



**EMPIRICAL ANALYSIS OF THE INTEGRATED INFORMATION BEHAVIOR  
FRAMEWORK FOR MAIZE FARMERS IN KADUNA STATE**

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**Submitted: 30/10/2024**

**Accepted: 17/11/2024**

**Published: 20/12/2024**

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**ABSTRACT**

*This study analyses the integrated information behavior framework for maize farmers in Kaduna State, Nigeria. The study adopted a descriptive survey design. The population of the study consisted of 384 maize farmers in Kaduna State. The study proceeds in four steps. First, it identified the information needs of the maize farmers and found that majority of them seeks information on seeds varieties, weed control, market information and harvesting techniques. Secondly, it identified the sources of information use by maize farmers and found that majority of them get information through radio and television. Thirdly, it examined the information seeking pattern of maize farmers and found that majority of them get information through mass media and digital platforms. Finally, it identified the challenges encountered while seeking information on maize farming and found that unavailability of established functional library as a greater challenge associated with the information behavior of the maize farmers. The study, therefore, recommended that government should provide e-libraries or information centers so that the farmers can keep themselves updated on general agricultural knowledge instead of just focusing on maize farming to attain food sufficiency.*

**Keywords:** *Integrated, Information behavior, Framework, Maize farmers, Kaduna State*



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**Introduction**

Information in whatever form or format is an indispensable and distinct tool of achieving success in whatever people intends to do, or whatever they are doing. The needs for information is therefore inevitable, and its use is also essential. Nkamigbo, Ugwumba and Okeke (2019) stress that information is required because of its significant contribution to the daily activities of people. In this information era, utilisation of agricultural information by information providers to farmers play a significant role in the improvement of farming methods and practices. Progress in agriculture is linked to several keys and often interrelated factors, such as research as well as agricultural information provision for modern scientific ways of farming for farmers' accessibility (Umar & Olatunji, 2021).

The need for information has been considered a basic ingredient for the survival of individual as well as group of people, irrespective of age and geopolitical location. Therefore, information needs of individuals are what a person or group ought to have for whatever reason. Information need is often understood as an individual or group's desire to locate and obtain information to satisfy a conscious or unconscious need. However, Umar and Olatunji (2021) coated Mtega and Benard (2013), in fulfilling information needs, a person will try to find information through various media, such as books, magazines, social media, television or radio, as well as obtaining it through relatives, family or work colleagues. Wilson (1995) stated that activities in information-seeking behaviour depend on the information needs of each individual.

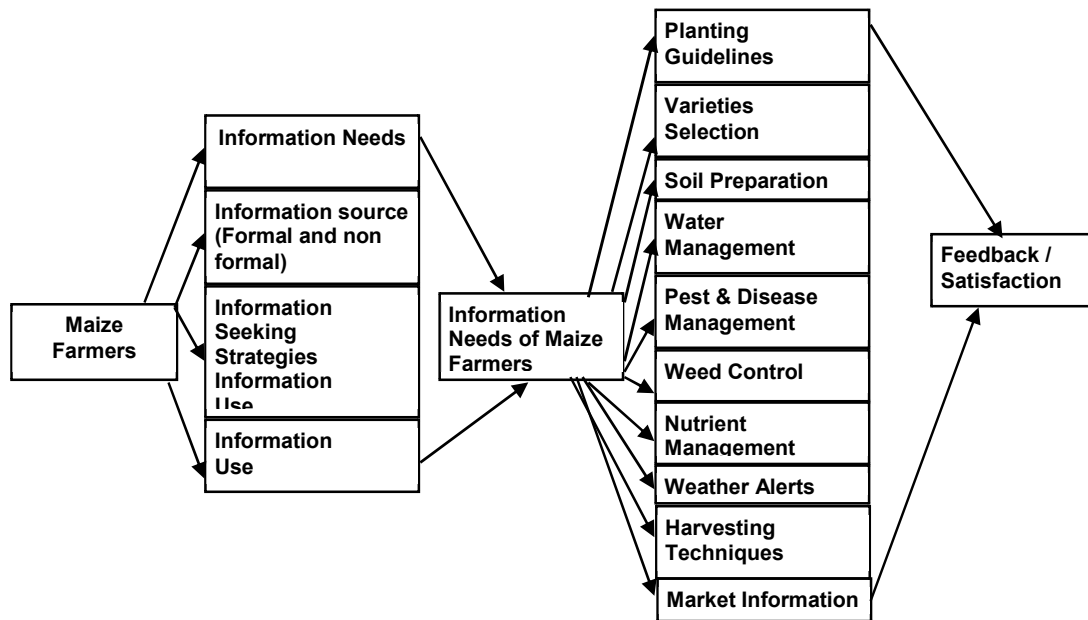
However, lack of understanding the format of information sources by maize farmers is the main factor hindering the utilisation of agricultural information. In the agricultural production environment, relevant and timely information helps farming communities to make the right decisions (Acheampong *et al.*, 2017). Therefore, the need for information becomes obvious when people realize their lack of knowledge. To meet these needs, individuals will then realize the need to seek and use the information they required. Information use bridges the core elements of information needs and information-seeking behavior, leading to information satisfaction and serving as the pivot upon which all these elements are based. Information use drives all other information behaviors since it encompasses and represents the ultimate purpose for which information is needed and sought. Information use is the more visible part of the information-seeking process.

Maize farmers are people who rely heavily on maize production to survive in some parts of the world. They are also agricultural producers who grow maize under diverse conditions in Nigeria, Africa, and other regions. According to Adegbola and Okunlola (2020), maize farmers in Nigeria are individuals or groups involved in the cultivation and production of maize, also known as corn. Maize farmers are indigenous people who cultivate maize for food, feed, and cultural purposes in Kaduna State (Kusfa, 2023). Hence, Information is a crucial tool for a professional group, such as farming, as it enables farmers to understand, learn and be able to cope with new trends by Ogbonna and Anunobi (2022) in Maltez, Matias and Artimisias (2020). Similarly, Ogbonna and Anunobi (2022) in

Oluwatoyin and Folashade (2014), stressed that Agriculture is the main stay of mankind; therefore, nations all over the globe give it a priority by developing and exploiting this sector for the upkeep of their teeming populations through the earning of revenue for development purposes as well as employment. The purpose of this study is to assess the information needs and utilisation pattern of maize farmers *for enhanced agricultural decision-making in Kaduna State, Nigeria.*

**Integrated Information Behavior Framework for Maize Framers**

The integrated behavior framework for maize farmers was developed using the four (4) major constructs of information needs, information sources, information seeking strategy, and information use adapted from the Wilsons (1999) information behavior model. The constructs were conceptualized and rearranged to suit the current study. So, the behavior framework of this study is diagrammatically presented and explained as follows:



**Figure 1:** Information Behavior Framework for Information Needs & Utilisation Pattern by Maize Farmers

The information behavior framework for this study builds upon Wilson's (1999) information behavior model, integrating four primary constructs: information needs, information sources, information-seeking strategies, and information use. These constructs have been tailored to fit the specific context of maize farming in Kaduna State. This approach helps to comprehensively address the unique information dynamics in this agricultural setting, illustrating the interconnectedness of the various elements involved.



### *Information Needs*

Information needs arise when maize farmers recognize a gap in their knowledge that is crucial for making informed decisions about their farming practices. Case and Given (2016) explain that these needs are the starting point of the information-seeking process, triggered by specific situations such as pest outbreaks, market changes, or the need to adopt new agricultural technologies. In Kaduna State, maize farmers frequently encounter challenges that necessitate accurate and timely information, such as selecting high-yield seed varieties, understanding market trends, and improving soil management techniques.

### *Information Sources*

The effectiveness of information seeking and use heavily relies on the quality and accessibility of information. Maize farmers in Kaduna state access information from both formal and informal sources. Formal sources include agricultural extension officers, research institutions, and libraries. Informal sources comprise fellow farmers, local traders, and various media outlets including radio and print. The diversity of this sources necessitates a tailored approach to ensure that the information gathered is reliable, relevant, and timely. According to Kim and Sin (2022), “the diversity of information sources, including formal and informal channels, significantly impacts the quality and relevance of the information obtained by users, particularly in agricultural settings where timely and accurate information is crucial.”

### *Information-Seeking Strategies*

To address these information needs, farmers employ a variety of strategies to seek relevant information. These strategies are shaped by the context and specific needs of the farmers. Narayan *et al.* (2020) highlight that effective information-seeking strategies are crucial for ensuring that the information obtained is both relevant and reliable. In the context of maize farming in Kaduna State, farmers may rely on formal sources like agricultural extension officers, research institutions, and libraries, as well as informal sources such as fellow farmers, local traders, and media outlets including radio and print. The effectiveness of these strategies is influenced by the farmers’ access to these sources and their ability to critically evaluate the information received.

### *Information Use*

Once the necessary information is gathered, its practical application becomes essential for improving farming practices. Bates (2022) emphasizes that information use involves the application of acquired knowledge to make decisions and solve problems, thereby enhancing productivity and achieving specific goals. For maize farmers in Kaduna State, this means utilising information to optimize various aspects of their farming operations, such as planting schedules, pest control, and post-harvest handling. Effective information use can lead to significant improvements in crop yields, economic efficiency, and overall farm sustainability.

The relationship between these constructs is dynamic and iterative. Information needs drive the information-seeking process, and the strategies employed in seeking information determine the quality and relevance of the information obtained. The sources of information significantly impact the



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effectiveness of these strategies. The use of this information, in turn, influences future information needs, creating a continuous cycle of knowledge acquisition and application. For instance, a farmer who identifies a need for better pest management techniques (information need) may consult agricultural extension services and fellow farmers (information-seeking strategies). The information obtained from these sources is then applied to implement more effective pest control measures (information use), resulting in improved crop health and yield. The success of this intervention may lead to new information needs, such as exploring advanced pest control technologies or market opportunities for the increased yield.

The behavioral framework underscores the importance of the quality and accessibility of information sources. Zeinab *et al.* (2021) emphasize that the satisfaction formation theory plays a crucial role in the information-seeking and use process. If the information sources are reliable and the information provided is accurate, farmers are more likely to be satisfied with the outcomes, reinforcing the effectiveness of their information-seeking strategies and encouraging continued engagement with these sources. Conversely, if the information is inaccurate or difficult to access, farmers may experience dissatisfaction, leading to a reluctance to seek information in the future.

### **Objectives of the Study**

The study sets out to:

1. investigate the information needs of maize farmers in Kaduna State;
2. identify the sources of information used by maize farmers in the area under study;
3. examine the best strategies of seeking information provided for the information needs of maize farmers in the area under study; and
4. identify the challenges associated with the satisfaction of the information needs of maize farmers in the area under study.

### **Research Questions**

To achieve the objectives of this study, the following research questions are posed:

1. What are the information needs of maize farmers in Kaduna State?
2. What are the sources used by the maize farmers to satisfy these needs?
3. What information seeking strategies best provide for the information needs of maize farmers in the area under study?
4. What are the challenges associated with the satisfaction of the information needs of maize farmers in the area under study?

### **Methodology**

The study covered all 23 LGAs of Kaduna State, divided into four agricultural zones by KADA formally KADP. Quantitative research method, using cross-sectional survey design was adopted. Population of the study comprises 110,550 maize farmers. A sample of 384 respondents were drawn based on Morgan 1970 formulae. Data was collected using structured questionnaire. Descriptive statistics using frequency counts and percentages were used to analyse the data.

**Data Analysis**

*Information Needs of Maize Farmers*

This section provides details on various types of information needs of maize farmers. Respondents were asked to indicate the information needs provided in their community. The summary of their responses are presented in Table 1 below:

**Table 1:** Information Needs of the Respondents

S/No.	Information Needs	Yes N (%)	No N (%)
a.	Selection of Seed Variety	365 (100)	—
b.	Pest and diseases management	361 (98.9)	4 (1.1)
c.	Information on the type of fertilizer to be applied	363 (99.4)	2(0.6)
d.	Extension workers advices	358 (98)	7 (2)
e.	Market information	365 (100)	—
l.	Planting guidelines	355 (94.3)	10(2.7)
j.	Soil preparation	311(85.3)	54(14.7)
k.	Water management	311(85.3)	54(14.7)
l.	Weed control	365(100)	—
m.	Nutrients management	363(99.4)	2(0.6)
n.	Weather alerts	288(79)	77(21)
o.	Harvesting techniques	365(100)	—

Table 1 shows that 365(100%), that is the entire respondents need information on selection of seeds varieties, weed control, market information and harvesting techniques. This is followed by 363(99.47%) those who need information on type of fertilizer to be applied and nutrients management. However, 361(98.4%) of the respondents need information about pest and diseases management, followed by 358(98%) need information on extension workers' advices, and 355(94.3%) need information on planting guidelines. While, 311(85.3) of the respondents needs information on soil preparation and water management. Furthermore, about 288(79) respondents also need information on weather alerts. It is clear from the findings that the maize farmers have an array of information needs on maize farming. These needs include information best maize seeds variety selection to be planted, information on the type of fertilizer to be applied, information on market and prices, information about treatment of pest and diseases control, and information on harvesting techniques. Based on this finding therefore, it can be inferred that all maize farmers need information on the best maize seed to be provided for them to increase more yield and profit.

*Sources of Information Used by the Respondents to Satisfy their Needs*

The respondents were asked to state their sources of information used to satisfy their needs in Table 2. Summary of the responses are presented in Table 2 below:



**Table 2:** Sources of Information Used by the Respondents to Satisfy their Needs

<b>Sources of Information</b>	<b>Yes N(%)</b>	<b>No N(%)</b>
Radio and television	365 (100)	-
Library and information centers	-	365 (100)
Agricultural research institutions	86 (23.5)	279 (76.4)
Government agricultural departments	7(1.9)	358 (98)
Local agricultural shows and events	156 (42.8)	209(57.2)
Extension officers	172 (47.1)	193 (52.9)
Online databases	108 (29.5)	257 (70.5)
Farmers cooperatives	73 (20)	292 (80)
Newspaper	5(1.3%)	360(98.7)

Table 2 shows that 365(100%) or almost the entire respondents revealed that they source information through the radio and television, followed by the agricultural extension officers according to 172 (47.1%), while local agricultural shows and events has 156 (42.8%), online databases 108 (29.5%) and cooperative societies 73(20%). The least sources were the government agricultural departments and newspaper according to only 7 (1.9%) and 5 (1.3%) respondents. However, library and information centers have not been consulted for seeking information by the entire 365 (100%) respondents. This may be due to the unavailability of library and information centers in their communities. Meanwhile, the major source of seeking information for maize farmers are the radio, colleagues and the extension officers.

*Information Seeking Patterns of Maize Farmers of the Respondents*

The respondents were asked to state the information seeking pattern they are employing to seek information. Summary of the responses are presented in Table 3:

**Table 3:** Information Seeking Pattern by the Respondents

<b>Seeking Patterns</b>	<b>Yes N(%)</b>	<b>No N(%)</b>
Through digital platforms and mobile technologies	346(94.7)	19(5.3)
Through printed textbooks/ journals	82(22.4)	283(77.6)
Through extension services and farms field schools	277(75.9)	88(24.1)
Through the use of mass media	365(100)	-
Through community based approaches	321(87.9)	44(12.1)
Through forum, seminars / workshop	181(49.6)	184(50.4)

Table 3 revealed that the entire 365(100%) respondents testified that they search information through mass media, 346(94.7%) of the respondents search information through digital platforms and mobile technologies. Also, 321(87.9) search information through community based services, 277(75.9%) search information through extension services and farms field schools, and 181(49.6%) also search information through forum, seminars/workshops. However, the least strategy 82(22.4%)



used printed textbooks/journals.

### **Challenges to the Use of Information by the Respondents**

The respondents were asked to indicate the barriers they are encountering toward their information use. Summary of the responses are presented in Table 4 below:

**Table 4:** Challenges to the Use of Information by the Respondents

<b>Barriers</b>	<b>Yes N(%)</b>	<b>No N(%)</b>
Unavailability of established functional library purposely design for us to seek information in or order meet our information needs	365(100)	-
Lack of printed information	318(87.2)	47(12.8)
Limited access to relevant agricultural data	344(94.2)	21(5.8)
Lack of technological infrastructure	344(94.2)	21(5.8)
Law literacy levels hindering effective interpretation	301(82.4)	64(17.5)
Challenges in adopting modern farming practices due to traditional beliefs or economic constraints	344(94.2)	21(5.8)
Inadequate extension services	335(91.7)	30(8.3)
Communication channels	322(88.2)	43(11.8)
Neglect or lack of willingness by the top level authorities to address our information needs	319(89.6)	46(10.4)

Table 4 revealed that the entire 340(100%) respondents are encountering barriers when try to use information, one major barrier according to them is the unavailability of established functional library purposely designed for them to seek information in order to use it, to satisfy their information needs. This barrier as further revealed by 344(94.2%) who are almost the entire respondents, makes it difficult for them to get the accurate information; because of lack of technological infrastructure, limited access to relevant agricultural data, as well as the challenges in adopting modern farming practices due to traditional beliefs or economic constraints. Moreover, 335(91.7%) that is also almost the entire respondents added inadequate extension services and communication channels 322(88.2%). These barriers as blamed by the 319(89.6%) respondents are caused by the neglect or lack of willingness by some top level authorities to address their information needs. Furthermore, 318(87.2%) respondents also lament on the Lack of printed information and 301(82.4%) law literacy levels hindering effective interpretation.

### **Conclusion**

The study concluded that their information needs and utilisation have not been given the consideration they deserved, because of lack of relevant information resources, as well as the general unavailability of library and information centers in their communities; which denied them the systematic, quick and easily searching of 'readily organized' information. Addressing these barriers and enhancing information accessibility is vital for supporting sustainable agricultural practices and empowering maize farmers to thrive in their communities.





### **Recommendations**

Based on the objectives and findings of this study, the study recommended that:

1. Government should provide e-libraries or information centers so that farmers can be updating themselves in general agricultural knowledge instead of just focusing on maize farming to attain food sufficiency.
2. Strengthen extension services by increasing the number of extension officers and improving their outreach efforts. Extension workers play a vital role in disseminating agricultural information directly to farmers. Training programmes should be organized to update them on the latest farming practices, technologies, and government policies to ensure they provide accurate and timely advice to maize farmers.
3. Address the factors hindering farmers' information-seeking strategies, such as the delay of time, unawareness, and inaccessibility. Implement initiatives to enhance farmers' digital literacy, providing them with the skills to navigate electronic sources, online databases, and other technological platforms effectively.

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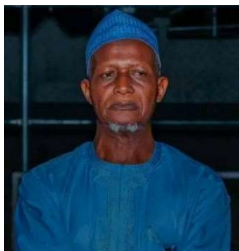
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