



Role of Social Media in Extension- A Review

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ABSTRACT

Social media are meant for digital communication that comprising various tools that allow interaction among people and used for knowledge sharing among farmers. Since ages newspapers, television, and magazines have been the most used source of information in the agriculture sector. But now the power of the 21st century is literally in our hands (Lathiya *et al.*, 2015). Nowadays farmers need new technologies and latest information so that they can cope with the challenges and difficulties they face due to lack of technology information. Farmers can share innovations and knowledge alongside solving problems through social media. Farmer-to-farmer knowledge sharing is an important source of information. The social media allows farmers to share their experiences, which traditionally would have been over a farm-gate, via YouTube, Facebook, WhatsApp and others. There are Twitter feeds that farmers can go to, ask questions, or share experiences. . Evidences obtained revealed that there are many social media platforms being used in agricultural extension service delivery worldwide with Facebook having highest popularity (64.7%). Most of the agricultural stakeholders using social media are versatile users (33.5%) who usually visit only to find information (75.7%). The use of social media solely for agricultural purposes to improve extended services agreeable. According to the extension officers, social media can assist farmers in receiving critical information and so bridge the gap between them and farmers. Farmers' lack of usage of social media is due to major issues such as lack of awareness, illiteracy, and lack of training Many challenges are currently faced in using social media

for agricultural extension service delivery; viz. illiteracy, shortage of infrastructure, limited participation, non-institutionalisation, lack of quality control, lack of adequate yardstick for measuring impact and need for gender sensitive general, social media is gradually appreciated in agricultural extension service delivery, but faced with challenges.

KEYWORDS- Social Media, Agricultural Extension, technologies, extension services, Farmer, Facebook, WhatsApp, and YouTube.

I. INTRODUCTION

It is social media world today. Many social media plat forms which includes Facebook, YouTube, WhatsApp etc. are becoming better sources of information dissemination about agricultural production and its promotion. YouTube is becoming the part of our culture as a new media for learning and skill development (Iftikhar *et al.*, 2019). Furthermore, agricultural information discussion has been controlled by developed media such as newspapers, television and magazines. But today the control of the 21st century is plainly in our hands. Farmers also prefer to use social media to grow their production. Two way communication has increased due to increased networking in rural areas, farmers associate with the help of social media over a geographical distance. Social media also provides solutions for different agricultural issues. The most popular social media platforms among farmers are Facebook, YouTube and WhatsApp. Balkrishna and Deshmukh (2017). Famers also share their success and failure stories on social media. It also provides



them opportunity to inform about harvesting, post harvesting, endorsing agricultural products, market information, answering problems of farmers if they are from their recognized areas. There is wide difference between social media and old-style media. Social media customers generate their own groups, pages, community and blogs to disseminate facts. In these platforms they also sell, purchase farming goods. It also enables the promotion of farmers' products and of network development Balkrishna & Anand (2007)".

Social media is growing rapidly but unavailability of 3G and 4G internet connection is a big hurdle in rural areas where individuals do not have knowledge about the use of these technologies in suitable manner and encounter many problems to gather information about agriculture. It is intended to find the farmers trust regarding the agricultural technology and information from social media (WhatsApp, Facebook, YouTube) and also find whether the farmers are motivated from the message for using modern technologies, new inventions in agriculture etc. For this purpose it is important to explore that social media is providing enough information about agricultural technology as compare to other channel.

Agricultural extension services delivery in India have limited scale, sustainability, and impact. On an average public extension services only reach 6.8 per cent of farmers (GFRAS, 2012). NSSO, 2014 has indicated that of the 40.6 per cent households who received extension assistance, only 11per cent of the services came from physical government machinery extension agents, *Krishi Vigyan Kendras* and agricultural universities. This gap needs to be filled through exploring other options of alternate agricultural extension service delivery mechanisms. Information and Communication Technologies (ICTs) can deliver agricultural extension information with greater ease, more rapidly and with higher accuracy (Goyal, 2011, Karthikeyan, 2012 and World bank, 2016). The World Development Report (2016) has rightly observed, public extension agents can overcome information barriers related to new agricultural practices and technologies, but such extension programs have been burdened by limited scale, sustainability, and impact. The possibilities of personal contacts of farmers with extension agents, thus, are very limiting in many countries.

II. REVIEWS OF LITERATURE

✓ Meena *et al.* (2013) stated that agricultural researchers and extension professionals have availed

internet/e-mail/social media etc., as the major sources of information. The popular social media used was Facebook. Facebook is the most popular social media platform used by most of the agricultural research and extension professionals in India.

✓ According to FAO (2013 a) stated that extension agents/researchers are not available to farmers "all the time". With most of the developing countries having gone extensionsits for more than 1000 farmers, it is practically impossible for the extensionsits to handhold the farmers during the time they try to adopt new technologies. However, mobile phone, especially mobile social media can to large extent, help solving this problem. Using mobile phones, farmers can not only interact with extensionist and agriculture experts in real time, but can also share their experience between each other, thus making adoption faster and more impactful.

✓ Typhina *et al.* (2015) stated that one should use images and short videos (1 to 2 minutes or less) to tell the "story" of extension. Continue the conversation by providing updates on pertinent and valuable information, limited time question and answer forums with experts, event notices. Keep clients engaged and in conversation through challenges, questions, and valuable content. Provide challenge participants with real prizes, such as plants or a gift certificate or provide non-tangible items, such as a digital award. Post challenges regularly, monthly or quarterly, and request that winners post themselves with their prize on their social media page and tag the awarding organization in their post.

✓ Lakshmi and Babu (2018) conducted a study to determine the extent of extension functionaries' social media usage in south India. Results depicted that most of the extension officials (97%) use Gmail followed by WhatsApp (59%), Facebook (55%), and YouTube (47%) for information sharing. The study also showed that innovativeness and information-seeking behavior were found to be positively significant. It is a potential medium that helps extension professionals to get information about recent developments, build relationships, share information, and connect with a varied audience.

✓ Sublibhavimath, and Sharma (2018) in a study entitled 'Extent of use of ICT by Extension Agents a KVKs" revealed that the Google search engine was the most used social media for gaining knowledge. Extension agents also used mobiles, smartphones, SMS, and WhatsApp for disseminating the information. WhatsApp also



provided feedback from the advice of farmers. Overall, all the ICT and tools used for updating are knowledge and advising farmers. The study recommends more training should be conducted for increasing the extent of use of ICT for reaching the maximum number of populations.

✓ Thakur and Chander (2018) conducted a study that aimed to analytically test social media tools in farm communication activities and revealed that users prefer WhatsApp over Facebook because WhatsApp has benefits like convenience, privacy, and less data consumption. The interaction of the farming community with agricultural organizations through social media tools will improve the quality, timeliness, and accuracy of information. This contributes to bidirectional information exchange and ongoing interaction with the farming community. It also has some disadvantages, such as high frequency of irrelevant messages, high usage of data, and weak connectivity to the Internet.

✓ Tamizhkumaran and Saravanan Raj (2020) stated that YouTube has great potential in Extension and advisory services. Videos that have valuable information, pictures draw the attention of clients. Even two-way communication is possible when the extension agents give a reply to the comments of clients and good feedback can be drawn. SAU and KVK's can explore the profitability of YouTube by capturing even the front-line demonstration and on-farm trials.

A BRIEF ABOUT SOCIAL MEDIA

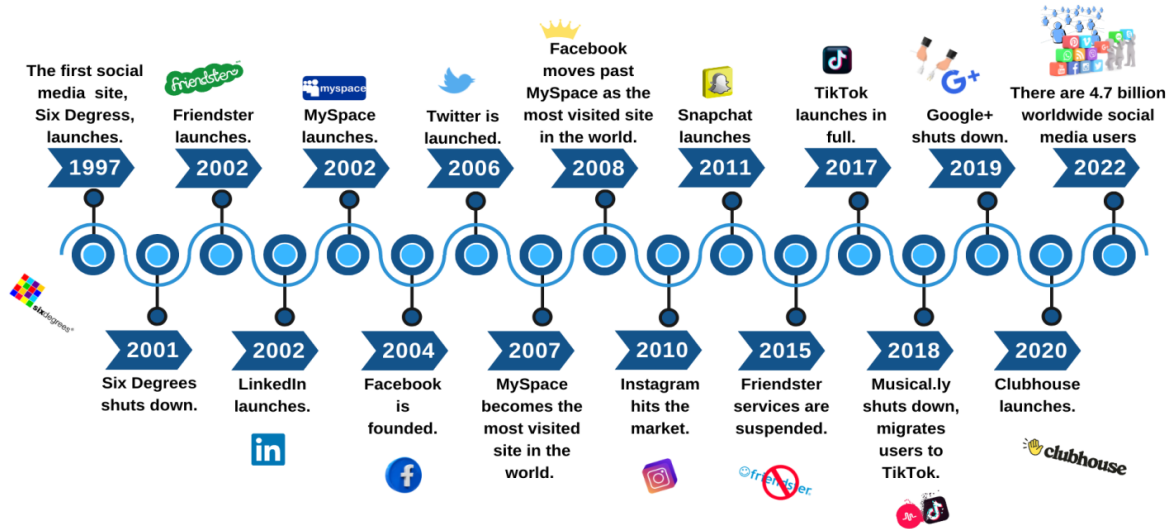
Social media refers to the interaction with people in which they create, share, consume, and exchange information and ideas in virtual

communities and networks. Merriam-Webster (2015) defines social media as forms of electronic communication through which users can create online communities to share information, ideas, personal messages and other content. Terry (2009) and, Kaplan and Haenlein (2010) stated, basically social media comprise of digital technologies that facilitate communication of user generated content through continuous interaction. To sum it up, Suchiradipta & Saravanan (2016) defined social media as web based tools of electronic communication that allow users to interact, create, share, retrieve and exchange information and ideas in any form (text, pictures, video, etc.) that can be discussed upon, archived and used by anyone in virtual communities and networks.

In the agricultural sector, there is growing rate of social media usage amongst stakeholders. Sokoya *et al.* (2012) opined that there is climbing increase in the utilization of social media among agricultural researchers, professionals and others stakeholders in the agricultural sector. Social media have ensured quick delivery and response to information between the receiver and sender. Social media has changed the way we communicate, read, search, think, talk, watch, listen, and sometimes start a revolution – be it political and or social. Social media is more about sociology and psychology of communication than about technology (Saravanan & Suchiradipta, 2014). The evolution of social media and the rate at which it penetrates public space is certainly something that cannot be ignored. Moreover, extension was primarily built on the premise of aiding change through communication and service delivery.



Social Media Timeline



WHY USE SOCIAL MEDIA?

The special features of participation, openness, conversation, community and connectedness makes social media a unique user experience (Mayfield, 2008). Facebook has 195.16 million active users in India, YouTube gets more than 50 million unique users each month, Twitter has 23.2 million users, WhatsApp has 70 million users in India and the highest monthly active users in the world (www. statista.com, 2016). 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 formers 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 have long been cited as a 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.



SOCIAL MEDIA TOOLS COMMONLY USED IN AGRICULTURE EXTENSION

The use of social media in the agriculture sector and expansion has gained momentum in recent times, with only popular platforms such as Facebook, Twitter, and YouTube being used for agriculture and extension related works. WhatsApp is another major platform used by extension professionals to communicate with peer or client farmers but as communication (individual and group) is personal, more information is available about groups other than being referred to by media is not. The various social media tools popular these days are listed below.

Facebook

Facebook is the most used social media platform in the world, with more than 1.87 billion monthly active users on its site (We Are Social, 2017). And this means a huge potential for extension professionals. Some examples where Facebook is being used as an extension tool by individuals, professional networks, and extension organizations.

Twitter

Microblogging site Twitter is one of the most popular social media platforms globally with 320 million users. In a social context, it has been one of the major catalysts used for creating public opinions and for organizing people into groups. In agriculture too, it is one of the most used platforms.

YouTube

YouTube It is the video-sharing platform with a mission to give everyone a voice and show them the world and is based on four values: Freedom of expression, Freedom of information, Freedom of

opportunity, and Freedom of belonging. Users can upload and watch the videos, and there is provision for sharing and commenting on videos with additional facilities for the subscription of other users.

Blogs

Blogs contain detailed information on specific topics. They create and facilitate an in-depth discussion on any issue through comments from the readers. With increased popularity, many blog competitions are also organized worldwide for rural youth to encourage them to start a discussion about farming. Even organizations like World Bank, Food and Agriculture Organization (FAO) and International Food Policy Research Institute (IFPRI) have their blogs not just to discuss issues but announce their new publications like policy papers, working papers, and reports and so on; communicate summaries of important publications, and to increase awareness and discussion on important issues related to agriculture and rural development.

WhatsApp

A messenger app for smartphones, it is an internet-based messaging platform that supports text, audio, video, pdf, and various other forms of files. Real-time video chatting has also been integrated recently, making it more popular among users. Currently, there are more than one billion users of the app in 180 countries. Though initially used for personal messaging, it is gaining more popularity among agricultural professionals and practitioners to share information, which is aided by the group messaging feature. There are a few hundred thousand WhatsApp groups created for agricultural extension and advisory services in India.

ANDROID APPS AND ITS DESCRIPTION

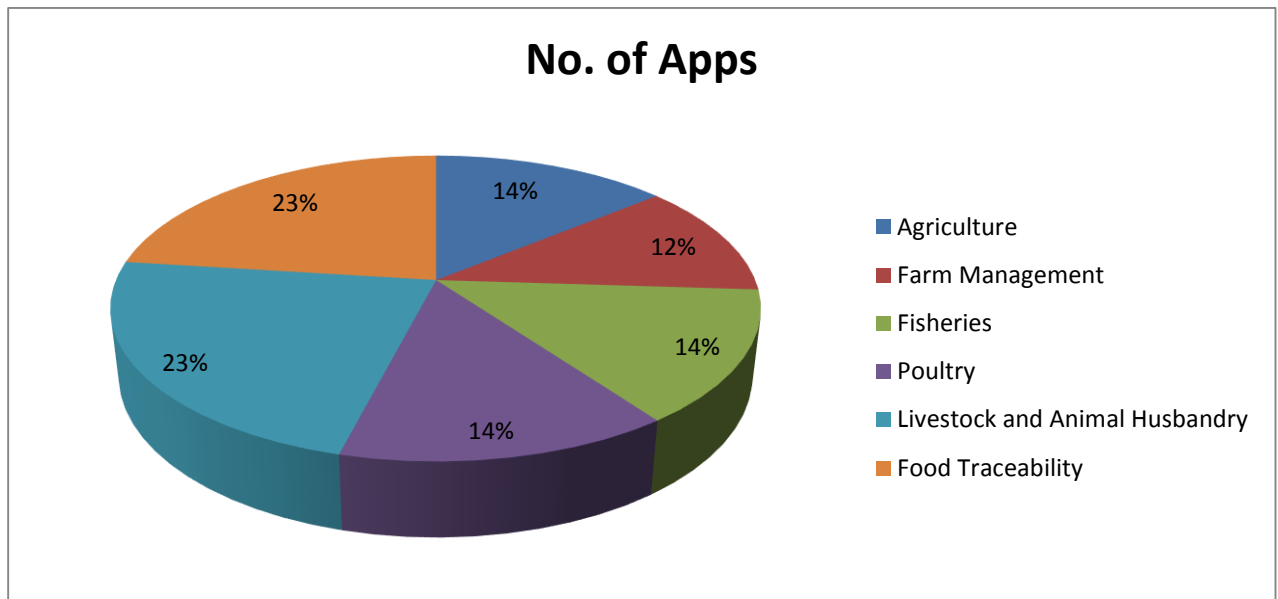
PRODUCTION TECHNOLOGY AND AGRO-ADVISORY SERVICE BASED APPS		
App Names	Developed by	Description
Kisan Suvidha	Ministry of Agriculture and Farmers Welfare, Govt. of India	Kisan Suvidha is an omnibus mobile app developed to help farmers by providing relevant information. The app provides information to farmers on weather, market prices, dealers, plant protection, IPM practices, seeds, expert advisory, Soil Health Card, godowns and cold storage. The information is currently provided in English, Hindi, Tamil, Gujarati, Odia and Marathi
Pusa Krishi	Ministry of Agriculture and Farmers Welfare, Govt. of India	Provides information related to new varieties of crops developed by the Indian Council of Agricultural Research (ICAR), resource conserving cultivation practices, farm



		machinery and its implementation and production technologies, to the farmers. A feedback section enables farmers to have a real time conversation with the stakeholders
Crop Insurance	Ministry of Agriculture and Farmers Welfare, Govt. of India	Crop Insurance mobile app can be used to calculate the Insurance Premium for notified crops based on area, coverage amount and loan amount in case of loanee farmer. It can also be used to get details of the normal sum insured, extended sum insured, premium details and subsidy information of any notified crop in any notified area
IFFCO Kisan Agriculture	IFFCO Kisan, a subsidiary of Indian Farmers' Fertilizer Cooperative Ltd	This app enables access to various modules including agricultural advisory, weather, market prices, agriculture information library in the form of text, images, audio and videos in the selected language. The app also offers helpline numbers to get in touch with Kisan Call Centre Services. The app supports eleven languages across India including English
MARKETING APPS		
AgriMarket	Ministry of Agriculture and Farmers Welfare, Govt. of India	The app has been developed with an aim to keep farmers abreast of crop prices. This app automatically captures the location of the person using mobile GPS and fetches the market price of crops in those markets which fall within the range of 50 km
e-NAM Mobile App	Small Farmers' Agribusiness Consortium (SFAC), Ministry of Agriculture & Farmers Welfare, Govt. of India	National Agriculture Market (NAM) is a pan-India electronic trading portal promoted by the Government of India which networks the existing mandis to create a unified national market for agricultural commodities. The purpose of the Mobile App is to facilitate remote bidding by traders and access to arrivals and price related information to farmers and other stakeholders on their smartphones
Digital Mandi India	Appkiddo	This App helps in checking the latest Mandi prices of agricultural commodities reported from different states and districts/mandis in India One can get commodity wise categorization or state wise categorization
CROP SPECIFIC APPS		
Mobile App on Castor	ICAR - Indian Institute of Oilseeds Research (IIOR), Hyderabad	This mobile app provides information on castor production technologies, recommended hybrid varieties, intercropping, major insects, pests and diseases and its remedies to castor farmers.
Mana Verusanaga App	Regional Agricultural Research Station, Tirupati, Acharya N.G.Ranga Agricultural University, Andhra Pradesh, India	Provides detailed information to the farmers and extension personnel on all aspects of groundnut cultivation. The content includes varieties, seeds, nutrient management, pest and diseases, farm mechanization, value addition and contact details with photographs
Cane Adviser	ICAR-Sugarcane Breeding Institute, Coimbatore, Tamil Nadu	Cane Adviser is a mobile app for cane growers and millers. It gives details from planting to harvest with text and graphics for tropical and sub-tropical India. The features of the app include static as well as dynamic platforms
riceXpert	CAR-National Rice Research Institute (NRRI), Cuttack	It is a bilingual (English and Odia) Android platform with a view to reach the latest rice technologies to the rice farmers in real time basis. It provides real time diagnosis of insect pests, diseases, nematodes, weeds, nutrient deficiencies and toxicities to farmers. It has other features like rice varieties,



		agricultural implements, news, expert consultation through e-advisory services module, weather information
ALLIED SECTOR APPS		
m-Krishi Fisheries App	Tata Consultancy Services (TCS) Innovation Lab – Mumbai, in collaboration with ICAR- Central Marine Fisheries Research Institute and Indian National Centre for Ocean Information Services (INCOIS) Hyderabad	The app provides vulnerable fishermen access to knowledge and information services on weather, potential fishing zones, ocean state forecasts, disaster alerts and market related information
Pashu Poshan	National Dairy Development Board (NDDB)	With the help of this app, balanced ration can be formulated while optimizing the cost considering animal profile, i.e. cattle or buffalo, age, milk production, milk fat, and feeding regime etc. and milk producers are advised to adjust the quantity of locally available feed ingredients offered to their animals along with mineral mixture
Cattle Expert System	TNAU, Coimbatore and C-DAC, Hyderabad	Cattle expert system is a mobile app that covers feeding management for cattle and buffalo, breeding management, disease and control management, production technology, calf management, general care and management, practices etc. for cattle and buffalo
OTHER APPS PROVIDING AGRO-ADVISORY		
My Agri Guru	Mahindra Agri Solutions, Mahindra and Mahindra	My Agri Guru connects farmers and agri-experts across the country. The farmer agri expert interactions cover over 90 diverse crops – ranging from Cotton, Wheat, Tomato to non-traditional crops like Tulsi, Aloe vera, Flowers etc
RML Farmer	RML AgTech	Farmer can access information related to weather forecast, market price, crop advisory, farm related news as per their location in their preferred language. The app gives personalized recommendations, keeps track of pest and disease attack
Rythu Nestham	Rythu Nestham Foundation	Rythu nestham is a mobile app which helps farmers in organic farming. The mobile app is available in both English and Telugu
Kultivate	Gowthaman Ramasamy	Kultivate is a software platform aiming to fill the gap in traditional agricultural extension to make “Smart Agriculture Extension Easy for everyone



Comparative Illustration Of Apps Used In Different Areas Of Agriculture

HOW TO INTEGRATE SOCIAL MEDIA IN EXTENSION?

Internet based services are increasingly restructuring the daily life of people, instead of dividing them into on-line and offline experience. Rural people are using social media for connecting with friends and family, reading current news, to get information from peers. Connecting that to agriculture and leveraging it to bridge the farmer-extension gap can prove to be a boon to the agriculture sector and the farm families. A few pointers in engaging with farming community through social media are given below:

- A thorough planning is needed before engaging online through social media, specifically about objectives, target audience, channels and approaches.
- Posting information at times when target audience are most probably active online.
- Interacting in real time to keep the interest of the involved clients alive.
- Sharing only relevant posts or information.
- Focusing on specific platforms based on clients' preferences and engage them continuously rather than engaging in a number of platforms but failing to engage properly.

- Keeping holistic view in mind while sharing information rather than focusing on single enterprise as most smallholders have multiple enterprises on their farm.
- Tagging individual clients to whom the information might be specifically useful and share for all so that the intended audience receives it personally while others can also be benefited.
- Encouraging peer to peer communication as much as possible, so that information related to local context can be brought out more efficiently.
- To tackle literacy issues, using more pictures and videos, even audios if possible, which is easier through Facebook and WhatsApp.
- Bandwidth and pricing is a hurdle to sustainable use of social media and so, strategic planning like low resolution videos and pictures, short audio files, fixing specific times for group chats, etc., can be taken up to ensure judicious consumption of data.
- Connecting farmers and consumers on the same platform for increased interaction. Also, that would increase the market for the producers.



- Making the most out of messaging apps as their popularity rose substantially in the recent years, especially among the youth.
- Social media use in extension should aim for steady growth that requires time, budget, patience, right subject matter, and commitment from extension professionals. Regular monitoring and evaluation of information shared, participating clients' preference of information, etc., needs to be done meticulously to most effectively record, synthesize, and interpret the information consumption habit and preference of clients.

ROLE OF SOCIAL MEDIA IN FARMING

In the global context, the agricultural sector is using social media to promote relevant information and knowledge within the industry and to network with other like-minded agricultural professionals. Social media channels enhanced and strengthened the relationships of agri-based communities and helped rural workers combat the segregation created by their work. It has crossed geographical boundaries, thereby connecting the peasant communities to mutual interest.

So far, blogs have a large presence covering topics on agriculture, animal husbandry, health, education, and other topics/topics of general interest. Social media such as Facebook, Twitter, YouTube, and blogs are emerging as an appropriate platform to share information and create awareness among various stakeholders to generate and shape the content of the event.

These media complement traditional media as a viable source of information and facilitate the marketing of agricultural products and their products using pictures, links, and videos. They provide opportunities for users to share and exchange information and to discuss burning issues in agriculture based on their knowledge and experience and to formulate effective solutions to such problems, thus marketing and building networks We do.

IMPLICATIONS FOR AGRICULTURAL EXTENSION

All development sectors including agriculture, need their own voice - to create awareness, for advocacy, to bring in change. Social media has a number of

implications on extension, and these are mentioned below:

1. Social media provides tools to extension professionals for sharing information and to be a part of discussions and debates on extension. It also helps them to be aware of the ongoing developments in the agriculture sector and stay updated.
2. With increasing awareness among urban consumers about the farm to plate journey that food makes in today's world, the agricultural practitioners and professionals can use social media for building informed communities and thus increase visibility of farmers (increase information access to consumers about farm conditions, mechanism of food production, plights of farmers, etc.)
3. The reach of extension personnel in rural areas (which is estimated to be around 1200-1500 farmers per extension personnel currently) can increase manifolds with the use of platforms like Facebook, WhatsApp, and YouTube.
4. Professional development of extensionists is an important aspect, which social media can help with. Networking, sharing ideas and opinions, even conducting research can ultimately help in career advancement of extension professionals and they become competent to serve the clients better.
5. Projects and initiatives for agricultural development that suffer from lack of funds can take the help of crowdfunding platforms like www.gofundme.com to reach a sustainable stage. Active use of social media to highlight development projects in critical areas can attract huge funds through crowdfunding, if promoted strategically through Twitter, Facebook and Instagram.
6. With increasing visibility of agriculture related issues faced today, many youth from non-agricultural and urban background are getting interested in agripreneurship and creating employment opportunities for others in the rural sector. Extension professionals can take advantage of this and effectively reach out to them through social media and collaborate. Also, a large number of farm youth who are moving out of the sector can be influenced to return to better agricultural practices through social media.
7. Social media provides insights and evidences required to influence policy and policymakers. It has long been established that social media can create and shape public opinion. When used efficiently in



agriculture, social media can bring out the plights of farmers for developing immediate and effective interventions.

8. Capacity development is another issue that can be conveniently addressed through social media for field functionaries, rural youth and farmers. With technological advancement, platforms like YouTube, WhatsApp and Facebook can be easily integrated in delivering content in different formats for self-learning of the target groups.

9. Inclusion in important development related discussions has increased due to social media and all stakeholders can become active participant and contributors in the discussions and follow-up actions.

10. As end to end extension is gaining more importance for holistic development of farming community, social media can be used as the common platform for all stakeholders to have a dialogue and increase inclusion of generally disadvantaged groups like women and the socially marginalized. Communication has shifted to a more open forum leading to a two way dialogue through social media. Digital India project of Government of India has emphasized on use of social networking in agriculture to increase farmers' access to information and extends timely services to them.

11. While it is true that infrastructure building is required to realize the full potential of the information obtained from social media, the platform also helps to draw attention to the required interventions required for obtaining the infrastructure, if not available.

WAY FORWARD

- Need to create awareness among farmers by extension professionals and build their capacities to share more information via social media.
- For better sharing and networking.
- Encouraging self publication and collective collaboration.
- Extension organisations need to encourage stakeholders to use social media for interaction and obtaining feedback.
- Research on social media is still needed.

III. CONCLUSION

There is a need to develop awareness and interest among the farmers and extension personnel about the use of social media so that extension could

be made effective. The society-the rural people, the farmers do not read journals they read blogs, watch YouTube and use facebook and twitter and these are the medium that reach them. The important component of Agricultural Extension Systems are agricultural research, extension and farmers. So the main role of social media is to establish connections among them. Social media has a huge potential to revolutionize communication but its success depends to a large extent, on the innovativeness of grassroots level organization. Need to create awareness among extension professionals and build capacities to share more information. Institutionalizing use of social media for sustained momentum and for better sharing and networking. Encouraging self publication and collective collaboration. Extension organizations need to encourage stakeholders to use social media for interaction and obtaining feedback. Research on social media is still needed.

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