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Beyond the Field Visit: Social Media – The New Age Frontier of Agricultural Extension

G.K. Sasane¹ and *M.S. Anarase²

¹Director of Extension Education and Head, Department of Agril. Extension Education, MPKV, Rahuri, Ahilyanagar, Maharashtra, India

²Assistant Professor, Department of Agril. Extension Education, DVVPF's COA, Vadgaon Gupta (Vilad Ghat), Ahilyanagar, Maharashtra, India

*Corresponding Author's email: msanarase11@gmail.com

Agricultural extension has continuously evolved with changing communication technologies. Traditionally, extension services were mainly dependent on personal interactions such as farm visits, demonstrations, training programmes, and farmer meetings. Although these approaches played a significant role in technology dissemination, limitations related to manpower, time, and geographical coverage restricted their effectiveness. In the digital era, social media has emerged as a revolutionary platform that extends agricultural knowledge beyond physical boundaries and creates a new frontier for farmer communication. Social media platforms such as WhatsApp, YouTube, Facebook, Instagram, and Telegram have transformed agricultural extension into an interactive, participatory, and real-time knowledge-sharing system. Farmers can now access expert advice, weather information, market updates, crop management practices, and success stories instantly through digital networks. Unlike conventional extension approaches, social media enables two-way communication where farmers are not only receivers of information but also contributors of knowledge. The integration of social media with artificial intelligence, mobile applications, remote sensing, and digital advisory systems has further strengthened its role in precision and climate-smart agriculture. It provides opportunities for personalized advisory services, farmer-to-farmer learning, digital marketing, and entrepreneurship development. However, challenges such as digital literacy gaps, misinformation, language barriers, and internet accessibility need to be addressed for inclusive digital extension. Social media is not replacing traditional extension but complementing it by increasing reach, speed, and effectiveness. The future of agricultural extension lies in creating a hybrid extension model where field-based approaches and digital communication work together to build a knowledge-driven, empowered, and resilient farming community.

Keywords: Social Media, Digital Agricultural Extension, ICT, Farmer Empowerment, Digital Advisory, Knowledge Sharing, Smart Farming, Rural Communication

Introduction

Agriculture is a knowledge-intensive sector where timely access to scientific information plays a crucial role in improving productivity and sustainability. Agricultural extension acts as a bridge between research institutions and farming communities by transferring improved technologies, practices, and innovations from laboratories to farmers' fields. For decades, extension systems have followed traditional communication methods including farm and home visits, group discussions, demonstrations, field days, and farmer training programmes. These methods created strong personal relationships between farmers and extension workers. However, increasing farmer populations, diversified agricultural challenges, climate uncertainties, and limited extension manpower have created the need for innovative

communication approaches. The rapid growth of smartphones, internet connectivity, and digital platforms has brought a new revolution in agricultural extension. Social media has transformed the traditional extension model from a limited field-based approach into a continuous digital knowledge ecosystem.

Today, a farmer can identify crop diseases by sharing images online, learn advanced cultivation practices through videos, participate in virtual training programmes, and directly communicate with agricultural experts. Social media has created a “virtual field visit” where knowledge travels instantly from experts to farmers.

From Traditional Extension to Digital Extension Frontier

The conventional agricultural extension system followed a linear model:

Research Institution → Extension Worker → Farmer → Technology Adoption

In this system, extension workers acted as the main source of information. However, the digital era has changed this structure into a multidirectional communication network:

Research Institution ↔ Extension Expert ↔ Farmer Community ↔ Market ↔ Technology Provider

Social media has enabled farmers to directly participate in knowledge exchange. A farmer's innovation, experience, or problem can now reach thousands of other farmers within minutes.

This transition represents a shift from:

Information delivery → Knowledge sharing

One-way communication → Interactive communication

Periodic contact → Continuous engagement

General recommendation → Personalized advisory

Thus, social media has become a new-age extension frontier beyond geographical limitations.

WhatsApp: The Virtual Extension Centre of Rural India

Among various digital platforms, WhatsApp has become one of the most effective tools for agricultural communication due to its simplicity and widespread adoption. Agricultural universities, Krishi Vigyan Kendras (KVKs), government departments, NGOs, and progressive farmers are creating WhatsApp groups for knowledge dissemination.

Farmers receive information related to: Weather-based advisories , Pest and disease management

Crop production technologies , Government schemes , Market prices and Training programmes

The major advantage of WhatsApp-based extension is immediate interaction. Farmers can upload crop images and receive guidance from experts without waiting for physical visits.

For example, a farmer observing unusual symptoms in cotton plants can share photographs through WhatsApp and obtain preliminary recommendations from agricultural specialists.

WhatsApp-Based Farmer Advisory System-Farmer sharing crop disease photographs through mobile phone with an agricultural expert.



YouTube and Video-Based Agricultural Learning

Agriculture is a practical science, and visual learning creates a stronger impact than written communication. YouTube has emerged as a powerful extension platform by providing practical demonstrations on various agricultural practices.

Farmers can learn: Modern crop production techniques , Organic farming methods , Drone applications , Nursery management , Protected cultivation , Dairy and livestock practices , Farm machinery operation

Video-based learning reduces literacy barriers and allows farmers to understand complex technologies through demonstrations.

Agricultural universities and research organizations are developing digital video libraries where farmers can access authentic scientific information anytime.

Video-Based Digital Learning Platform for Farmers Farmer watching agricultural training video on Smartphone in field.



Social Media and Farmer-to-Farmer Extension:

One of the most innovative contributions of social media is the promotion of farmer-to-farmer learning. Farmers are no longer passive recipients of information; they are becoming knowledge creators.

Progressive farmers share the successful farming models, Innovative practices , Low-cost technologies , Marketing strategies , Farm experiences

Peer learning is highly effective because farmers trust practical experiences shared by fellow farmers. Digital farming communities on social media encourage collaboration among farmers from different regions and promote faster adoption of successful technologies. Farmer Knowledge Network Through Social Media the Group of farmers interacting through digital platforms and sharing agricultural experiences.



AI-Based Personalized Advisory through Social Media:

The combination of artificial intelligence and social media has created new possibilities for personalized agricultural extension. Modern digital advisory systems analyze: Weather information, Soil characteristics, Crop conditions, Pest and disease occurrence, Market trends and provide customized recommendations.

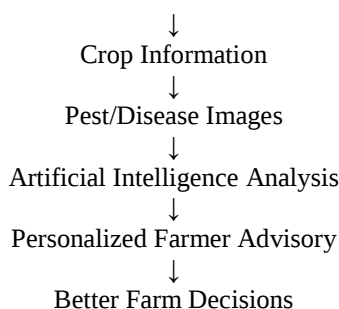
AI-powered chatbots and digital assistants can answer farmer queries instantly. Image recognition technology can help identify pests and diseases from crop photographs uploaded through mobile platforms. This approach changes agricultural extension from generalized recommendations to farmer-specific decision support.

AI-Based Smart Agricultural Advisory Model

Weather Data



Soil Data



Social Media for Agricultural Marketing and Entrepreneurship:

Social media has expanded agricultural extension beyond production technology to include marketing and entrepreneurship.

Farmers and Farmer Producer Organizations (FPOs) use digital platforms to promote: Organic products, Fresh vegetables and fruits, Processed foods, Nursery plants, Farm-based enterprises.

Social media marketing allows farmers to directly connect with consumers, improve product visibility, and develop their own brands. Digital platforms are particularly beneficial for rural youth interested in agri-business and women involved in food processing enterprises.

Digital Marketing by Farmers and FPOs promoting agricultural products through social media platforms.



Role of Extension Professionals in Digital Era:

The role of extension workers has changed from traditional information providers to digital knowledge facilitators. Modern extension professionals should develop skills in Digital content creation, online communication, social media management, data interpretation, virtual training methods. They can use social media for Farmer awareness campaigns, Online demonstrations, Expert consultations, Feedback collection. Technology promotion. The future extension worker will act as a bridge between scientific knowledge and digital farming communities.

Social Media for Climate-Smart Agriculture:

Climate change has increased risks associated with rainfall variability, drought, pests, and extreme weather events. Social media supports climate-smart agriculture by providing: Weather alerts, Crop advisories, Water management guidance, Climate-resilient practices, Early warning information. Timely digital communication helps farmers make better decisions and minimize production losses. Farmer receiving weather-based crop advisory on mobile phone.



Future Scope: Integrated Digital Extension Ecosystem

The future of agricultural extension will combine: Social media, Artificial intelligence Internet of Things (IoT) , Drone technology , Remote sensing, Big data analytics This integrated system will provide faster, smarter, and more accurate advisory services.

The future model will be:

Farm Data + Digital Technology + Expert Knowledge

↓
Smart Advisory

↓
Sustainable Agriculture

Summary and Conclusion

Social media has emerged as a powerful new-age frontier of agricultural extension by transforming the way farmers access, share, and apply agricultural knowledge. It has expanded extension services beyond physical field visits and created a continuous digital connection between farmers, experts, markets, and institutions. Platforms like WhatsApp, YouTube, and digital farming communities have improved information accessibility, farmer participation, and technology adoption. Social media-based extension supports personalized advisory, climate-smart farming, entrepreneurship development, and market linkage. However, digital literacy, authentic information, local language content, and internet accessibility remain important challenges. Strengthening digital skills among farmers and extension professionals will ensure effective utilization of social media. The future of agricultural extension is not only in the field but also in the digital space, where every smartphones can become a gateway to agricultural knowledge.

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