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The Use of Social Media by Agricultural Extension Officers in Sub-Saharan Africa for Information Dissemination: A Systematic Review

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ABSTRACT

Social media platforms play an important role as communication tools in agricultural extension, simplifying information dissemination and engagement with farmers. Studies worldwide have examined how social media platforms are used in agriculture and why their use remains low in Sub-Saharan Africa. This study aimed to review the literature on the use of social media by agricultural extension officers to disseminate information in Sub-Saharan Africa. A systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to achieve the study's objective. Databases such as Scopus, Web of Science, and Google Scholar were used to search for the literature. The researcher used search terms related to agricultural extension, social media, information dissemination, and Sub-Saharan Africa to streamline information. The study included peer-reviewed studies published between 2010 and 2026. After screening, only 30 studies met the inclusion criteria and were included in the review. The study showed that the majority of extension officers use WhatsApp and Facebook frequently due to their accessibility and ease of use. These platforms support the dissemination of agricultural information by extension officers to farmers. Furthermore, the results indicated that social media platforms enhance communication and knowledge sharing. However, challenges such as poor internet connectivity, high data costs, and limited digital literacy hinder the effective use of social media platforms. To enhance the use of social media and its integration into day-to-day extension work, there is a need to improve connectivity and digital infrastructure and to continuously encourage learning participation in digital learning.

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Introduction

Agricultural extension officers play an important role in communicating information and improving rural livelihoods. According to Bhat et al. (2024), agricultural extension officers facilitate the transfer of knowledge from researchers and industry experts to the farmers. Similarly, Khan et al. (2025) explain that extension officers serve as a link between research institutions and farming communities. Furthermore, Khan et al. (2025) and Mapiye et al. (2023) state that agricultural extension officers ensure that relevant and timely information reaches farmers in rural areas in an accessible manner. Effective information dissemination is very important to agricultural extension service delivery, as noted by Bhat et al. (2024) and Mapiye et al. (2023), enabling farmers to make informed decisions in their fields. However, traditional information dissemination methods remain widely used, largely relying on face-to-face interactions and linear communication models. These methods are constrained by limited resources, such as transportation and wide geographical coverage, which limit their efficiency.

The development of social media platforms has changed many agricultural extension systems, by introducing new tools and platforms for information dissemination (Choruma et al., 2024). Thomas and Laseinde (2015) noted that social media platforms such as WhatsApp, YouTube, and Facebook are important channels for disseminating agricultural information to farmers. Researchers have shown that these platforms enable instant interaction, learning, and greater reach of agricultural information for farmers in rural areas (Komodromos, 2021; Olaitan et al., 2020). The construction of network towers in rural areas has improved mobile connectivity and increased the adoption of digital tools (Mapiye et al., 2021). Several studies have shown that farmers and extension officers use social media to share farming practices and updates (Chepkirui, 2021). Despite these developments in agricultural communication, limited literature exists on how agricultural extension officers in this study use social media platforms for information dissemination in their day-to-day work (Nyarko & Kozári, 2021; Ramavhale, 2024). Recently, there have been many studies with empirical evidence on the use of social media platforms such as WhatsApp and Facebook in agricultural extension (Ilori et al., 2025) and the extent of their use (Matassi and Boczkowski, 2023). Similarly, Coggins et al. (2022) highlighted that social media is used for informal communication. On the other hand, Akintunde (2023) suggested that social media platforms are used for peer-to-peer interactions rather than for the formal information dissemination to the farmers. Ramavhale (2024) further suggested that while extension officers recognize the potential of social media for communicating with farmers, its professional use in extension work remains uneven.

Most of the available literature focuses on different countries and types of platforms used by farmers. This limits the generalization of findings across Sub-Saharan Africa (Coggins et al., 2022; Mapiye et al., 2021). Olaitan et al. (2020) emphasize the effectiveness of social media platforms in disseminating agricultural information to farmers. Matassi and Boczkowski (2023) highlight ongoing challenges farmers face when using social media, such as limited digital literacy and high data costs. These findings provide the basis for a systematic review that combines these insights into a comprehensive body of knowledge. Therefore, this study aims to systematically review the use of social media by agricultural extension officers in Sub-Saharan Africa to disseminate agricultural information.

Methodology

Study Design

This study used a systematic review approach to synthesize scientific papers on the use of social media for information dissemination by agricultural extension officers in Sub-Saharan Africa. The review was conducted in accordance with the PRISMA guidelines to ensure transparency, rigor, and reproducibility in the identification and screening of relevant studies.

Search Strategy

A literature search was conducted across multiple academic databases such as Scopus, Web of Science (WOS), and Google Scholar. These databases were selected for their coverage of peer-reviewed literature on agricultural extension, information and communication technologies (ICTs), and rural development.

The literature search was conducted using search terms and Boolean operators to select relevant studies. The search strings included the following term: “agricultural extension” OR “extension officers” OR “extension workers” OR “rural advisory services” AND “social media” OR Facebook OR WhatsApp OR YouTube OR “digital platforms” AND “information dissemination” OR “knowledge sharing” OR communication AND “Sub-Saharan Africa” OR Africa. The search was restricted to studies published between 2010 and 2026 to document trends in the development of digital agricultural extension.

Inclusion and Exclusion Criteria

To ensure the study's relevance and quality, the studies were selected based on predefined inclusion and exclusion criteria.

Table 1. Inclusion and Exclusion Criteria.

Inclusion Criteria	Exclusion Criteria
Peer-reviewed journal articles	Conference abstracts and opinion pieces,
Studies focusing on agricultural extension services.	Studies not focused on agricultural extension services.
Studies about the use of social media and digital platforms for extension services.	Studies that focused only on farmers, without any link to extension officers.
Studies conducted in Sub-Saharan Africa	Studies out of Africa.
Articles published in English between 2010 and 2026	Articles published before 2010.

Study Selection

The study selection process followed a multi-stage screening process in line with PRISMA guidelines. Initially, all records obtained from the databases were downloaded and compiled into one database. Duplicates were removed before screening. Next, titles and abstracts were screened to select relevant studies. In the second stage of screening, full-text articles were assessed for eligibility against the inclusion and exclusion criteria outlined in Table 1 above. Only studies that met the inclusion criteria were included in the final review for synthesis. The study selection process is summarized in the PRISMA flow diagram below.

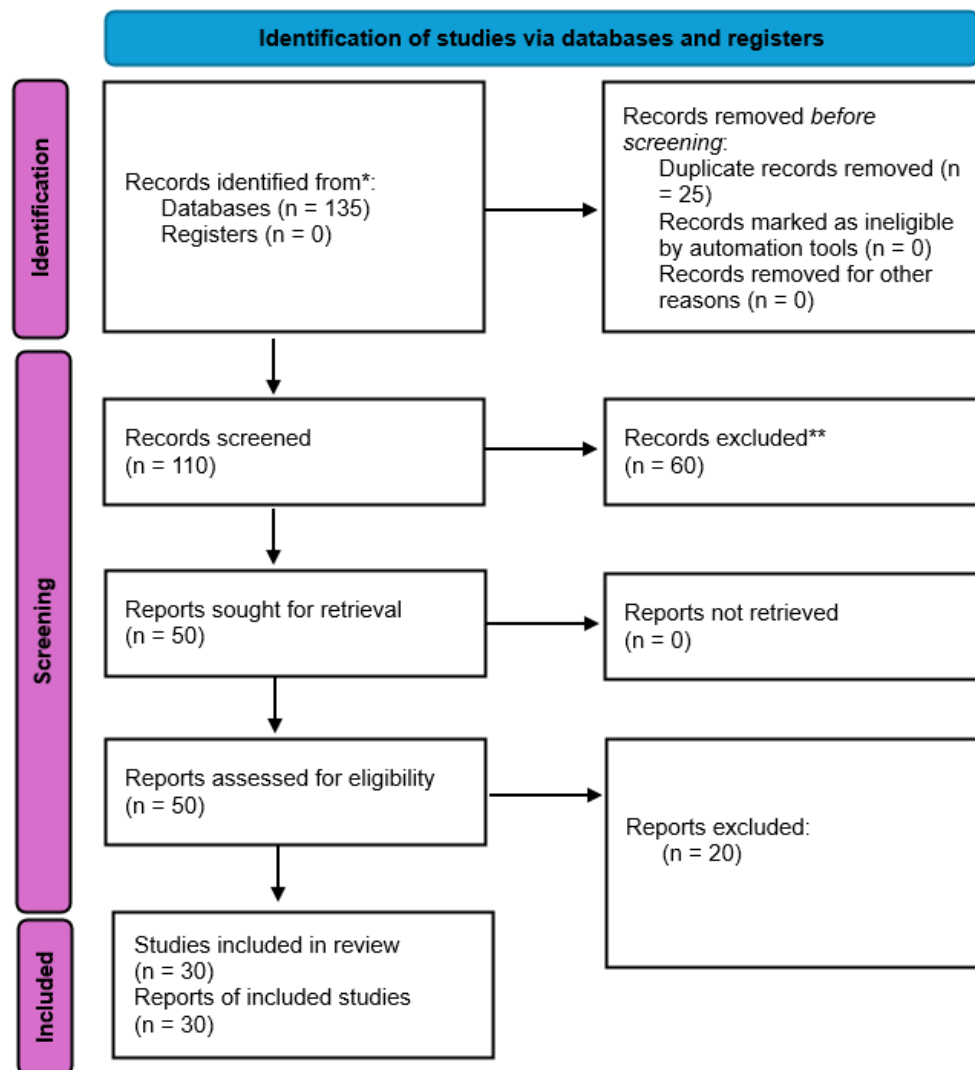


Figure 1. PRISMA 2020 flow diagram adapted for selecting relevant studies.

Source: Author's own adaptation using the PRISMA 2020 template.

The literature search identified 135 records from database searches. After removing 25 duplicate records, 110 records remained for title and abstract screening. After screening, 50 full text articles were found to be eligible. Out of these 50, only 20 articles were excluded from the review in line with the inclusion and exclusion criteria. This resulted in 30 studies that were included in the final review.

Data Analysis

The compiled data were analyzed using thematic analysis. The studies were grouped into key themes as follows: social media platforms used by extension officers; the importance of social media for extension officers; the types of information shared by extension officers; challenges of using social media platforms by extension officers; and adoption factors influencing the use of social media.

Results

Social Media Platforms Used by Extension Officers

Social media platforms are an important component of digital agricultural information dissemination in agricultural extension across Sub-Saharan Africa. This section presents the social media platforms used by extension officers to disseminate information. The studies reviewed indicated that agricultural extension officers relied on a small number of social media platforms for information dissemination. WhatsApp consistently emerged as the most frequently used platform for communication. Oladele and Olaniyi (2025) found that WhatsApp was the preferred platform among extension officers due to its ease of use. Similarly, Onwuaroh et al. (2024) reported that the WhatsApp platform facilitated group communication between extension officers and farmers. Olaojo et al. (2021) further observed that WhatsApp supported interactive group communication and knowledge sharing in farming communities.

Compared with WhatsApp, Facebook is also used by extension officers and farmers to disseminate agricultural information. According to Iwuchukwu et al. (2019), the Facebook platform is used for disseminating agricultural information to a larger audience. Thomas and Laseinde (2015) noted that Facebook enables the creation of online forums that promote interaction among agricultural stakeholders across different regions. Likewise, Olaitan et al. (2020) identified Facebook as one of the most widely used social media platforms for disseminating agricultural information. YouTube has also emerged as a tool for disseminating agricultural information. Chepkirui (2021) reported that YouTube is widely used to disseminate instructional agricultural videos and farmer success stories. Similarly, Onwuaroh et al. (2024) identified YouTube as a useful social media platform for demonstrating step-by-step farming practices. Olaojo et al. (2021) stated that it is an important platform for virtual training of farmers on farming skills. Although other platforms such as Twitter, Instagram, and TikTok are used in agricultural extension services, their use remains relatively low.

These findings also indicate varied platform usage across different contexts, although the dominance of WhatsApp and Facebook remains consistent. Onwuaroh et al. (2024), Oladele and Olaniyi (2025), and Olaojo et al. (2021) reported high levels of WhatsApp use among extension officers across various contexts, often exceeding that of other social media platforms. In contrast, platforms such as Twitter, Google+, and other less frequently used social media platforms demonstrated relatively low adoption and relevance in routine extension services (Olaitan et al., 2020).

The Importance of Social Media Platforms for Extension Officers

Social media platforms play an important role in enhancing the effectiveness of agricultural extension service delivery in Sub-Saharan Africa. This section discusses the importance of these platforms in improving communication and information dissemination. Barau and Afrad (2017) found that these platforms improve the speed of information exchange between extension officers and farmers. Similarly, Ilori et al. (2025) reported that social media enhances communication efficiency between extension officers and farmers. Shanmuka et al. (2022) highlighted the role of social media platforms in facilitating interaction and feedback among extension officers and farmers. Social media platforms also improve access to agricultural information by overcoming geographical barriers. Ifejika et al. (2019) and Eduafo et al. (2024) observed that social media platforms improve the reach of extension services beyond conventional face-to-face interactions and expand service coverage. Meena et al. (2013) emphasized the potential of social media platforms to compensate for shortages of extension officers across different regions. These benefits position social media as a critical tool for disseminating agricultural information within modern extension services.

Furthermore, social media platforms contribute to knowledge sharing, collaboration, and networking among extension officers. Studies highlighted that these social media platforms facilitate learning, networking, and the coordination of extension activities (Babasanya et al., 2021; Kamruzzaman et al., 2018; Munthali et al., 2021). Madonna et al. (2023) found that social media platforms enable extension officers to engage effectively with farmers. Likewise, Lakshmi and Babu (2018) reported that these platforms promote collaborative knowledge exchange within agricultural innovation systems and extension services.

In addition, the importance of social media is reflected in its ability to improve the efficiency and effectiveness of extension service delivery. Social media platforms reduce communication and travel costs when used as alternatives to traditional methods (Iwuchukwu et al., 2019; Olaitan et al., 2020; Paudel, 2018). Udoeye and Madukwe (2025) and Sari et al. (2022) observed that social media facilitates real-time communication between extension officers and farmers and supports timely feedback, thereby improving the responsiveness of advisory services.

Challenges of Social Media Use by Extension Officers

Despite the growing use of social media in agricultural extension, several challenges impede its effective utilization by extension officers in Sub-Saharan Africa. This section outlines the key challenges that limit extension officers' use of social media platforms for disseminating agricultural information. The findings in this study suggest that infrastructural limitations remain among the key challenges affecting the use of social media in agricultural extension. Ramavhale et al. (2024) and Eduafo et al. (2024) further suggested that poor internet connectivity and high data costs in rural areas hinder the use of social media platforms for disseminating agricultural information. Nkoana and Zwane (2026) additionally highlighted unreliable network coverage as a potential barrier to effective communication with farmers in rural areas. These constraints are particularly found in remote farming communities with poor digital infrastructure, which may limit communication between extension officers and farmers.

Another key challenge relates to limited digital literacy among extension officers and farmers. Evidence from the literature suggests that many extension personnel lack the technical skills required to use social media platforms for professional purposes. Iwuchukwu et al. (2019) reported that limited digital literacy can constrain extension officers' use of social media platforms. Kamruzzaman et al. (2018) further observed that deficiencies in digital skills may reduce the effectiveness of extension officers' dissemination of agricultural information. Similarly, farmers' limited knowledge of digital tools can restrict their ability to access information shared by extension officers on social media platforms. The absence of structured training programs and capacity-building activities may further worsen these existing challenges and limit the integration of social media platforms into routine extension services.

Institutional barriers across Sub-Saharan Africa can also affect the integration of social media into agricultural extension services. Ifejika et al. (2019) reported that the absence of formal policies on the use of social media platforms in extension services limits their structured use. Babasanya et al. (2021) highlighted that inadequate institutional support can constrain the effective implementation of social media use by extension officers, while Munthali et al. (2021) observed that the lack of operational guidelines for social media platforms may result in inconsistent and informal use. In many agricultural institutions, social media platforms are not yet formally recognized as part of daily extension officers' daily working tools.

The open nature of social media platforms may increase the risk of misinformation and unverified content from different sources. Munthali et al. (2018) warned that inaccurate agricultural information disseminated to farmers can easily circulate through digital platforms and cause confusion. Similarly, Das (2021) expressed concerns regarding the credibility of online agricultural content disseminated to farmers, while Sari et al. (2022) concurred that misinformation may negatively influence their decision-making. Without formal guidelines for social media use, extension officers may also face challenges in ensuring the accuracy of information shared in online groups.

The Type of Information Shared by Extension Officers on Social Media Platforms

Agricultural extension officers use social media platforms to communicate diverse types of information to farmers that support their productivity. Studies show that extension officers disseminate agricultural information to farmers through social media platforms. Paudel (2018) reported that extension officers commonly share information on improved farming practices on social media platforms. Similarly, Iwuchukwu et al. (2019) identified ordinary advisory information related to agricultural production as one of the most widely shared content online to keep farmers productive. Alam and Basu (2022) and Munthali et al. (2021) further highlighted the information dissemination on soil suitability, crop management practices, pest alerts, and disease identification to support timely updates for farmers. Ghosh et al. (2021) found that extension officers use social media platforms to disseminate agricultural innovations from researchers and stakeholders. Similarly, Tom Phillips et al. (2021) reported that these social media platforms may facilitate the delivery of advisory services to farmers.

In addition to technical agricultural information shared on social media platforms, extension officers also share market-related information in real time to enhance farmers' access to data. Iwuchukwu et al. (2019) reported that extension officers frequently share agricultural information on market prices through social media platforms. Likewise, Ramavhale (2024) found that access to market information through social media may support informed marketing decisions among farmers. Sahoo et al. (2024) and Singh et al. (2023) observed that social media facilitates the dissemination of weather-related information and environmental updates to farming communities. This type of agricultural information can contribute to improved productivity and profitability among farmers. Ametepey et al. (2025) found that extension officers use social media platforms to broadcast upcoming training programmes and extension activities. Similarly, Wallace II et al. (2025) reported that social media platforms can increase outreach and encourage farmers' participation in development initiatives. Furthermore, Kamruzzaman et al. (2018) highlighted social media platforms as important tools in promoting agricultural programmes and new technologies. Munthali et al. (2018) also observed that social media platforms can support the coordination of extension activities and communication with farmers. The findings reveal that social media supports the sharing of interactive multimedia content that enhances engagement. Phillips et al. (2021) and Mills et al. (2019) reported that when extension officers use social media, they share photos, videos, and audiovisual content that improves farmers' understanding of agricultural practices. These platforms also enable informal communication and discussions between farmers and extension officers.

Adoption Factors Influencing Extension Officers' Use of Social Media Platforms

Social media adoption by agricultural extension officers is influenced by a series of factors. Kamruzzaman et al. (2018) stated that extension officers are likely to adopt social media platforms when they show potential of enhancing their job performance. Similarly, Suchiradipta and Raj (2018) reported that the ease of use of social media can positively influence technology acceptance among extension officers. Ganpat et al. (2016) further confirmed that positive perceptions and attitudes toward social media platforms increase the likelihood of their adoption by extension officers. Tham-Agyekum et al. (2023) found that prior exposure to social media increases confidence in using these platforms for professional purposes. Asanwana and Uloh (2025) showed that the level of education of extension officers can influence their likelihood of adopting social media platforms for work. Ramavhale (2024) further reported that demographic characteristics such as age, marital status, and employment status shape patterns of social media use among extension officers. Shanmuka et al. (2022) reported that creative extension officers are more likely to participate on social media platforms. Similarly, Lakshmi and Babu (2018) found that information-seeking behaviour may positively influence the use of digital social media platforms. Institutional support and access to workplace infrastructure can play an important role in facilitating the adoption of social media. Fadipe et al. (2024) identified internet connectivity and digital infrastructure as key enablers of social media use. Similarly, Alotaibi (2018) reported that access to internet-

enabled devices supports technology adoption. Drewry et al. (2022) further highlighted the importance of organizational support in promoting the effective use of digital communication tools. Conversely, Ametepey et al., (2025) found that the absence of institutional policies limits the integration of social media into extension programs. Furthermore, Suchiradipta and Raj (2018) reported that inadequate training opportunities and a lack of incentives discourage adoption among extension personnel. Additionally, workload pressures and time constraints have been identified as barriers that negatively affect extension 2010officers' willingness to engage with social media platforms for professional purposes (Shanmuka et al., 2022).

Furthermore, contextual and behavioral factors, including perceived benefits and constraints, play a crucial role in influencing adoption decisions. Perceived benefits also influence adoption decisions among extension officers. Fadipe et al. (2024) found that improved access to agricultural information motivates the use of social media platforms. Similarly, Babasanya et al. (2021) reported that enhanced collaboration and broader communication reach encourage greater engagement with digital technologies.

Discussion

The findings of this study highlighted the growing importance of social media platforms as tools for agricultural extension services in Sub-Saharan Africa. The study also revealed key usage patterns, platform benefits, and limitations associated with their use. The results further demonstrated a strong linkage across studies on the role of social media platforms in agricultural information dissemination. The findings across multiple countries suggest that social media platforms have existed for a considerable time and are no longer emerging communication tools but rather established platforms for modern extension services. WhatsApp and Facebook have shown consistent dominance in digital communication across developing countries in Africa. These platforms have become central to digital information exchange and, by extension, to service delivery by extension officers in rural areas. The widespread adoption of these platforms suggests that extension officers may use technologies that align with their farmers' existing communication patterns and are easy to use. Furthermore, the growing use of YouTube for extension training and the dissemination of farming techniques suggests a shift from text-based information to visual aids for farmers.

Social media platforms are important for extension services because they reinforce the view that extension services are a communication process and benefit from timely, cost-effective information dissemination. Social media platforms enable extension officers to overcome workplace challenges, such as limited human capacity and geographical barriers. In addition, these social media platforms facilitate two-way communication that allows extension officers and farmers to receive feedback from each. This type of transition is consistent with contemporary extension methods that encourage farmer participation and feedback for continuous engagement.

The diverse information shared through social media platforms shows the multifunctional nature of digital extension platforms. Extension officers share a wide range of agricultural content online with the farmers. This diversified content reflects the shift in the role of extension officers from traditional information providers to knowledge brokers who facilitate learning. The use of multimedia content online, such as videos and images, by extension officers may enhance the effectiveness of communication to farmers. Extension officers face several challenges when using social media platforms, including poor internet connectivity, high data costs, and limited access to mobile devices, particularly in rural areas. In addition, limited digital literacy among both extension officers and farmers undermines the effectiveness of social media platforms as tools for disseminating agricultural information. Other challenges, such as the absence of clear policies on the use of social media platforms for work purposes and organizational support, delay the integration of these platforms into formal extension services. There are still concerns about misinformation and the credibility of content shared on social media by both extension officers and farmers.

The adoption of social media by extension officers is likely influenced by a complex interaction of technological and organizational factors. The perceived usefulness and ease of use align closely with the Technology Acceptance Model (TAM), which posits that individuals are more likely to adopt technologies they perceive as beneficial and easy to operate. This suggests that the successful integration of social media platforms into extension services depends on extension officers' perceptions of their value.

Conclusion

This systematic review confirmed that extension officers in Sub-Saharan Africa use social media to disseminate agricultural information. WhatsApp and Facebook were the most widely used platforms because they are accessible, easy to use, and support real-time communication. Extension officers use these platforms to share agricultural information with farmers, including market information, video training materials, weather updates, and online advisory services. The review showed that social media platforms can enhance communication between extension officers and farmers. Furthermore, these platforms increase the reach of extension services to farmers and improve access to timely agricultural information. However, challenges such as poor internet connectivity, high data costs, and limited digital literacy continue to hinder the effective use of social media platforms for disseminating agricultural information. The adoption of social media platforms is influenced by perceived usefulness and their perceived ease of use. To strengthen digital agricultural extension advisory services, there is a need to invest in digital infrastructure, build digital skills centres for learning, and develop supportive policies that enhance the professional use of social media platforms in agricultural extension.

Competing Interest

The author declares no conflict of interest.

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