

## INFLUENCE OF EDUCATIONAL QUALIFICATION ON THE AWARENESS AND UTILIZATION OF AGRICULTURAL RESEARCH OUTPUTS BY EXTENSION WORKERS FOR EFFECTIVE INFORMATION DISSEMINATION TO FARMERS

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### Abstract

*The study is on the influence of educational qualifications in awareness and use of agricultural research outputs by extension workers for information dissemination to farmers in Daura senatorial district of Katsina state, Nigeria. The research hypotheses included  $H_{01}$ : Educational qualification does not significantly influence awareness of agricultural research outputs by extension workers for information dissemination to farmers in Daura senatorial district of Katsina state, Nigeria and  $H_{02}$ : Educational qualification does not significantly influence the use of agricultural research outputs by extension workers for information dissemination to farmers in the study area. The study adopted a descriptive survey research design in quantitative research method, focusing on extension workers from twelve Local Government Areas in the Daura zone of Katsina State, Nigeria, with a total population of 636 individuals and proportionate stratified random sampling technique was employed. To determine the appropriate sample size, the study followed the guidelines provided by Research Advisors (2006), which recommended a sample of 234 respondents based on the total population of extension workers in the Daura senatorial district. A questionnaire, designed and validated by experts, was used to collect the data, and the reliability coefficient of the instrument was found to be 0.839. For data analysis, ordinal linear regression was applied, given the categorical nature of the data. As such the study found that a strong, positive, and statistically significant relationship between educational qualification and awareness of agricultural research outputs among extension workers. Educational qualification accounted for 62.8% of the variation in awareness and also reveals a significant relationship between educational qualification and the use of agricultural research outputs by extension workers, with a moderate correlation. Based on this finding, the study recommended ongoing training programs should be implemented for extension workers to keep them updated on the latest agricultural research and enhance their ability to communicate valuable insights to farmers and among others*

**Key words:** Influence, Educational Qualifications, Awareness, Use, Agricultural Research Outputs, Extension Workers, information Dissemination, Farmers

## Introduction

Agriculture is the backbone of Nigeria's economy, particularly in the northern region, including Katsina State, where a large portion of the population depends on it for their livelihood. According to the Food and Agriculture Organization (2018), agriculture employs about two-thirds of the Nigerian labor force, making it the largest employment sector in the country. In northern Nigeria, agriculture is not just an economic activity but a way of life, especially in rural areas where subsistence farming dominates. However, the sector faces numerous challenges such as inadequate access to quality inputs, limited funding, poor infrastructure, and low productivity, all of which hinder its performance and growth (Abubakar, Garba, Gana & Jacob, 2019).

Improving agricultural productivity in these areas requires not only physical resources but also access to timely and relevant information. One effective way to achieve this is through the dissemination of agricultural research outputs by extension workers to farmers. These outputs serve as essential tools for knowledge transfer, offering farmers up-to-date practices and innovations in agriculture. Agricultural research outputs include journal articles, theses, dissertations, conference papers, and agricultural databases (Adamu, 2014; Adam, Kandiwa & Muindi, 2019). When extension workers effectively utilize these resources, they can provide accurate and current information to farmers, leading to improved farming practices and increased yields (Adedaji, 2017).

Awareness is a critical first step in the use of agricultural research outputs. Without being aware of the existence and relevance of these resources, extension workers cannot access or apply them in their work (Sinkaye, 2018). Awareness involves recognizing that certain information exists and understanding its value in solving specific problems or improving practices. Sulaiman and Davis (2012) noted that awareness must precede any meaningful use of information resources. In essence, before an extension worker can search, retrieve, or apply agricultural research outputs, they must first be aware that such resources are available and relevant to their roles. The level of awareness and use of agricultural research outputs is closely tied to the educational qualifications of extension workers. Higher educational attainment often equips individuals with

better information-seeking skills and the ability to evaluate and utilize diverse information sources. Studies have shown that extension workers with advanced education are more likely to be aware of and make use of scholarly resources like research databases, journals, and technical reports (Iro, 2016). This relationship highlight the need for professional training and education to enhance information literacy and awareness.

Educational qualification does not only influences awareness but also significantly relate the actual use of agricultural research outputs for information dissemination. According to Adam et. al. (2019), extension workers with higher qualifications understand, interpret, and translate technical research findings into practical guidance for farmers. They are also more capable of identifying credible sources of agricultural knowledge and adapting them to local contexts. This improves the quality and relevance of the information passed to farmers, thereby supporting more effective agricultural extension services and better farming outcomes.

Proper educations to extension workers does only improves the quality of information delivered to farmers but also ensures that guidance is practical, evidence-based, and tailored to local challenges (Iro, 2016). The study targeted **Daura Senatorial District of Katsina State**, as known for its rich agricultural tradition, still struggles with outdated farming practices and limited access to modern agricultural knowledge. By understanding how educational qualifications influence awareness and use of agricultural research outputs among extension workers in Daura, this study aims to bridge the knowledge gap, improve the efficiency of extension services, and ultimately contribute to more productive and sustainable farming in the regions and state at large.

### **Statement of the Problem**

Agricultural research outputs such as journals, theses, and databases are vital tools that extension workers are expected to use consistently to educate farmers and improve agricultural practices. Their role is central in bridging the gap between research institutions and rural communities, ensuring that farmers receive up-to-date, practical information that can enhance productivity and livelihoods. However, in many developing countries, including Nigeria, these resources are significantly underutilized often below 50% compared to the

60–70% utilization rates seen in developed nations (Iro, Oladokun & Kalusopa, 2015; Sinkaye, 2018). In Daura Senatorial District of Katsina State, this underutilization hampers the flow of relevant agricultural knowledge to farmers, leaving them dependent on outdated methods. The situation is further compounded by issues like poor funding, inadequate staffing, lack of policy support, and weak links between researchers, extension workers, and farmers (Abubakar & Aliyu, 2016). While similar studies have been carried out in other regions, none have specifically addressed the unique challenges facing Daura. The study determine the Influence of Educational Qualifications in Awareness and Use of Agricultural Research Outputs by Extension Workers for information Dissemination to Farmers in Daura Senatorial District of Katsina state, Nigeria.

## Research Hypotheses

The study sets to test the following null hypotheses:

**H<sub>01</sub>:** Educational qualification does not significantly influence awareness of agricultural research outputs by extension workers for information dissemination to farmers in Daura senatorial district of Katsina state, Nigeria.

**H<sub>02</sub>:** Educational qualification does not significantly influence the use of agricultural research outputs by extension workers for information dissemination to farmers in the study area.

## Literature Review

Agriculture remains central to food security and economic stability, especially in rural areas where the majority of the population directly or indirectly relies on farming for their livelihood. Agricultural research outputs are the foundation upon which modern farming techniques and innovations are built. These outputs, developed by professionals across diverse disciplines, encapsulate knowledge ranging from climate-smart practices to pest management and improved seed varieties. When effectively disseminated, especially through agricultural extension services, these outputs help farmers tackle real-time challenges and adopt improved practices that boost productivity and income (Aremu et al., 2019; Iro, Oladokun & Kalusopa, 2015). The reality, however, is that many of these outputs remain underutilized, largely due to barriers in access,

awareness, and communication, often resulting in a gap between research and practice. Agricultural research outputs exist in a wide variety of formats both traditional and digital. These include books, theses, conference papers, technical bulletins, and electronic resources like online journals, agricultural databases (AGRICOLA, AGRIS, CAB Abstracts), and platforms such as African Journals Online (AJOL) and the Directory of Open Access Journals (DOAJ). These outputs provide accurate, timely, and relevant information to extension workers who serve as crucial links between researchers and farmers. For example, AGRIS offers access to global agricultural studies tailored to the needs of developing countries, while CAB Abstracts spans over 6,000 journals covering agriculture, forestry, and related fields. Despite their richness, these resources are often locked behind digital barriers, inconsistent indexing, or limited physical access in rural areas. This reinforces the need for deliberate policies and infrastructure that can bridge this gap enabling extension workers to fully utilize available research outputs and thus deliver more impactful support to farmers (Kamau et al., 2018; Pratiwi & Suzuki, 2017).

Awareness of agricultural research outputs among extension workers is a crucial factor influencing the effective transfer of agricultural innovations to farmers. It serves as the first step toward the adoption and utilization of research findings, as users can only apply what they are aware of (Fisher et al., 2018; Rajash & Reddy, 2015). Despite the availability of diverse and valuable agricultural information in both print and digital formats, several studies have revealed that awareness levels among extension workers remain relatively low. For instance, Rajash and Reddy (2015) found that only 20.65% of extension workers were fully aware of agricultural research outputs, while 57.77% had limited awareness, and 21.38% were not aware at all. Similarly, Mbaya (2015) reported that a significant proportion of extension workers (61.22%) lacked awareness and information literacy skills necessary for accessing online agricultural resources such as databases and journals. On the other hand, Krishna (2014) highlighted that while awareness of agricultural books and journals was relatively high, many respondents remained unaware of critical resources like agricultural conference proceedings and databases. These findings underscore the need for targeted awareness

campaigns, regular training, and improved access to agricultural information systems to enhance the capacity of extension workers to serve as effective conduits between research institutions and farmers.

The use of agricultural research outputs by extension workers is critical for the effective dissemination of knowledge and practices to farmers. It involves not only being aware of these resources but actively incorporating them into extension activities to achieve agricultural development objectives (Kamilaris, Kontos & Vlachos, 2022). Research shows that while many extension workers recognize the value of agricultural research outputs, their usage often remains limited. For instance, Lvova and Nadporozhskaya (2023) found that 66.7% of respondents utilized agricultural research outputs for their work, while 33.3% did not engage with these resources. Despite the recognition of their importance, barriers such as insufficient training and access to information persist. In Tanzania, Kandji, Simon and Young (2020) observed an increasing trend in the use of agricultural research outputs among extension workers, highlighting the growing awareness of their significance. Similarly, studies by Mark and Griffin (2020) and Mallarino and Wittry (2021) revealed that extension workers, especially those attending seminars and workshops, tend to utilize agricultural databases and journals more effectively. However, challenges such as inadequate awareness, as noted by Angol and Ameh (2017), hinder full utilization, emphasizing the need for better training and access to resources to improve usage rates among extension workers.

Educational qualifications play a significant role in enhancing the awareness and effective use of agricultural research outputs, as they often determine an extension worker's ability to understand, access, and apply complex information. According to studies by Shilomboleni (2020) and Sikkema and Schreinemachers (2022), extension workers with higher educational qualifications have better awareness and utilization of agricultural research outputs due to their enhanced information literacy and critical thinking skills. Educational background equips extension workers with the tools necessary to understand and interpret research materials, attend relevant workshops, and engage with new technologies and methods. Similarly, Angol and Ameh (2017) Mallarino and Wittry (2021) observed that workers with higher education levels are more likely to

benefit from seminars and training programs, leading to greater utilization of agricultural information resources. This revealed the importance of education in bridging the gap between awareness and actual usage, as well-educated extension workers are better positioned to implement and disseminate research-based practices to farmers effectively.

## Research Method and Design

The study adopted a descriptive survey research design in quantitative research method, focusing on extension workers from twelve Local Government Areas in the Daura zone of Katsina State, Nigeria, with a total population of 636 individuals and proportionate stratified random sampling technique was employed. To determine the appropriate sample size, the study followed the guidelines provided by Research Advisors (2006), which recommended a sample of 234 respondents based on the total population of extension workers in the Daura senatorial district. A questionnaire, designed and validated by experts, was used to collect the data, and the reliability coefficient of the instrument was found to be 0.839. For data analysis, ordinal linear regression was applied, given the categorical nature of the data.

## Data Analysis

A total of 234 questionnaires were distributed to the respondents from the zone under study, and 183 questionnaires were duly filled in and returned as shown in Table 1.

**Table 1: Response Rate**

No. of questionnaire administered	234	Percentage (%)
No. of Questionnaire returned	183	78.3
No. of questionnaire not returned	51	21.7
<b>Total</b>	<b>234</b>	<b>100</b>

The result in Table 1 indicated that 234 questionnaires were distributed to the respondents of the study. 183(78.3%) questionnaires have satisfactorily been filled in and returned, while 51(21.7%) of questionnaires distributed have not been returned. This high response rate is achieved as a result of subsequent follow-ups by

the researcher together with the research assistants employed for the study. According to Baruch and Holton (2008), the level of response rate in social research is considered a crucial factor in assessing the value of the research findings. At this point, every researcher should aim to attain approximately a 60% response rate (Fincham, 2008). In line with this, the response rate of 78.3% for this study is acceptable to make inferences for the study.

**Table 2, H0<sub>1</sub>: Educational qualification does not significantly influence awareness of agricultural research outputs by extension workers for information dissemination to farmers in Daura senatorial district of Katsina state, Nigeria.**

Variables	N	Mean	SD	R	R <sup>2</sup>	F	Durbin Watson	Sig	Decision
Educational Qualifications	183	1.48	.736	.792 <sup>a</sup>	.628	150.259	.198	0.001	Rejected
Awareness of Agricultural Research Outputs	183	2.1978	.65353						

a. Predictors: (Constant), EQ

b. Dependent Variable: Awareness

The findings presented in Table 2 reveal a statistically significant influence of educational qualification on the awareness of agricultural research outputs among extension workers in Daura Senatorial District of Katsina State, Nigeria. With a sample size of 183 respondents, the analysis shows a strong positive correlation ( $R = 0.792$ ) between educational qualification and awareness levels, and a high coefficient of determination ( $R^2 = 0.628$ ), indicating that approximately 62.8% of the variance in awareness can be explained by the educational qualifications of the respondents. The F-value of 150.259, coupled with a significance level (p-value) of 0.001, which is well below the 0.05 threshold, confirms that the model is statistically significant. Therefore, the null hypothesis (H0<sub>1</sub>), which posited that educational qualification does not significantly influence awareness, is rejected. This implies that educational background plays a crucial role in shaping extension workers' understanding and awareness of agricultural research outputs, which is essential for effective dissemination of innovations and information to farmers in the region.

**Table 3, H0<sub>2</sub>: Educational qualification does not significantly influence the use of agricultural research outputs by extension workers for information dissemination to farmers in the study area.**

Variables	N	Mean	SD	R	R <sup>2</sup>	F	Durbin Watson	Sig	Decision
Educational Qualifications	183	1.8901	.31449	.316 <sup>a</sup>	.056	4.340	.120	0.000	Rejected
Use of Agricultural Research Outputs	183	1.4176	.68420						

a. Predictors: (Constant), EQ

b. Dependent Variable: Use

The analysis reveals a significant relationship between educational qualification and the use of agricultural research outputs by extension workers, with a p-value of 0.000, rejecting the null hypothesis (H<sub>02</sub>). This suggests that educational qualifications do influence how extension workers utilize research outputs for information dissemination to farmers. The moderate correlation coefficient (R = 0.316) indicates that higher educational qualifications are associated with more frequent use of research outputs. However, the low R<sup>2</sup> value of 0.056 shows that educational qualification explains only 5.6% of the variation in use, implying that other factors likely play a role. The F-statistic (4.340) supports the model's significance, but the Durbin-Watson statistic (0.120) suggests potential autocorrelation issues, which may affect the validity of the results. Overall, while educational qualification is significant, it accounts for only a small portion of the variation in the use of agricultural research outputs, indicating that further factors should be explored.

### Discussion of Findings

**H0<sub>1</sub>:** Educational qualification does not significantly influence awareness of agricultural research outputs by extension workers for information dissemination to farmers in Daura senatorial district of Katsina state, Nigeria. The study found a strong, positive, and statistically significant relationship between educational qualification and awareness of agricultural research outputs among extension workers. Educational qualification accounted for 62.8% of the variation in awareness. Consequently, the null hypothesis was rejected, confirming that education significantly influences awareness levels. Aligning with the finding of this study, Angol and Ameh (2017), found the role of education in improving the knowledge and skills of extension workers. However, Mallarino and Wittry (2021) ) found a weaker link between education and awareness,

suggesting that while education is important, other factors such as experience, training, or organizational support play a more significant role in influencing awareness.

**H0<sub>2</sub>:** Educational qualification does not significantly influence the use of agricultural research outputs by extension workers for information dissemination to farmers in the study area. The analysis reveals a significant relationship between educational qualification and the use of agricultural research outputs by extension workers, with a moderate correlation. However, the low explanatory power suggests that other factors may also play a role in influencing the use of research outputs, and potential autocorrelation raises concerns about the validity of the results. The current study's findings align with those of Aremu et al. (2019) and Iro et al. (2015). While the current study tests a hypothesis and finds a significant relationship between educational qualification and the use of agricultural research outputs, Aremu et al. and Iro et al. do not explicitly test hypotheses but rather describe the importance of using research outputs. Aremu et al. (2019) and Iro et al. (2015) both indicate that higher educational qualifications positively influence the utilization of research, supporting the current study's findings. However, the current study's moderate correlation ( $R = 0.316$ ) is weaker than what might be implied from the descriptions in Aremu et al. and Iro et al., suggesting that educational qualifications alone are not sufficient to explain research usage.

## Conclusions

The study concluded that educational qualification significantly influences both the awareness and use of agricultural research outputs by extension workers in Daura senatorial district of Katsina state, Nigeria. Educational qualification was found to have a strong, positive impact on awareness, explaining 62.8% of the variation, thus rejecting the null hypothesis for the first hypothesis (H0<sub>1</sub>). However, while a statistically significant relationship was also observed between educational qualification and the use of agricultural research outputs, the moderate correlation and low  $R^2$  value suggest that other factors, such as experience or organizational support, may also play important roles in determining the extent to which research outputs are

utilized. Therefore, educational qualifications alone are not sufficient to fully explain the effective use of agricultural research outputs.

## Recommendations

The study offered the following recommendations:

1. The study recommended that ongoing training programs should be implemented for extension workers to keep them updated on the latest agricultural research and enhance their ability to communicate valuable insights to farmers.
2. The study also recommended a stronger collaboration between libraries, research institutions, extension services, and local agricultural agencies be established to provide extension workers with better resources and support for utilizing agricultural researches effectively to help farmers in translating the findings in to practices

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