

Use Of Social Media In Agriculture: Nex-Gen Extension Strategies To Bridge The Gap Between Research And Farmers

Dr. B. Srishailam, Assistant Professor, Agricultural Extension Specialist
Corresponding Author : sribathini15@gmail.com

Manuscript No: KN-V2-02/006

Global agriculture has witnessed a paradigm shift in the past few decades and extension mechanism need to stay ahead and equip the farmers. Extension should makeshift efforts by developing farmers' management and decision-making skills to help rural people develop leadership and organizational skills, sensitize participation in cooperative credit societies and other support organizations. But the ground reality is hard-hitting with only one extension worker available for every 1162 farmers in India (Doubling Farmer Income Report, 2017). A recent survey reported that only 41 per cent of the farm households received any assistance from either government or private extension services, and the government extension machinery covering only 11 per cent of the households who received extension assistance (Bera, 2014). As an aftereffect of globalization, agriculture needed to change rapidly to keep pace with the global economy but infrastructural issues, low productivity, poor extension coverage, and low-quality manpower became major challenges which still persist. In a world where information drives the change, extension needs to be adept with latest digital media to influence and facilitate farmers.

Key uses and prospects of social media in Indian agriculture:

- 1. Information Sharing:** Farmers can use social media platforms like Facebook (Indianfarmer official), Twitter (@Icarindia, @Agri GoI), Instagram (@Indianfarmer) and Whatsapp to share and receive information about weather conditions, crop diseases, pest control, and best farming practices. Social media platforms can be used to disseminate information about new farming techniques, crop varieties, and best practices. Government agencies and agricultural institutions can share updates on subsidies, weather forecasts, market information and disease outbreaks, helping farmers make informed decisions. This information exchange helps in making informed decisions and improving agricultural productivity.
- 2. Market Access:** Social media provides a platform for farmers to connect with potential buyers, wholesalers, and retailers. Farmers can advertise their produce, negotiate prices, and find market opportunities, reducing the need for intermediaries and increasing their profit margins and stay informed about price trends. Platforms like Facebook, Instagram, and WhatsApp are commonly used for these purposes.
- 3. Agricultural Extension:** Government agencies and agricultural organizations can use social media to disseminate knowledge and information to farmers. They can provide guidance on crop cultivation, livestock management, and the use of modern agricultural technologies, soil health, pest control, weather forecast and crop management. Government agencies and NGOs can use social media for agricultural extension services. They can offer advice and guidance on various aspects of farming.
- 4. Farmer-to-Farmer Networking:** Social media platforms enable farmers to connect with one another, share experiences, and learn from each other. Online forums (e.g. Krishi jagran, digital green), groups, and communities (e.g. kisan sabha) dedicated to agriculture facilitate peer learning and collaboration and provide support. Online farmer communities and forums can be established to discuss challenges and find solutions collaboratively.
- 5. Skill Development:** Online tutorials, webinars, and training programs on social media can help farmers acquire new skills, stay updated on the latest agricultural trends, and learn about emerging technologies (e.g. Agriculture Skill Council of India ASCI-India).
- 6. Weather Updates and Climate Information:** Social media can serve as a valuable source of real-time weather information, helping farmers prepare for extreme weather events and make timely decisions about

irrigation and crop protection. Farmers can receive updates on rainfall patterns, drought alerts, and other weather-related data to plan their farming activities accordingly (e.g. Meghdoot, Skymet weather, AP Weatherman).

7. Pest and Disease Management: Farmers can share images and information about crop diseases and pests on social media platforms to seek advice from experts and other farmers. This can lead to quicker responses and effective solutions. Crop monitoring with remote sensing and satellite technology data can be shared through social media to help farmers monitor their crops. This information can be critical for early detection of pests, diseases, and crop stress (e.g. ICAR AI DISC, TraceX)

8. Farmer Advocacy: It can serve as a platform for advocating for policy changes and raising awareness about issues affecting the agricultural sector (e.g. AESA, IFPRI, CSA).

9. Agri-Entrepreneurship and Agri-Startups: Social media can help aspiring entrepreneurs in agriculture showcase their products and services, connect with potential investors, and reach a wider audience, fostering the growth of agri-startups (e.g. MANAGE Centre for Innovation and Agripreneurship (CIA), NAARM- aIDEA).

10. Supply Chain Management: Agribusinesses can use social media for supply chain management. They can coordinate with farmers, distributors, and retailers more efficiently, reducing wastage and ensuring the availability of agricultural products. E.g. Crofarm is a social media-driven agritech startup that aims to reduce agricultural waste by optimizing supply chain networks.

11. Farmer Education: Many farmers in India have limited access to formal education and agricultural training. Social media can be used to create and share educational content, including videos, articles, and tutorials, to improve the knowledge and skills of farmers. Social media can be used to educate farmers about sustainable and organic farming practices, building awareness about the importance of supporting local agriculture and consuming healthier, locally-sourced products (E.g. Digital green).

12. Market Intelligence: Farmers and agribusinesses can use social media to gather market intelligence, stay updated on price trends, and make informed decisions about what crops or products to produce. (e.g. e-NAM)

13. Policy Advocacy: Social media can be a powerful tool for advocating for farmer-friendly policies, subsidies, and support measures from the government. Farmers and agricultural organizations can use social media to raise awareness about policy issues, advocate for their rights, and connect with policymakers to influence agricultural policies in their favour. (e.g. IFPRI, AESA, ICAR-NIAP)

14. Research Collaboration: Researchers and agricultural experts can collaborate more effectively through social media platforms. They can share their findings, engage in discussions, and crowdsource information, leading to better and more sustainable agricultural practices (e.g. Research gate, LinkedIn)

15. Promotion of Agri-Tourism: Farmers and agri-entrepreneurs can use social media to promote agri-tourism, attracting tourists to their farms for educational and recreational purposes, which can create additional income streams.

16. Rural Development: Social media can contribute to the overall development of rural areas. It can help connect rural communities to urban markets, businesses, and educational opportunities, reducing the urban-rural divide.

While there are numerous prospects for the use of social media in Indian agriculture. In Telangana, social media has the potential to transform agriculture by improving access to information, markets, and support systems. To fully harness these prospects, it's crucial to address challenges such as digital literacy, internet access, and data security while actively promoting the adoption of digital tools among farmers and other stakeholders in the agricultural ecosystem. Leveraging social media and other digital technologies for next-generation agricultural extension is crucial for bridging the gap between farmers and the research system.

□ Various social media platforms can be used in the context of agriculture

1. Facebook: Facebook is a versatile platform used by farmers, agricultural organizations, and

- agribusinesses for networking, sharing updates, and creating agricultural communities. It's an effective tool for disseminating information, organizing events, and connecting with a wide audience.
2. **Twitter:** Twitter is useful for real-time updates and sharing short, concise messages. It's often used for quick dissemination of information, market updates, and connecting with industry experts and organizations.
 3. **WhatsApp:** WhatsApp is widely used for group messaging and one-on-one communication. Farmers often form WhatsApp groups to discuss agricultural topics, share information, and receive weather updates.
 4. **YouTube:** YouTube is an excellent platform for sharing educational videos and tutorials on various agricultural practices, from crop cultivation to livestock management. It's a valuable resource for visual learning.
 5. **Instagram:** Instagram is ideal for sharing visually appealing content, making it well-suited for showcasing farm life, agricultural products, and agri-tourism. It's a platform for engaging with a younger and more visually-oriented audience.
 6. **LinkedIn:** LinkedIn is used by professionals in the agricultural industry, including agronomists, researchers, and agribusiness leaders. It's valuable for networking, sharing research findings, and job opportunities in agriculture.
 7. **Pinterest:** Pinterest is another visual platform that can be useful for farmers and gardeners to discover and save ideas related to agriculture, such as landscaping, gardening, and farm design.
 8. **Telegram:** Telegram is similar to WhatsApp and is often used to create groups and channels for sharing agricultural information and facilitating discussions among farmers.
 9. **Agricool:** This is a specialized social media platform designed specifically for the agricultural community. It provides features tailored to farmers, including options for sharing crop and livestock information, organizing events, and more.
 10. **eKisaan:** eKisaan is an Indian app that provides farmers with market information, weather forecasts, and a platform for buying and selling agricultural products.
 11. **Krishi Jagran:** Krishi Jagran is a prominent agricultural news portal in India that also has a strong presence on social media. It offers updates on agricultural news, technologies, and practices.
 12. **Farmers' Forums and Blogs:** Numerous online forums and blogs are dedicated to agriculture, where farmers and experts discuss various topics and share their experiences.
 13. **Other Niche Platforms:** Depending on specific needs, there are niche social media platforms related to specific aspects of agriculture. For example, platforms focused on aquaculture, horticulture, or livestock farming.

Type of platform	Examples	Description
Social networking sites	Facebook +Google	Mostly used for creating personal profiles and networks with friends, colleagues and peers. They are the most popular form of social media platform and have the highest reach, mainly because of the personal reach.
Blogs and vlogs	Blogger Word press	Earliest form of social media. They are mostly personal weblogs but are increasingly being used by corporate houses to reach their clients. Media richness is high in blogs but not so much in vlogs.

Micro-blogs	,Twitter Instagram	Similar to blogs with character restriction (140 forTwitter)andallow users to create and share content.Media richness is high as in blogs. Use of hashtags(#) for highlighting content, mostly used in micro blogshelps in indexing of content and makes them easily-searchable by other users.
Collaborativeprojects	Wikis	Joint and simultaneous content creation by, users.Media richness is generally low but they can become the main source of information for users due to mere diversity and broad base coverage.
Socialbookmarking	,Delicious Blinklist	Group based collection, rating and sharing of internet link sand-media content. Low media richness.
Virtualsocialworld	Secondlife	Users are generally in their 3D avatars and interact in a virtual environment. These platforms give users the unlimited scope for self-presentation strategies. Users can also create contenton line and give opportunities to corporate houses for virtual advertisement commerce and marketing research.
Socialgaming	,WorldofWarcraft Farmbook	Similar to virtual social worlds, with high socialpresence and media richness. The users can interact with each other though the scope of self-presentation and self-disclosure is somewhat-limited.They can also beleve raged by corporate houses for communication campaigns and reach millions of users
Contentcommunities	,Video(YouTube (Vimeo, Vine	Mostly formed to share specific type of content easily amongst many users. Media richness is high for specific content. They are easy means to reach global user base in an interesting way.
	,Photo(Instagram ,Flickr (Tumbler	
	Audio(Sound- ,cloud (Podcasts	
	MSOfficed- ,ocs,PDF (PPT(Slideshare	
,Forums Discussion- boardsand- groups	Google hang- ,out Blackboard,- Discussion groups (Dgroups)	Content creation and sharing among users with specific interest so ractivities is easier. Media richness is medium as all platforms do not support various formats of content.

Socially integrated Messaging platforms	Whatsapp, Face-bookmessenger Snapchat	Highly popular due to group messaging options and high media richness. Users can create and share any form of content in groups or to individuals.
Professional-networking	ResearchGate, Academia.edu LinkedIn	Specifically for professional networking, these platforms increase the scope for scientific discussions among peers and experts in specific fields. Increased networking among professionals increase the scope of research find in gst obedisseminated amongst wider audience.
Socialnews	,Reddit ,Propeller Digg	News item sharing platforms where users can comment on the posts. The news items and comments can be ranked based on popularity. Media richness is high and can be very useful for keeping up with recent happenings and web trends.

The choice of social media platform depends on the specific goals and target audience of the individual or organization involved in agriculture. Many agricultural stakeholders use a combination of these platforms to reach a wider and more diverse audience and to meet various communication needs.

Why use social media in Agriculture?

The special features of participation, openness, conversation, community and connectedness makes social media a unique user experience (Mayfield, 2008). Facebook has 385.7 million active users in India, YouTube gets more than 450 million unique users each month, X (twitter) has 27.3 million users, Whatsapp has 487 million users in India and the highest monthly active users in the world (statista.com, 2023). All these statistics prove the huge potential that social media can be for extension practitioners to reach out to the people. India is a huge market for social media that is constantly expanding into the rural areas and that improves the scope of reaching not only the farmers but the farm families and youth altogether for higher impact.

Social media can be advantageously used in agricultural extension, as discussed below (Saravanan et al., 2015):

- Highly cost effective
- Simultaneously reaches large numbers of clients
- Location and client specific, problem-oriented
- User-generated content and discussion among the community members
- Easily accessed from mobile phones
- Increases internet presence of extension organizations and their client reach
- Democratization of information by making it accessible to all
- Brings all stakeholders into a single platform
- Can measure reach and success by tracking number of visitors, friends, followers, mentions, Facebook 'likes', conversation index and number of shares

These potentials make social media a highly relevant and beneficial platform for extension personnel to engage with their clients and peers. Lack of connectedness with farmers has long been cited as serious lacunae of extension services and social media gives ample opportunities to solve this issue. There are definitely shortcomings at personal (lack of interest in social media, negative attitude, or organizational restrictions), infrastructural (lack of internet connectivity for target clients or the extension personnel), and policy level (organizational policies that restrict use of social media for official purposes) that hinder the use of social media. With the challenges like limited availability of ICTs and internet facilities in rural areas, their suitability

to only educated and online clientele, lack of awareness and readiness to accept social media by some farmers and extension professionals, breach of individual privacy, piracy of the materials and irrelevant information, the success of social media depends on commitment level of extension workers and community members in using social media for extension. (Saravanan et al., 2015). But in spite of these problems, social media are becoming popular among rural people.

Strategies to enhance the use of social media in agriculture extension:

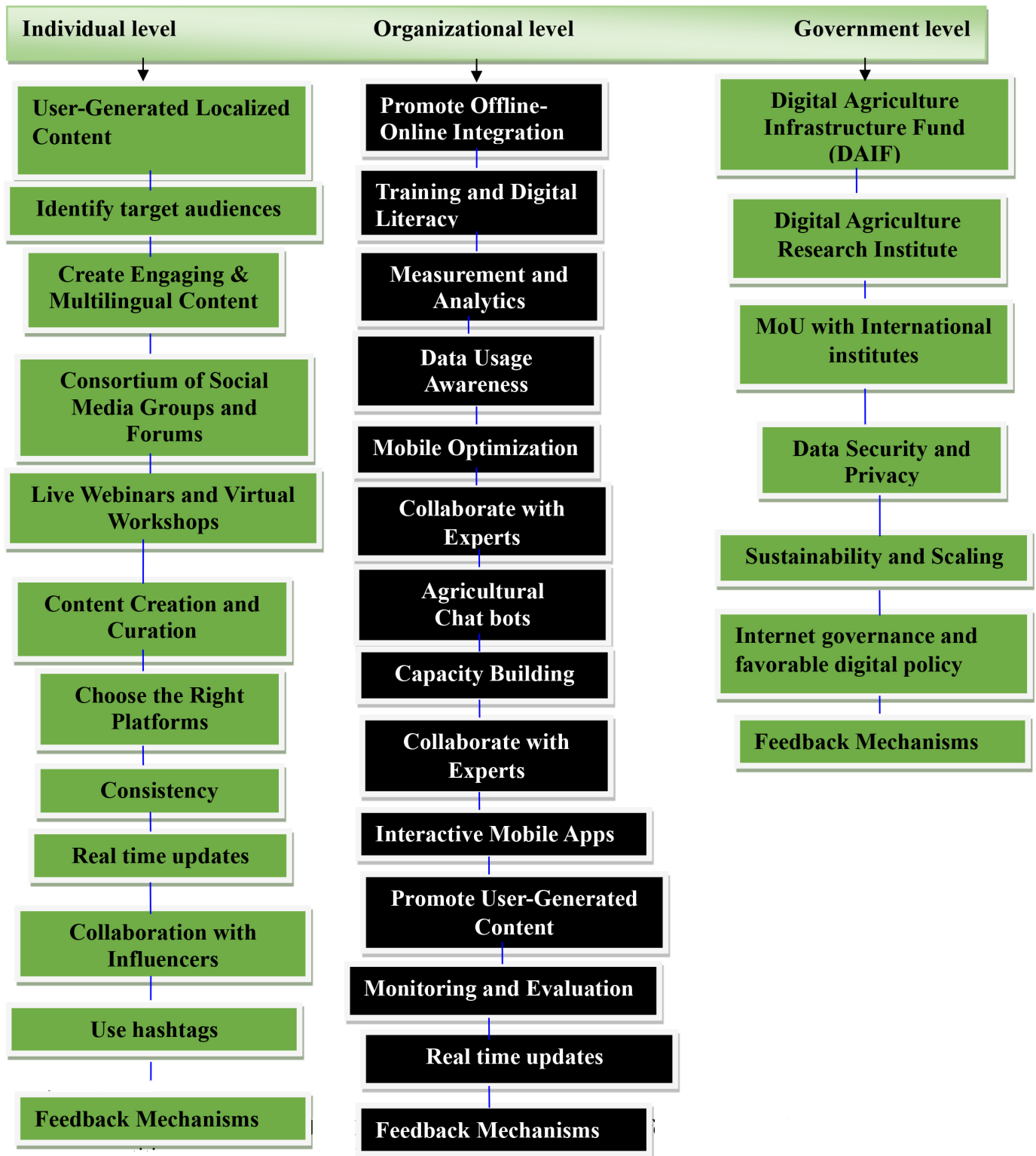
1. **Digital Agriculture Infrastructure Fund (DAIF):** creating specialised DAIF fund to offer long term financial assistance for building digital agriculture infrastructure facilities will solve the issues & challenges faced in Agriculture sector. This will enable inclusive, farmer-centric solutions through relevant digital information services for crop planning and health, digital solutions for pest and disease management, improved access to farm inputs, credit and insurance, help for crop yield estimation, market intelligence, weather forecast and support for growth of Agri Techs industry and start-ups.
2. **Create Engaging Content:** Develop and share informative, visually appealing, and engaging content on various social media platforms. This content can include videos, infographics, articles, and live demonstrations. Tailor the content to the specific needs and preferences of the target audience.
3. **Multi-lingual Content:** India is a diverse country with multiple languages spoken. Ensure that content is available in multiple languages to cater to farmers across regions.
4. **Social Media Groups and Forums:** Create or support online farmer communities and forums on platforms like Facebook, Whatsapp, and Telegram. Encourage discussions, Q&A sessions, and the sharing of success stories and challenges. These groups can serve as valuable support networks for farmers.
5. **Live Webinars and Virtual Workshops:** Conduct live webinars and virtual workshops on topics of interest to farmers. Experts and researchers can share their knowledge and interact with farmers in real-time. These events can be recorded for future reference.
6. **Agricultural Chat bots:** Develop AI-powered chat bots that can answer basic questions and provide latest agricultural information. These chat bots can be integrated into social media platforms to provide instant assistance.
7. **Real time Updates:** Ensure regular and real time updates on important topics, such as weather forecasts, market prices, pest and disease alerts, and government schemes. Farmers should be able to rely on social media presence for the latest information.
8. **Collaboration with Influencers:** Partner with agricultural influencers or well-known farmers who have a significant following on social media. They can help disseminate information and promote best practices.
9. **Storytelling:** Share success stories of farmers who have adopted innovative practices or technologies successfully. Personal narratives can inspire others and make the information applicable.
10. **Interactive Mobile Apps:** Develop mobile apps that farmers can use to access information, receive personalized recommendations, and report issues. Integrate social sharing features to encourage knowledge dissemination.
11. **Feedback Mechanisms:** Create channels for feedback and communication between farmers and extension services. Allow farmers to ask questions, provide feedback on the effectiveness of the information, and request specific content.
12. **User-Generated Content:** Encourage farmers to share their experiences, questions, and innovations on your social media platforms. User-generated content can enrich the knowledge-sharing ecosystem.
13. **Localized Content:** Tailor content to local conditions, crops, and farming practices. Recognize that agricultural practices vary across regions, and provide context-specific guidance.
14. **Collaboration with Agricultural Institutions:** Partner with agricultural research institutions and universities to bring their expertise to the digital extension efforts. Researchers can participate in webinars, write articles, and engage with the farming community.
15. **Capacity Building:** Offer training programs to enhance digital literacy among farmers, enabling them

to navigate and benefit from social media and online resources.

16. **Data Security and Privacy:** Ensure that the privacy and data security of farmers are respected. Educate them on safe online practices.
17. **Monitoring and Evaluation:** Regularly assess the impact of your digital extension efforts. Gather feedback, track engagement metrics, and make adjustments based on the data.
18. **Identify Target Audience:** Understand the demographics, preferences, and needs of your target audience, which may include smallholder farmers, agribusinesses, or specific crop producers. Tailor your content and engagement strategies accordingly.
19. **Choose the Right Platforms:** Select the social media platforms that are most commonly used by your target audience. In India, platforms like WhatsApp, Facebook, Instagram, Twitter, and YouTube are popular. Use a multi-platform approach when necessary.
20. **Content Creation and Curation:** Develop high-quality and relevant content, including videos, infographics, articles, and live sessions. Ensure that content is easy to understand and applicable to local agricultural practices. Curate content from credible sources as well.
21. **Engagement and Interactivity:** Foster two-way communication with your audience. Respond promptly to comments, questions, and feedback. Conduct live Q&A sessions, surveys, and polls to encourage engagement.
22. **Internet governance and digital policy:** The shared principles, norms, rules, decision-making procedures, and programmes that shape the evolution and use of the Internet. Governments, the private sector, and civil society contribute to developing these guided principles, favourable digital policies for making availability of low cost internet for agricultural purposes.
23. : **Maintain a regular posting schedule** to keep your audience engaged and informed. Consistency helps build trust with your followers.
24. **Promote User-Generated Content:** Encourage farmers to share their own experiences, success stories, and challenges related to agriculture. Sharing user-generated content can create a sense of community and authenticity.
25. **Collaborate with Experts:** Collaborate with agricultural experts, researchers, and extension workers to provide credible information and insights. Expert-driven content can establish trust and authority.
26. **Use Hashtags:** Incorporate relevant agricultural hashtags to make your content discoverable to a broader audience. Develop unique hashtags for your campaigns or topics.
27. **Mobile Optimization:** Optimize your content for mobile devices since many farmers access social media through smart phones. Ensure that your videos and articles load quickly on mobile connections.
28. **Data Usage Awareness:** Consider that data usage can be a concern for some users. Encourage data-saving practices and provide options for lower-data consumption, such as downloadable resources.
29. **Measurement and Analytics:** Use analytics tools provided by social media platforms to track engagement metrics, such as likes, shares, comments, and reach. Adjust your strategy based on the data to improve effectiveness.
30. **Training and Digital Literacy:** Provide training and resources to improve digital literacy among farmers. Teach them how to use social media effectively and safely.
31. **Collaboration and Partnerships:** Collaborate with government agencies, NGOs, and private sector organizations to amplify your outreach and provide a comprehensive set of services.
32. **Promote Offline-Online Integration:** Use traditional extension methods, such as radio and community meetings, to promote your social media presence. Create synergy between offline and online extension services.
33. **Sustainability and Scaling:** Develop a long-term strategy for your social media extension services. Plan for scalability and sustainability to ensure the continuity of extension advisory services to benefit farmers over time.

By adopting these strategies, agricultural extension service providers can effectively harness the power of social media and digital technologies to bridge the gap between farmers and the research system, ultimately leading to adoption of improved agricultural practices and outcomes.

Proposed Next-Gen extension strategies to bridge the gap between research and farmers



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