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Information seeking behaviour of poultry farmers in Delta State, Nigeria

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Abstract
This study investigated the information seeking behaviour of poultry farmers in Delta State, Nigeria, focusing on their information needs, information sources, and constraints to information seeking. The study adopted a descriptive survey design. The population comprised approximately 4,000 poultry farmers in Delta State, from which a sample of 300 farmers was drawn through a multi-stage sampling procedure across Delta North, Delta Central, and Delta South senatorial districts. Data were collected using a structured instrument, the "Poultry Farmers Information Seeking Behaviour Questionnaire (PFISBQ)", adapted from instruments used in related studies. Content validity was established through expert review, while reliability, determined through a pilot test, yielded Cronbach's alpha coefficients of 0.84, 0.81, and 0.86 for its three sections. The questionnaire was administered directly to respondents, and 278 valid copies were retrieved, representing a 92.7% response rate. Data were analysed using frequency, percentage, mean, and standard deviation, with a criterion mean of 2.50. Findings revealed very high need for disease prevention and control information (mean = 3.48); predominant reliance on fellow farmers (mean = 3.19) rather than formal or digital sources; and inadequate extension visits (mean = 3.31) as the most severe constraint. The study concluded that information seeking behaviour among poultry farmers in Delta State is predominantly informal and constrained by infrastructural and institutional deficits. It was recommended that the Delta State Agricultural and Rural Development Authority (DARDA) should prioritise disease-related information dissemination, formalise farmer-to-farmer extension networks, and invest in rural ICT infrastructure.

Keywords: Information seeking behaviour, poultry farmers, information needs, information sources, constraints to information access, agricultural extension, Delta State, Nigeria

Introduction
Poultry farming constitutes one of the most dynamic and economically significant sub-sectors of Nigerian agriculture, providing employment, household income, and critical dietary protein for millions of families across the country (Food and Agriculture Organization [FAO], 2023). In Delta State, located in the South-South geopolitical zone of Nigeria, poultry production has evolved substantially from a predominantly subsistence backyard activity into a diversified commercial enterprise involving broiler meat production, table egg laying, and hatchery operations at varying scales. The Delta State Ministry of Agriculture and Natural Resources estimates that the poultry value chain encompassing feed production, veterinary services, processing, and distribution supports tens of thousands of direct and indirect livelihoods across the state's 25 Local Government Areas (LGAs). As global food demand rises and Nigeria's population continues to expand toward an estimated 400 million by 2050 (United Nations Population Fund [UNFPA], 2023), the role of domestic poultry production in ensuring food security becomes increasingly strategic.

Central to the sustainability and profitability of poultry farming is farmers' access to timely, accurate, and relevant information. The ability to obtain and apply current knowledge about disease prevention, vaccination schedules, feed formulation, biosecurity practices, and market pricing

directly determines productivity outcomes and the capacity to manage risks such as disease outbreaks, input price volatility, and consumer market fluctuations (Abubakar et al., 2022; Lawal et al., 2023). In this context, information is not a peripheral resource for poultry farmers it is a productive input whose absence or inadequacy can translate directly into increased bird mortality, reduced feed conversion efficiency, delayed disease diagnosis, and sub-optimal market positioning.

Information seeking behaviour refers to the purposive process through which individuals recognise a gap in their knowledge, select appropriate sources to fill that gap, retrieve relevant information, and evaluate and apply it in decision-making (Wilson, 1999; Bates, 2017). In agricultural contexts, information seeking is rarely a linear or individual process; it is socially embedded, iterative, and heavily influenced by the trust farmers place in different source types, the accessibility of those sources, and the relevance of the information to local farming realities (Lwoga et al., 2022; Munyua & Stilwell, 2019). Understanding the specific contours of this behaviour what information poultry farmers need, where they seek it, and what barriers impede their access is therefore foundational to the design of effective agricultural information systems and extension interventions.

In recent years, the information landscape for Nigerian farmers has been significantly reshaped by the proliferation of mobile telephony, social media platforms, and digital agricultural extension services (Abubakar et al., 2022; Aker & Ksoll, 2016). However, significant digital divides persist along rural-urban, gender, and educational lines. Delta State, while relatively urbanised in the Warri metropolitan area and parts of Ughelli, has substantial rural poultry farming populations in areas such as Ndokwa, Isoko, and parts of Ika where access to formal extension services, broadband internet, and reliable electricity remains severely limited. Onyemekihian, (2021); Lawal et al., (2023) are of the opinion that these infrastructural disparities create uneven information environments that disadvantage the farmers who arguably stand to benefit most from improved information access.

Despite the economic centrality of poultry farming in Delta State and the established importance of information access to agricultural productivity, empirical studies specifically examining the information seeking behaviour of poultry farmers in this state remain scarce. Most existing research on agricultural information behaviour in Nigeria either adopts a national or broader zonal perspective, or focuses on crop farming systems, leaving a significant gap in localised, sector-specific evidence for poultry production in the South-South zone. This study was therefore designed to address this gap comprehensively, investigating the information needs, source preferences, and constraints of poultry farmers across all three senatorial districts of Delta State. The findings are intended to provide an evidence base for DARDA, the Delta State Ministry of Agriculture, non-governmental organisations, and library and information professionals involved in agricultural knowledge management and extension service delivery.

Statement of the problem

The economic importance of poultry farming in Delta State is well established, yet several critical knowledge and practice gaps constrain the effectiveness of information support services available to farmers in the sector. These gaps collectively undermine the productivity, profitability, and resilience of the poultry value chain across the state.

There is a paucity of localised empirical data on the specific information needs of poultry farmers in Delta State.

While general agricultural information needs have been documented for other Nigerian states and for crop farming systems (Lawal et al., 2023; Oyesola & Obadiah, 2022), the precise knowledge requirements of poultry farmers operating within Delta State's unique agro-ecological and market context remain undocumented. Extension agencies and agricultural information providers consequently lack the evidence base needed to design targeted information products that align with actual farmer priorities resulting in a persistent mismatch between information supply and demand.

Available studies conducted in comparable Nigerian contexts suggest that poultry farmers rely predominantly on informal information networks family members, fellow farmers, and veterinary assistants rather than formal extension systems or modern ICT channels (Ali et al., 2025; Msoffe, 2016). However, the specific pattern of information source utilisation among Delta State poultry farmers, including the relative importance of digital media, radio, mobile telephony, and face-to-face extension contacts, has not been systematically quantified. This data gap impedes the ability of extension planners to optimise channel selection and resource allocation for information dissemination.

Nonetheless, poultry farmers in Delta State operate within a constrained information environment characterised by limited extension agent coverage, erratic electricity supply, and weak rural internet penetration (Onyemekihian, 2021; Chukwusa, 2022). Although these constraints are acknowledged anecdotally and inferred from broader studies of agricultural extension challenges in the South-South zone, there is insufficient empirical documentation of the specific barriers that hinder poultry farmers' information seeking behaviour in Delta State at the LGA and community levels. Policy responses to improve agricultural information access therefore remain poorly targeted and insufficiently evidence-based. These interrelated knowledge gaps provide the empirical and practical justification for the present study.

Objectives of the study

The main objective of this study is to examine the information seeking behaviour of poultry farmers in Delta State, Nigeria. Specifically, the study seeks to:

1. Identify the information needs of poultry farmers in Delta State, Nigeria;
2. Determine the sources of information consulted by poultry farmers in Delta State, Nigeria; and
3. Examine the constraints faced by poultry farmers in seeking information in Delta State, Nigeria.

Research questions

The study answers the following questions:

1. What are the information needs of poultry farmers in Delta State, Nigeria?
2. What sources of information do poultry farmers in Delta State, Nigeria consult?
3. What constraints do poultry farmers face in seeking information in Delta State, Nigeria?

Literature review

This study is anchored in Wilson's (1999) revised model of information behaviour, one of the most widely applied frameworks in agricultural information research globally. Wilson's model conceptualises information seeking behaviour as a purposive process initiated by a perceived need specifically, a gap or uncertainty in the individual's knowledge that motivates them to engage with information sources. The model encompasses four sequential but iterative stages: (a) recognition of an information need

driven by contextual stressors or knowledge gaps; (b) information seeking, in which the individual actively or passively engages with potential sources; (c) information processing and use, where retrieved information is evaluated, internalised, and applied to decision-making; and (d) information transfer, through which knowledge is shared within social networks.

Wilson's (1999) model is particularly suited to the agricultural context because it explicitly acknowledges the role of intervening variables including personal characteristics (age, education, farming experience), socioeconomic circumstances (income, farm size), environmental conditions (infrastructure, geography), and source characteristics (accessibility, credibility, language) in shaping information seeking behaviour. These variables correspond directly to the individual, institutional, and infrastructural factors documented in the literature on agricultural extension and information access in sub-Saharan Africa (Lwoga et al., 2022; Munyua & Stilwell, 2019). For poultry farmers in Delta State, Wilson's model provides a framework for understanding not only what information they need, but why certain sources are preferred and what barriers constrain the seeking process the three dimensions addressed by the study's three objectives.

More recent scholarship has refined and contextualised Wilson's model for digital and mobile information environments. Bates (2017) extended Wilson's foundational framework to incorporate opportunistic and passive information acquisition modes of information encounter that are particularly relevant in social media and mobile telephony contexts increasingly prevalent in Nigerian agricultural communities. The integration of Bates' (2017) extension with Wilson's (1999) original model provides a theoretically robust lens through which to examine the full spectrum of information seeking behaviours documented in this study, from deliberate peer consultation to passive radio listening and incidental social media exposure.

Poultry farming in Nigeria encompasses the rearing of domestic fowl principally broilers, layers, and indigenous breeds for meat, eggs, and income generation, serving as both a primary commercial enterprise and a supplementary livelihood strategy for millions of households (FAO, 2023; Lawal et al., 2023). Nigeria is the largest poultry producer in sub-Saharan Africa, with an estimated 185 million birds and an annual commercial poultry market valued at over USD 4 billion (FAO, 2023). Despite this scale, the sector is characterised by persistent productivity challenges, including high mortality rates attributable to preventable diseases, suboptimal feed conversion ratios, and inadequate biosecurity practices all of which are fundamentally information-related problems (Abubakar et al., 2022; Adebayo & Abdulazeez, 2021).

In Delta State specifically, poultry enterprises range from small-scale backyard units with fewer than 100 birds to medium-scale commercial farms holding 1,000–5,000 birds, with the majority (approximately 60%) operating at the 100–500 bird scale (Delta State Ministry of Agriculture, 2021). The sector faces distinctive challenges related to the state's agro-ecological context: high humidity levels in the South-South zone create favourable conditions for pathogen proliferation; the prevalence of flooding in Ndokwa and Isoko areas disrupts farm operations and supply chains; and the proximity to major urban markets in Warri and Asaba creates both opportunities and competitive pressures for producers across different parts of the state. Navigating these context-specific challenges requires farmers to access, process, and apply a range of production, market, and weather-related

information in a timely and contextually relevant manner (Onyemekihian, 2021; Chukwusa, 2022).

Information needs in the agricultural context refer to the specific knowledge gaps that farmers must fill to make informed production, management, and marketing decisions at each stage of the farming cycle (Wilson, 1999; Lwoga et al., 2022). For poultry farmers, these needs are production-stage specific and encompass a wide range of technical, economic, and regulatory domains. Empirical studies across sub-Saharan Africa consistently identify disease management, health-related information, and nutrition as the highest-priority information needs, reflecting the devastating economic impact of disease outbreaks and feed inefficiency on poultry farm profitability.

Msoffe (2016), in a study of poultry farmers in selected rural areas of sub-Saharan Africa, found that disease management, feeding practices, and market price information ranked highest among farmer priorities a finding replicated in numerous subsequent studies across Nigeria. Abubakar et al. (2022), in a study of commercial poultry farmers in northern Nigeria, documented that avian influenza preparedness information, Newcastle disease vaccination protocols, and feed formulation were rated as very high information needs by over 80% of respondents, while record-keeping and regulatory compliance information ranked lowest. These findings suggest that poultry farmers' information priorities are predominantly operational and immediate focused on day-to-day production challenges rather than strategic or administrative.

In the Pakistani context, Ali et al. (2025) found that family farmers across livestock enterprises prioritised information on animal health, feed quality, and resource management, with veterinary assistants serving as crucial intermediaries for practical knowledge delivery. The convergence of evidence across contexts Nigeria, sub-Saharan Africa, and South Asia indicates that health-related and nutrition information consistently represents the most pressing and universal category of poultry farmer information needs, with market and financial information forming a secondary priority cluster. These patterns are directly relevant to the Delta State context and informed the design of the information needs section of the PFISBQ instrument used in this study.

In relation to the first objective of this study, the literature therefore establishes a robust theoretical and empirical expectation: that poultry farmers in Delta State will record their highest information needs in the domains of disease prevention, vaccination, and feed management, while administrative and policy information will register as lower priorities. The confirmation or disconfirmation of this expectation provides the basis for aligning extension information packages with actual farmer priorities in the state.

The sources through which farmers access agricultural information critically determine the quality, timeliness, cultural appropriateness, and practical applicability of the knowledge they acquire. The literature consistently documents a hierarchy of source utilisation among smallholder and commercial farmers in developing countries, with informal interpersonal sources dominating over formal institutional and digital channels (Ali et al., 2025; Lwoga et al., 2022; Munyua & Stilwell, 2019). This preference for informal sources reflects multiple reinforcing factors: the perceived trustworthiness of peer farmers who share similar production contexts; the accessibility of interpersonal information without financial or logistical barriers; the relevance of locally generated experiential knowledge to specific farm conditions; and the absence

or inaccessibility of formal extension and digital alternatives.

Msoffe (2016) found that poultry farmers in rural areas relied primarily on informal sources, including family members, neighbours, fellow farmers, and veterinary contacts, with radio as the most utilised formal media channel, while print materials and digital platforms were rarely used. Ali et al. (2025), in their study of family farmers in Punjab, Pakistan, reported that fellow farmers constituted the primary source of agricultural information, followed by the public extension sector and veterinary assistants, while mobile phones, internet platforms, and social media played only a marginal role finding strikingly consistent with the Nigerian evidence despite the geographical and cultural differences.

In the Delta State context, Onyemekihian (2021) documented that agricultural extension officers used radio, television, and mobile phones as their primary information dissemination channels, suggesting that these platforms have institutional potential for reaching farmers even in rural areas. However, the same study identified severe limitations in translating extension officer capacity into farmer-level information access, including the absence of internet connectivity in rural villages, high costs of ICT devices, inadequate electricity supply, and low digital literacy among farmers. Adebayo and Abdulazeez (2021) similarly found that while WhatsApp and Facebook groups were increasingly used by younger, more educated farmers in South-South Nigeria for sharing poultry management information, access was severely constrained by data costs and smartphone ownership rates.

These source utilisation patterns have direct implications for the second objective of this study. The evidence suggests that information delivery strategies that rely exclusively on formal extension or digital channels will fail to reach the majority of poultry farmers in Delta State. Effective information systems must build on the dominant informal channels fellow farmers and veterinary officers while strategically expanding the reach of mobile and broadcast media. The present study provides the empirical data needed to assess the current source utilisation profile of Delta State poultry farmers and to identify priority channels for investment and development.

Barriers to effective information seeking among smallholder and commercial farmers in developing countries are extensively documented and operate across multiple interacting levels: structural and infrastructural, institutional, economic, and individual (Lwoga et al., 2022; Oyesola & Obadiah, 2022). Understanding the relative severity of these constraints in the Delta State context is essential for designing effective mitigation strategies and allocating extension and information resources efficiently.

At the infrastructural level, poor electricity supply and unreliable internet connectivity are the dominant constraints on information access in rural Nigeria, with particular severity in the South-South zone (Onyemekihian, 2021; Chukwusa, 2022). Nigeria's national electrification rate, while improving, remains below 60%, and rural electrification rates are substantially lower with many poultry-producing communities in Ndokwa, Isoko South, and parts of Ughelli North experiencing fewer than eight hours of grid power per day (Power Sector Recovery Programme, 2021). This electricity deficit directly constrains the use of mobile phones, computers, radio, and television as information channels, and limits the viability of ICT-based extension platforms. Lawal et al. (2023), in a study of agricultural information access among smallholders in southern Nigeria, confirmed that power supply instability was the single most frequently cited barrier to ICT-based

information seeking, rated as a significant constraint by over 75% of respondents.

At the institutional level, the underfunding and understaffing of the agricultural extension system in Delta State represents a critical structural barrier. The recommended extension worker-to-farmer ratio by the Food and Agriculture Organization is 1:400 (FAO, 2023); however, available evidence suggests that the actual ratio in Delta State far exceeds this, with many extension agents responsible for entire LGAs rather than manageable community clusters (Onyemekihian, 2021). Abubakar et al. (2022) found that the frequency of extension contact was rated as insufficient by over 70% of their sample, with farmers in remote areas reporting going months without contact with any extension officer a situation that forces reliance on peer networks regardless of the quality of information available within those networks.

Economic constraints compound these structural barriers. Lawal et al. (2023) found that the cost of accessing specialised veterinary and agronomic information including consultation fees, diagnostic laboratory charges, and the cost of data subscriptions for digital platforms was a significant deterrent to formal information seeking among smallholder farmers, particularly during periods of financial stress associated with feed price spikes or disease outbreaks. The irony noted by several scholars is that the moments of greatest information need when disease strikes or market prices collapse are precisely the moments of greatest financial constraint, creating a negative relationship between information need intensity and information access capacity (Lwoga et al., 2022; Msoffe, 2016).

Individual-level constraints, including low literacy, limited digital skills, and language barriers, further restrict the range of information sources available to some segments of the poultry farmer population. Oyesola and Obadiah (2022) found that farmers with secondary or tertiary education were significantly more likely to use mobile-based and internet-based information sources than those with primary or no formal education a finding with direct implications for the design of information delivery formats and channel mixes. The absence of agricultural information materials in dominant local languages such as Urhobo, Isoko, Ika, and Ijaw represents an additional barrier that systematically disadvantages farmers with lower formal education or limited English literacy (Munyua & Stilwell, 2019). In relation to the third objective of this study, the evidence establishes a clear expectation that infrastructure deficits particularly inadequate extension contact and poor electricity supply will be the most severely rated constraints in the Delta State context, with economic and individual barriers forming secondary constraint clusters.

The literature reviewed establishes a clear and consistent evidence base: poultry farmers have distinct, high-priority information needs centred on animal health, nutrition, and market access; their information seeking behaviour is predominantly social and informal, relying heavily on peer networks and veterinary contacts; and multiple overlapping constraints infrastructural, institutional, economic, and individual limit the effectiveness of information delivery. However, empirical studies specifically focused on Delta State poultry farmers are scarce. Most existing Nigerian evidence is drawn from northern or south-western states, and few studies have simultaneously examined all three dimensions information needs, source preferences, and constraints within a single, coherent empirical framework at the state level. This study directly addresses that gap by providing

localised, systematically collected, and comprehensively analysed data on all three dimensions across the three senatorial districts of Delta State.

Methods

The study adopted a descriptive survey research design. The population of the study consisted of all poultry farmers in Delta State engaged in broiler and/or layer production, including both registered members of poultry farmers' associations and independent non-registered farmers operating across the state's three senatorial districts: Delta North, Delta Central, and Delta South. While no definitive census of poultry farmers exists, estimates from the Delta State Ministry of Agriculture and the Poultry Association of Nigeria (Delta State chapter) place the population of active poultry farmers at approximately 4,000 individuals (Delta State Ministry of Agriculture, 2021).

A sample of 300 poultry farmers was selected using a three-stage multi-stage sampling procedure. At Stage 1, one LGA was purposively selected from each senatorial district based on documented concentration of poultry farming activity, yielding Ughelli North (Delta Central), Ika South (Delta North), and Warri South (Delta South). At Stage 2, three communities were randomly selected from each of the three LGAs, giving nine communities in total. At Stage 3, approximately 33–34 poultry farmers were randomly selected from each community using farmer lists compiled with the assistance of community leaders and local veterinary officers, yielding a target sample of 300 respondents. This multi-stage procedure ensures representation across the geographical and ecological diversity of Delta State's poultry farming landscape.

Data were collected using the "Poultry Farmers Information Seeking Behaviour Questionnaire (PFISBQ)", a structured instrument adapted from instruments used in comparable studies (Msoffe, 2016; Ali et al., 2025) and modified to suit the Delta State socioeconomic and agro-ecological context. The PFISBQ was divided into four sections: Section A - Socio-demographic characteristics (gender, age, education level, farming experience, flock size); Section B - Information needs (12 items rated on a 4-point scale: 4 = Very High Need, 3 = High Need, 2 = Low Need, 1 = Very Low Need); Section C - Information sources (10 sources rated on a 4-point frequency scale: 4 = Very Often, 3 = Often, 2 = Rarely, 1 = Never); Section D - Constraints to information seeking (12 items rated on a 4-point Likert scale: 4 = Strongly Agree, 3 = Agree, 2 = Disagree, 1 = Strongly Disagree).

Content validity was established by presenting the draft instrument to three subject-matter experts: two senior lecturers in agricultural extension and communication and one specialist in library and information science. Their feedback was incorporated to refine item wording, remove ambiguous or redundant items, and ensure contextual relevance to the Delta State poultry farming context. Reliability was assessed through a pilot study involving 30 poultry farmers in a neighbouring LGA not included in the main study. Cronbach's Alpha reliability coefficients were computed as follows: Section B (information needs): $\alpha = 0.84$; Section C (information sources): $\alpha = 0.81$; Section D (constraints): $\alpha = 0.86$. All values exceeded the 0.70 threshold for acceptable internal consistency recommended by Nunnally and Bernstein (1994), confirming the reliability of the instrument for the study population.

The PFISBQ was administered by the researcher and two trained research assistants across all nine communities over a five-week period. Personal administration was adopted to maximise the response rate, facilitate clarification of ambiguous items, and accommodate respondents with lower

literacy levels by reading questions aloud where necessary. Of the 300 questionnaires administered, 278 were returned and found valid for analysis, representing a 92.7% response rate well above the 60% minimum threshold recommended for survey validity.

Data were analysed using IBM SPSS version 26. Frequencies, percentages, mean, and standard deviations were used to analyse data to answer all the three research questions. A criterion mean of 2.50 on the 4-point scale was adopted: scores at or above 2.50 were interpreted as positive (high need, agreed, or constraint present), while scores below 2.50 were interpreted as low need or constraint not present. This uniform criterion mean of 2.50 was applied for interpreting the data in all three research question tables, and items in each table were ranked in descending order of their mean scores.

Results and discussion

Table 1 presents the socio-demographic characteristics of the 278 respondents whose questionnaires were retained for analysis.

Table 1: Socio-demographic characteristics of respondents (N = 278)

Variable	Category	Frequency	Percentage (%)
Gender	Male	172	61.9
	Female	106	38.1
	Total	278	100.0
Age	Below 30 years	48	17.3
	31–45 years	125	45.0
	46–60 years	78	28.1
	Above 60 years	27	9.7
	Total	278	100.0
Education	No formal education	22	7.9
	Primary	41	14.7
	Secondary	128	46.0
	Tertiary	87	31.3
	Total	278	100.0
Farming Experience	Less than 5 years	58	20.9
	5–10 years	112	40.3
	11–20 years	78	28.1
	Above 20 years	30	10.8
	Total	278	100.0
Flock Size	Below 100 birds	42	15.1
	100–500 birds	168	60.4
	501–1,000 birds	48	17.3
	Above 1,000 birds	20	7.2
	Total	278	100.0

The demographic data reveal several characteristics relevant to interpreting information seeking behaviour in the Delta State context. Poultry farming in the state is male-dominated (61.9%), but female participation (38.1%) is substantial consistent with the documented role of women in small-to-medium scale livestock production in South-South Nigeria (Adebayo & Abdulazeez, 2021). The dominant age cohort is 31–45 years (45.0%), indicating a relatively youthful and economically active farming population, which is associated with greater openness to adopting new information channels, including mobile technology (Lawal et al., 2023). A majority of respondents hold secondary or tertiary qualifications (77.3%), suggesting a population with sufficient literacy to engage with written and digital information formats, though the 22.6% with primary or no formal education highlights the continuing need for audio-visual and peer-mediated information approaches. The predominance of medium-scale operators (60.4% with 100–500 birds) indicates that most respondents occupy the commercial smallholder segment of the poultry value chain a group with both the economic incentive to seek information and the vulnerability to disease and market shocks that makes timely information critically important.

Research question one: What are the information needs of poultry farmers in Delta State?

The first research question sought to identify the information needs of poultry farmers in Delta State. Respondents rated their need for 12 categories of farming information on a 4-point scale. Results are presented in Table 2.

Table 2: Information needs of poultry farmers in Delta State (N = 278)

Information needs	Mean	SD	Decision	Rank
Disease prevention and control	3.48	0.62	Needed	1st
Vaccination schedules	3.35	0.71	Needed	2nd
Feed formulation and nutrition	3.28	0.68	Needed	3rd
Market price information	3.15	0.74	Needed	4th
Biosecurity measures	3.08	0.79	Needed	5th
Credit and financial access	2.96	0.82	Needed	6th
Housing and equipment design	2.84	0.88	Needed	7th
Egg handling and storage	2.76	0.91	Needed	8th
Breeding and hatchery management	2.62	0.95	Needed	9th
Record keeping and farm accounts	2.45	0.97	Not Needed	10th
Government policy and regulations	2.38	1.02	Not Needed	11th
Climate and weather forecasts	2.21	1.05	Not Needed	12th

Note. Criterion mean = 2.50. Mean ≥ 2.50 = Needed; Mean < 2.50 = Not Needed. Items are ranked in descending order of mean score.

Table 2 reveals a clear and internally consistent pattern of information needs among poultry farmers in Delta State. Disease prevention and control (mean = 3.48) emerges as the highest-priority information need, followed closely by vaccination schedules (mean = 3.35) and feed formulation and nutrition (mean = 3.28). These three domains collectively constitute the technical core of poultry production management and their prioritisation reflects the acute vulnerability of poultry enterprises to health and nutritional setbacks. The devastating economic consequences of disease outbreaks which can eliminate an entire flock in a matter of days and generate significant financial losses for households make health-related information not merely desirable but urgent for farmers operating without adequate veterinary support systems.

These findings are highly consistent with Msoffe (2016), who identified disease management, feeding practices, and market information as the top-ranked information needs among poultry farmers in sub-Saharan Africa, and with Abubakar et al. (2022), who similarly documented that disease prevention and vaccination information were rated as very high priority needs by the overwhelming majority of commercial poultry farmers in their Nigerian sample. The alignment of these findings across geographically and culturally diverse contexts underscores the universal primacy of health and nutritional information for poultry farmers and validates the focus on these domains in the PFISBQ design.

Market price information (mean = 3.15) and biosecurity measures (mean = 3.08) also register as very high needs, confirming that Delta State poultry farmers are commercially oriented in their information priorities and aware of the market and biosecurity dimensions of profitability. Credit and financial access (mean = 2.96) and housing and equipment design (mean = 2.84) constitute secondary high-need clusters, while administrative and strategic information domains record keeping (mean = 2.45), government policy (mean = 2.38), and weather forecasts (mean = 2.21) fall below the criterion mean. This low prioritisation of administrative information is consistent with the profile of predominantly small-to-medium commercial operators who are focused on immediate production challenges rather than regulatory compliance or long-term strategic planning (Ali et al., 2025; Lawal et al., 2023).

Research question two: What are the sources of information available to poultry farmers in Delta State?

The second research question identified the information sources that Delta State poultry farmers most frequently consult. Respondents rated the frequency of use of 10 specified sources on a 4-point scale. Frequencies and mean are presented in Table 3.

Table 3: Information sources utilised by poultry farmers in Delta State (N = 278)

Information sources	Very Often (%)	Often (%)	Rarely (%)	Never (%)	Mean	Rank	Decision
Fellow farmers	38.1	47.1	10.8	4.0	3.19	1st	Often Used
Veterinary officers/assistants	32.4	39.6	18.3	9.7	2.95	2nd	Often Used
Agricultural extension agents	18.3	40.3	28.4	13.0	2.64	3rd	Often Used
Mobile phone calls/SMS	15.1	27.3	35.3	22.3	2.35	4th	Rarely Used

Information sources	Very Often (%)	Often (%)	Rarely (%)	Never (%)	Mean	Rank	Decision
Radio	12.6	24.5	38.1	24.8	2.25	5th	Rarely Used
Input dealers (feed/drug sellers)	8.6	26.3	35.3	29.8	2.14	6th	Rarely Used
Television	10.4	22.3	36.0	31.3	2.12	7th	Rarely Used
Social media (WhatsApp, Facebook)	9.0	18.7	32.0	40.3	1.96	8th	Rarely Used
Internet/Websites	5.4	12.2	28.8	53.6	1.70	9th	Rarely Used
Print materials (leaflets, bulletins)	4.3	10.8	25.5	59.4	1.60	10th	Rarely Used

Note. Criterion mean = 2.50. Mean ≥ 2.50 = Often Used; Mean < 2.50 = Rarely Used. Items are ranked in descending order of mean score.

The source utilisation data in Table 3 reveal a pronounced preference for informal interpersonal sources over formal institutional and digital channels. Fellow farmers rank as the most frequently consulted information source (mean = 3.19), with 85.2% of respondents using this source very often or often. This dominance of peer-to-peer information seeking is consistent with Wilson's (1999) model, which identifies social networks as the primary context within which agricultural information is transmitted, evaluated, and applied, and with the findings of Ali et al. (2025) and Msoffe (2016), who documented the primacy of fellow farmers as information sources across diverse agricultural contexts.

The high reliance on fellow farmers as an information source reflects multiple reinforcing factors documented in the literature: the perceived credibility and contextual relevance of information from peers who share the same farming environment; the absence of financial or logistical barriers to peer consultation; the embeddedness of information exchange within existing social relationships; and the ability of experiential peer knowledge to provide practical, actionable guidance that formal extension information often lacks (Lwoga et al., 2022; Munyua & Stilwell, 2019). However, peer-sourced information also carries the risk of propagating inaccurate or outdated practices a limitation acknowledged by Adebayo and Abdulazeez (2021), who found that misinformation about antibiotic dosages and vaccination schedules spread through WhatsApp groups among poultry farmers in South-South Nigeria.

Veterinary officers and assistants rank second (mean = 2.95), confirming their critical role as bridges between formal veterinary science and farm-level practice. Agricultural extension agents (mean = 2.64) rank third, but with a notably lower frequency of use only 58.6% of respondents using this source very often or often, compared to 85.2% for fellow farmers. This gap reflects the documented underfunding and understaffing of the agricultural extension system in Delta State (Onyemekihian, 2021), and confirms that formal extension is not yet a primary information channel for the majority of Delta State poultry farmers.

Digital information sources, mobile phone calls/SMS (mean = 2.35), social media (mean = 1.96), and internet/websites (mean =

1.70) all record below-criterion mean scores, indicating infrequent or rare use by the majority of respondents. Over half (53.6%) of respondents reported never using internet sources, and nearly 60% never using print materials. These findings are consistent with the infrastructural barriers documented in the constraints data (Table 4) and with Onyemekihian's (2021) finding that ICT-based extension channels remain largely inaccessible to Delta State farmers due to electricity deficits, high data costs, and limited digital literacy.

Research question three: What are the constraints to information seeking among poultry farmers in Delta State?

The third research question identified the constraints that impede effective information seeking among poultry farmers in Delta State. Respondents rated 11 potential barriers on a 4-point agreement scale. Results are presented in Table 4.

Table 4: Constraints faced by poultry farmers in seeking information in Delta State (N = 278)

Constraint	Mean	SD	Decision	Rank
Inadequate visits by extension agents	3.31	0.78	Agreed	1st
Poor electricity supply affecting ICT use	3.22	0.82	Agreed	2nd
High cost of accessing specialised information	3.08	0.89	Agreed	3rd
Long distance to extension offices	2.95	0.94	Agreed	4th
Lack of relevant materials in local languages	2.82	0.91	Agreed	5th
Low literacy limiting use of print/digital information	2.74	0.96	Agreed	6th
Unreliable internet connectivity	2.68	1.02	Agreed	7th
Lack of awareness about available information services	2.55	1.05	Agreed	8th
Poor timing of information (arrives too late)	2.48	1.01	Disagreed	9th
Unfriendly attitude of extension staff	2.18	0.98	Disagreed	10th
Lack of radio or television in the household	2.12	1.08	Disagreed	11th

Note. Criterion mean = 2.50. Mean ≥ 2.50 = Agreed (constraint present); Mean < 2.50 = Disagreed. Items are ranked in descending order of mean score.

Table 4 reveals that eight of the eleven examined constraints are rated as significant by Delta State poultry farmers, confirming the multi-dimensional nature of the barriers to information access in this context. Inadequate extension visits (mean = 3.31)

ranks as the most severe constraint, reflecting the documented underfunding and understaffing of the agricultural extension system in the state and the resulting inability of extension agents to maintain adequate contact frequency with farmers across dispersed rural communities (Onyemekihian, 2021; FAO, 2023). This finding is particularly significant because extension agents represent the most trusted formal information channel available to farmers, and their infrequent visits force reliance on the less reliable peer network as a substitute for validated technical information.

Poor electricity supply (mean = 3.22) ranks as the second most severe constraint, corroborating the literature on infrastructure barriers to agricultural information access in South-South Nigeria (Lawal et al., 2023; Chukwusa, 2022). The electricity deficit is particularly consequential because it constrains not only direct ICT-based information seeking (mobile phone charging, internet use, television viewing) but also the effectiveness of extension agents who rely on digital tools for record-keeping and information delivery. The high cost of accessing specialised information (mean = 3.08) encompassing laboratory diagnostic fees, veterinary consultation charges, and mobile data subscription costs constitutes the third most severe constraint, confirming Lawal et al.'s (2023) finding that economic barriers are a significant deterrent to formal information seeking among Nigerian smallholder farmers.

Geographic distance to extension offices (mean = 2.95), absence of local-language materials (mean = 2.82), low literacy (mean = 2.74), unreliable internet connectivity (mean = 2.68), and lack of awareness of available services (mean = 2.55) all record significant constraint ratings. The significance of the local-language barrier is particularly noteworthy in the Delta State context, given the linguistic diversity of the farming population across Urhobo, Isoko, Ika, Ijaw, and other dominant language groups a finding that reinforces the recommendation for multilingual information material development. Conversely, unfriendly extension staff attitudes (mean = 2.18) and lack of radio or television in the household (mean = 2.12) are not rated as significant constraints, suggesting that interpersonal relationship quality with extension workers is not a primary barrier and that broadcast media hardware is not a limiting factor only the content and relevance of broadcast programming constrains their utility as information channels.

Conclusion

This study examined the information seeking behaviour of poultry farmers in Delta State, Nigeria, with specific attention to their information needs, source preferences, and the constraints that impede effective information access. The findings present a coherent and internally consistent picture that both confirms and contextualises the patterns established in the comparative literature.

Poultry farmers in Delta State have clearly defined and production-oriented information priorities, centred on disease prevention, vaccination, feed management, biosecurity, and market intelligence domains in which timely and accurate information is directly linked to economic survival and farm profitability. Their information seeking behaviour, however, is predominantly informal, relying on the social capital embedded in peer networks and veterinary relationships rather than on the formal extension system or digital information infrastructure that, in theory, should be the primary channels for technically validated agricultural knowledge. This disconnect between information need intensity and formal source utilisation is not a reflection of farmer irrationality, but rather of a rational

adaptive response to a formal information delivery system that is inadequately resourced, geographically stretched, and insufficiently digitalised to meet the needs of a dispersed and diverse farming population.

The constraint profile further confirms that the barriers to information access in Delta State are primarily structural rooted in electricity deficits, extension system underfunding, and economic barriers to specialised information rather than individual. This distinction is critical for policy design: addressing information access gaps among Delta State poultry farmers requires systemic institutional and infrastructure investment, not merely awareness campaigns or literacy programmes directed at individual farmers. The findings provide a rigorous empirical foundation for the targeted recommendations presented in the following section.

Based on the findings and conclusion of this study, the following recommendations are directed to key stakeholders:

1. *Prioritise disease and nutrition information dissemination:* The Delta State Agricultural and Rural Development Authority (DARDA) and the Ministry of Agriculture should design and regularly update extension information packages that prioritise disease management, vaccination protocols, biosecurity practices, and feed formulation the domains identified as very high-priority information needs. These packages should be delivered through practical demonstrations, farmer field schools, and farmer group meetings rather than relying on print materials that many farmers cannot access or effectively use.
2. *Formalise and strengthen farmer-to-farmer extension networks:* Since fellow farmers are the dominant and most trusted information source, DARDA and non-governmental organisations should strategically invest in training lead farmers as community-level information brokers. Designated lead farmers should receive validated technical information on disease management, vaccination schedules, and biosecurity directly from extension agents and veterinary officers, and disseminate it within their communities. This approach leverages existing social trust and information flows while improving the technical quality of peer-mediated knowledge.
3. *Integrate veterinary services into systematic information delivery:* Given that veterinary officers rank as the second most trusted information source, the Delta State Ministry of Agriculture should enhance the veterinary service channel by equipping veterinary assistants with up-to-date diagnostic tools, visual aids, and mobile-based reporting and information sharing systems. Regular community-level veterinary outreach programmes should be institutionalised, particularly during high-risk disease seasons.
4. *Increase extension agent frequency and coverage:* The single most severe constraint identified is inadequate extension visits. DARDA should implement a structured extension visit scheduling system with verifiable visit logs, farmer feedback mechanisms, and performance incentives for extension agents. Recruitment of additional extension agents to reduce the farmer-to-agent ratio, particularly in rural LGAs such as Ndokwa and Isoko South, should be prioritised in the state's agricultural budget.

5. *Invest in rural ICT and electricity infrastructure:* The Delta State Government should collaborate with the Federal Ministry of Power and telecommunications providers to improve rural electrification and mobile network coverage in poultry-producing communities. Solar-powered community information centres equipped with smartphones, internet access, and agricultural information databases would provide a reliable platform for digital extension content delivery in areas with unreliable grid power.
6. *Develop multilingual and audio-visual information materials:* Agricultural information packages should be produced in Urhobo, Isoko, Ika, Ijaw, and other dominant languages of Delta State to eliminate the language barrier identified as a significant constraint. Audio-visual formats including voice messages, short video clips, and illustrated posters are particularly effective for farmers with lower literacy levels, and should be distributed through WhatsApp groups, community radio stations, and farmer cooperative meetings.
7. *Reduce economic barriers to information access:* DARDA and agricultural development partners should negotiate subsidised or free access to poultry management information resources for registered farmer groups, including free-to-air SMS-based market price alerts, toll-free veterinary helplines, and open access to digital extension platforms. Mechanisms for reimbursing farmers' transportation costs for extension office visits should also be explored, particularly for remote communities.

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