Field Survey, 2025.

***Multiple responses**

Level of reliability of information generated

Table 4 shows the distribution of the respondents according to level of reliability of information generated. The level reliability of the information generated was ranked using Weighted Mean Score, Forest extension service ranked first with a WMS of 2.13, Information on new forestry technologies ranked second with a WMS of 2.10, Climate smart agricultural information ranked third with a WMS of 2.06, Best practices and case studies ranked fourth with a WMS of 2.06, Genetic diversity of tress species information ranked fifth with a WMS of 2.06, Latest forest research breakthrough information ranked sixth with a WMS of 2.00, Forest inventory data ranked seventh with a WMS of 1.95, Soil health and fertility prediction information ranked eighth with a WMS of 1.94, Forest growth and yield models ranked ninth with a WMS of 1.90, Regulatory and certification forest information ranked tenth with a WMS of 1.84, Market and price information on forest product ranked least in eleventh with a WMS of 1.74. The higher reliability scores recorded for forest extension services (WMS = 2.13) and information on new forestry technologies (WMS = 2.10) may reflect the structured, research-based, and regularly updated nature of these

information categories, which are often supported by established databases and extension networks. Similarly, climate-smart agricultural information, best practices and case studies, and genetic diversity information (all WMS = 2.06) suggest that AI systems perform better when processing standardized and knowledge-intensive datasets. In contrast, lower reliability scores for market and price information on forest products (WMS = 1.74), regulatory and certification information (WMS = 1.84), and forest growth and yield models (WMS = 1.90) may be linked to the dynamic, context-specific, and complex nature of these data sources.

Table 4: Distribution of the respondents according to level of reliability of information generated through AI platform

Agricultural Information	WMS	Rank
Forest extension service	2.13	1st
Information on new forestry technologies	2.10	2nd
Climate smart agricultural information	2.06	3rd
Best practices and case studies	2.06	4th
Genetic diversity of trees species information	2.06	5th
Latest forest research breakthrough information	2.00	6th
Forest inventory data	1.95	7th
Soil health and fertility prediction information	1.94	8th
Forest growth and yield models	1.90	9th
Regulatory and certification forest information	1.84	10th
Market and price information on forest product	1.74	11th

Source: Field Survey, 2025.

***Multiple responses**

Constraints Affecting Accuracy and Reliability of AI Generated Agricultural Information

Table 5 shows the distribution of the respondents according to Constraints affecting accuracy and reliability of AI generated agricultural information. Using Weighted Mean Score, Instability of power supply ranked first with a WMS of 0.52, Privacy and security issues ranked second with a WMS of 0.52, High cost of maintenance ranked third with a WMS of 0.52, Cost implication ranked fourth with a WMS of 0.39, Extent of complexity of AI ranked fifth with a WMS of 0.32, Limited access to hardware and software ranked sixth with a WMS of 0.32, Inadequacy of technical expertise in operation of AI ranked seventh with a WMS of 0.26, Challenges associated with understanding complex procedures ranked eighth with a WMS of 0.26, Cultural and language barrier ranked ninth with a WMS of 0.19, Shortage of technical support staff ranked least in tenth with a WMS of 0.19. This implies that despite how impactful AI platform is, several constraints still hindered its accuracy and reliability, Instability of power supply, Privacy and security issues and High cost of maintenance were the top constraint observed.

Table 5: Distribution of the respondents according to Constraints affecting accuracy and reliability of AI generated agricultural information

Agricultural Information	WMS	Rank
Instability of power supply	0.52	1st
Privacy and security issues	0.52	2nd
High cost of maintenance	0.52	3rd
Cost implication	0.39	4th
Extent of complexity of AI	0.32	5th
Limited access to hardware and software	0.32	6th
Inadequacy of technical expertise in operation of AI	0.26	7th
Challenges associated with understanding complex procedures	0.26	8th
Cultural and language barrier	0.19	9th
Shortage of technical support staff	0.19	10th

Source: Field survey, 2025.

***Multiple responses**

Test of Hypothesis

Table 6 revealed the result of PPMC analysis showing the relationship between the constraints affecting accuracy and reliability of AI generated agricultural information and the level of reliability of agricultural information generated through AI platforms. There is significant relationship between High cost of maintenance ($r = 0.374$, $p = 0.003$), Extent of complexity of AI ($r = 0.351$, $p = 0.005$) and the level of reliability of agricultural information generated through AI platforms. This implies that High cost of maintenance and Extent of complexity of AI can influence the level of reliability of agricultural information generated through AI platforms.

Table 6: PPMC analysis showing the relationship between the constraints affecting accuracy and reliability of AI generated agricultural information and the level of reliability of agricultural information generated through AI platforms

Constraints	r- value	p- value	Remark
Instability of power supply	0.082	0.528	Not significant
Extent of complexity of AI	0.351	0.005	Significant
Privacy and security issues	0.240	0.060	Not Significant
High cost of maintenance	0.374	0.003	Significant
Cultural and language barrier	0.234	0.067	Not Significant
Cost implications	0.068	0.601	Not Significant
Limited access to hardware/software	0.046	0.721	Not Significant
Shortage of technical support staffs	-0.117	0.366	Not Significant
Inadequacy of technical expertise in operation of AI	-0.042	0.746	Not Significant
Challenges associated with understanding complex procedures	-0.058	0.655	Not Significant

Source: Computed data, 2025.

**** Correlation is significant at the 0.01 level (2-tailed).**

* Correlation is significant at the 0.05 level (2-tailed).

Conclusion and Recommendation

In conclusion, the study demonstrated that artificial intelligence platforms possess considerable potential to enhance the quality and efficiency of agricultural research and technical information generation among researchers at the Forestry Research Institute of Nigeria. The findings revealed that widely accessible AI tools such as Google Earth, ChatGPT, and Gemini are increasingly utilized in generating reliable agricultural information, particularly in areas relating to forest extension services, climate-smart agriculture, and emerging forestry technologies. The significant relationships observed between the reliability of AI-generated information and factors such as maintenance cost and system complexity further indicate that the effectiveness of AI adoption is strongly influenced by infrastructural and operational conditions.

Despite the promising outcomes, the study identified persistent challenges, notably power instability and concerns regarding privacy and data security, which may undermine users' confidence and the overall reliability of AI-assisted research outputs. Therefore, while AI should not be regarded as a complete substitute for human expertise and critical judgment, it can serve as a valuable complementary tool in agricultural research when supported by adequate infrastructure, user competence, and robust cybersecurity measures. The study therefore underscores the need for sustained investment in secure, accessible, and user-friendly AI systems to maximize their contribution to agricultural innovation, evidence-based decision-making, and sustainable forestry development in Nigeria.

It is therefore recommended that

- To improve the reliability of AI-based agricultural information, FRIN should invest in stable and alternative power sources such as solar systems, inverters, or mini-grids, especially in rural research centers.
- Developers of AI platforms should integrate strong cybersecurity protocols, such as data encryption, secure authentication, and regular system audits to protect user data and build trust among agricultural researchers and extension workers.
- Public-private partnerships (PPPs) can help subsidize the cost of maintaining AI platforms. Collaboration with tech companies, NGOs, and international development agencies could lower operational expenses and improve system sustainability.
- Agricultural researchers at FRIN should receive training on how to use AI tools effectively. This ensures that the benefits of forest extension services, new forestry technologies, and climate-smart agriculture information are fully realized.

Limitation of the Study

This study is subject to certain limitations that should be considered when interpreting the findings. The study was limited to 62 researchers from the Forestry Research Institute of Nigeria (FRIN), thereby restricting the generalizability of the results to other agricultural and forestry research institutions. In addition, the cross-sectional nature of the study

provided only a snapshot of researchers' perceptions and experiences with AI platforms at a single point in time, making it difficult to assess long-term changes in AI reliability and usage patterns. Furthermore, the reliability of AI-generated agricultural information was evaluated based on respondents' self-reported assessments rather than through independent technical validation of AI outputs, which may introduce subjective bias. These limitations suggest the need for future studies involving larger and more diverse samples, longitudinal approaches, and objective evaluation measures to strengthen understanding of AI reliability in agricultural research and extension systems.

Contribution to Knowledge

This study contributes to knowledge by providing empirical evidence on the reliability of AI-generated agricultural and forestry information among researchers at FRIN. It identifies the major AI platforms used, demonstrates the reliability of AI in areas such as forest extension services and new forestry technologies, and establishes that maintenance cost and AI complexity significantly influence the reliability of AI-generated information. The study also offers context-specific insights into the opportunities and challenges of AI adoption in agricultural and forestry research in Nigeria.

Conflicts of Interest

No conflict of interest

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