

USE OF SOCIAL MEDIA IN AGRICULTURAL EXTENSION: SOME EVIDENCES FROM INDIA

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Abstract: Social media, a popular ICT tool has great potential to be used for knowledge sharing and social networking among farmers. Yet, a lot of skepticism exists about its use for farm extension education activities making it imperative to document its current use for sharing farming related information. This study undertaken during April 2015 to May 2016, suggests that Facebook, WhatsApp and YouTube are now being used to share diverse farming based information across different parts of India. Varied forms of information across different agricultural subsectors (crops, dairy, goat and poultry) and on different aspects of production, preventive management and marketing is being shared. Most of them are individualized efforts. Also, the vibrancy of these tools varies among different social media groups. In recent years (2014 onward), YouTube has become a good source of animal husbandry based information, as evident from number of videos uploaded in different Indian languages. Annual percentage increase in viewership (April 2015 –April 2016) of dairy and goat farming based videos varied from 228.25 per cent to 2308.21 per cent in goat farming and 180.83 per cent to 1961.66per cent in dairy farming. The potential of Social Media channels like Facebook, WhatsApp and YouTube among others are not yet fully exploited by agricultural extension and development departments to reach out to farmers in India. However, there appears to be bright prospects of social media use in agricultural extension and advisory services given the recent initiatives taken by the Indian government to enhance social media use.

Keywords: Social Media, Agricultural Extension, India, Farmer, Information.

INTRODUCTION

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 40.6per 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,

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Karthikeyan, 2012 and World bank, 2016). These technologies are reviving agricultural extension and advisory services around the world (World Bank, 2016). ICT based applications in agriculture have varied from web portals, telecentres, mobile telephony and hybrid projects (ICTs with traditional extension elements) (Shanthinichandra et al., 2013). Mass media including internet is now the second most important source of useful information to agricultural households in India (NSSO, 2014). Moreover, ICT interventions have received encouragement from the Indian Ministry of Agriculture (ICAR, 2016). Recently two mobile apps were launched on crop insurance and agrimarket (GOI, 2015). Social media is yet another ICT based tool, which once used purely for entertainment, has great potential to be used for knowledge sharing and collaboration even in agriculture (Goyal, 2011). These ICT tools are relatively easier to use and are gaining popularity in agriculture sector (Saravanan and Bhattacharjee, 2016). Through these tools farming community can learn and share information in multiple ways in form of texts, photos, pictures, audio, audio-visuals and web links (Andres and Woodard, 2013). Social media gives opportunities to farmers for co-creating content and promotes co-learning among farmers (Jackson et al., 2009). Further, content creation is faster through social media than traditional mass media channels of extension communication (Lucas, 2011). Real time interaction through farmer clientele is easily possible through social media. Therefore, these tools help to communicate instantaneously and cheaply with stakeholders (Newbury et al., 2014 and Mains et al., 2013). The benefits of social media goes beyond cost effective ways of communication to empowering social connections and long term engagement in extension programs (Neill et al., 2011). For farming community, social media can be a good way of networking and gaining through social capital in form of trust, engagement and community involvement (Stanley, 2013 and Mains, 2013). Moreover, the issues of physical distance and isolation in agriculture can be reduced through these tools (Varner, 2013). Social media has been aptly called as one of the most participative extension tools of recent times. Social media tools range from Facebook, Whatsapp, We chat, QQ, Tumblr, Twitter, Pinterest, Blogs, YouTube, Instagram, Wikis, Facebook messenger, Snap chat etc. Out of these, under Indian context, Facebook, WhatsApp and YouTube can be considered as three most popular social media tools. Though there are slight differences in approach of these three forms of social media. Specifically, Facebook is a social networking site that allows people to build personal webpages and then connect with friends to share content and information. Facebook remains most popular social media platform by agricultural research and extension professional in

India (Meena et al., 2013). WhatsApp specifically is an instant messaging platform that has made users much more connected. The nature of Facebook is more of a public platform and has higher viral content than WhatsApp which is a relatively closed medium. YouTube remains a content community in which videos are seen and shared.

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. In India, for instance, of the 143,863 positions in the Department of Agriculture, only 91,288 posts are filled. Considering the large number of farm households in India, this small number of positions means that on average extension services only reach 6.8 per cent of farmers. This limited personal access to extension agents prompts farmers to use other sources of information, like mobile phones and Internet kiosks, or asking other farmers and their input dealers for advice. It is now well established that the extension services delivery through personal contacts is neither feasible, nor cost effective. With over 101 Agri-research institutions and 71 State Agricultural Universities, the Government of India has elaborate arrangements for not only Research & Development in Agriculture but also host a gigantic mechanism for transfer of technologies to the farmers with 642 *Krishi Vigyan Kendra* (KVKs-Farm Science Centres). Yet, over 59 per cent of the farm households in India received no assistance from either government or private Agricultural extension services (the latest NSSO survey 70th Round). No wonder, agricultural productivity for major crops and livestock species in India is still lower than that of the world averages. In spite of numerous advantages, lot of skepticism exists about its use for professional activities (Saravanan and Bhattacharjee, 2014). Use of time allocation for social media, personal privacy concern over information in social media, are some of the reported constraints (Newbury et al., 2014 and Lucas, 2011). Also, lack of awareness and skills to use social media have been considered as major reason behind minimal use of social media by field level extensionist (Saravanan and Bhattacharjee, 2016). These constraints can be addressed by sensitization, awareness and trainings about social media. Another way is to document and share best practices of social media use. This can benefit extension educators about social media use in agricultural extension (Lucas, 2011). Peer use has been found to be influential to use social media in agricultural extension activities (Newbury et al., 2014). Further, quite a number of studies have focused on use of social media among agricultural researchers and

extension educators. Not much have been documented about usage of social media for sharing farming based information by the farmer clientele. There is definite need to document the ways in which it is being used for the direct benefit of farming community. This would not only improve the awareness towards use of social media tools for delivering farm extension information but would also assess the present status of social media usage. The paper presents examples of use of three most popular social media tools (Facebook, WhatsApp and YouTube) in agriculture and allied fields under Indian context. It investigates social media use by farmers and agriculture research and development agencies to deliver and share farming based information. Based on these instances of social media use, recommendations of effective usage of social media to enhance agriculture extension education efforts have been made.

MATERIALS AND METHODS

The present study is an online exploratory study assessing use of three most popular social media platforms viz. Facebook, WhatsApp and YouTube in farming based information among farmers and farming based entrepreneurs. The content shared in seven popular Facebook groups of farmer members in India was studied from January to April, 2016. Similarly content of two popular WhatsApp groups *Krishi Jagran* and *Pashupalan Sambhandit Jankari* (Animal husbandry based information) was studied during March to May 2016 as one of the authors was member participant in these groups. Information about remaining WhatsApp groups was obtained through secondary sources. Use of YouTube for goat and dairy farming as a popular social media platform was studied over one year (April 2015-2016). Also, Facebook activity of one agricultural university of four regions (north, west, south and east) of India was explored. Similarly, Facebook activity of state animal husbandry departments of Punjab, Jharkhand, Maharashtra and Mizoram were explored and studied.

RESULTS AND DISCUSSION

Table 1: Popular Facebook groups of farmer members in India

Name of Group/Community/ Pages	Members as on April,2016	Number of Posts in April 2016
1. Pulse Crops Promotion group	10,433	187
2. Krishi Jagran Kisan Club	17,715	231
3. Turmeric Farmers Association of India	5718	0
4. Nalla Keerai(Good Greens)	22,079	6

5. <i>Vivasayam Karkkalan</i>	7327	1
6. How to do profitable poultry, Emu & Cattle farming?	11,000	2
7. <i>Labhkari Pashupalan or Murgipalan Kaise Karen</i>	24,000	2

Use of Facebook for farming based information in India

As evident from table 1, farming community in India has increasingly started using social media tools in general as well as for sharing farming based information. Numbers of Facebook groups are being used to share information about diverse topics in agriculture. Although the groups have sizeable number, this clearly may not reflect the true picture.

Except for pulse crops promotion group and *krishi jagran kisan* club, the other Facebook groups/communities were less vibrant and active. It was evident from the number of posts, likes and shares. Behavior of online communities remains fickle and attention is not paid to the information unless it is of interest for them. Saravanan and Bhattacharjee, 2014 reported that number of active participants in such type of Facebook groups remain fewer in number. They further stated that user participation in such groups can be enhanced by faster replies to queries posted, commenting on posts made by others, engaging in discussions, mentioning clients in posts and comments etc. Successful social media efforts require long time commitment and efforts. Effective social media strategy for farming clients involves creating and receiving online and offline feedback on use of this tool (Typhina et al., 2015). Social Media such as Facebook are not broadcast platforms. True worth of this platform lies in engaging the users in two ways information flow and measuring the impact of social media efforts in extension education (Neill et al., 2011).

Use of WhatsApp for farming based information in India

Table 2: Popular WhatsApp group of Farmer Members

Name of the group	Information about members	Administrator of group	Type of Content Shared
1. <i>Krishi Jagran</i> Group	Farmers of the states of Rajasthan, Uttar Pradesh, Madhya Pradesh, Maharashtra	Farmer entrepreneur	Information about crop varieties, soil management, irrigation practices, agricultural machinery, input companies, marketing prices of various commodities
2. <i>Pashu Palan</i> group	Farmers of the states of Rajasthan, Maharashtra,	Veterinarian	Information about livestock breeds,

	Madhya Pradesh, Rajasthan Uttar Pradesh Haryana and Gujarat		feeding and health management.
3. Baliraja	Farmers of the states of Maharashtra	Farmer entrepreneur	1.Pictures of agricultural Produce 2.Information on agriculture topics
4. Young Progressive Farmers group	Farmers of the state of Punjab	Agricultural officer, Punjab	1.Information about seed treatment of wheat and paddy, 2.Information about soil testing-based application of phosphate fertilizers in the cultivation of paddy 3. Awareness regarding management of yellow rust disease in addition to information about training camps to be organized.
5. Goat Owners group	Farmers of Pune and Mumbai	Managed by Farmer Entrepreneur	1.Photos of live animals 2.Negotiations about selling and buying

It is evident from table 2 that WhatsApp is being used for sharing agriculture based information by farmers in India. These groups are being managed by farmer themselves especially progressive farmers and in few instances by resource persons such as agriculture officers and veterinarian. Information being shared is through texts, pictures and videos making it a dynamic information exchange platform. The groups have members across different states which demonstrate ability of these tools to disseminate information across physical boundaries. Fernandes, 2015 reported that perception of information through WhatsApp group among members to be better than the government run *Kisan* call centres. Information through *Kisan* call centre was often impractical and was provided with delay. WhatsApp has emerged as a new channel for diagnostic support in countries of Central America .In Costa Rica, Nicaragua and Honduras, plant pathologists and entomologists have been using WhatsApp group to provide plant diagnostic support by looking at symptoms highlighted in the photos and provide a diagnosis to field plant specialists who face difficulty in diagnosing the problem (Chernoh and Hidalgo, 2015). Further, WhatsApp has emerged as classified marketplace in Gujarat, India that allows farmers to trade goods such as grains, vegetables, seeds, irrigation equipment and tractors, among others (Vora, 2015)

**Table 3: YouTube as a tool for information on Goat Farming in Indian languages
(Hindi and other regional languages)**

	Title of Video	Name of Extension Organization	Video Uploaded on	Vernacular Language	Views as on April 15th 2015	Views as on April 8th, 2016	Percentage Increase in viewership in One year
1	Goat Farming	BAU Sabour	October 10,2014	Hindi	11,270	63,133	560.18
2	Goat Farming	Shramajeevi Agri Films	December 2013	Hindi	107735	2,67,952	248.71
3	Sheep Farming	Shramajeevi Agri Films	July 2013	Kannada	41881	1,53,606	366.76
4	Krishi Darshan (Goat farming)	DD National	October 2013	Hindi	1423	3248	228.25
5	Benefits of Goat Farming for Punjab Farmers	ABP Sanjha	September 2014	Punjabi	1054	5964	565.84
6	<i>Labhkari Vyabsaya hai Bakari Palan</i>	Pradesh News 18	September 2014	Hindi	4982	70,507	1415.23
7	Central Institute for Research on Goats	Indian Council of Agricultural Research	October 2011	Hindi	4387	13,452	306.63
8	Broiler Goat Rearing: Women SHG Show the Way	ICAR-Indian Institute of Spices Research Institute	May 2011	Hindi	16,333	19,42,99	1189.61
9	<i>Aadhunik Bakari Palan</i>	World Development Foundation	October, 2011	Hindi	81,818	1,21,062	147.965
10	Goat Farming successful Story	ABP Majha	Feburary 2015	Marathi	414	9556	2308.21

YouTube as a source of animal husbandry (goat and dairy) based information

YouTube has become quite popular platform on scientific information about goat farming. News channels, agricultural research institutes and non-government organizations are organizational sources for uploading these videos. Also, they have been quite popular as

evident from the number of views received. The information is available in *Hindi* as well as in other regional Indian languages. Most of the videos have been uploaded recently (3-5 years). Percentage increase in viewership over one year of these videos has been very high (228% to 2308%) which indicates huge potential of delivering information through YouTube in Goat extension educational initiatives. This is important given the fact that there is definite lack of availability and distribution of quality videos on agriculture in local languages. This factor has often constrained farmers in accessing videos as informational tool (Mele and Bentley,2014). YouTube as an educational platform for poultry farmers has been used by organisations in Kenya to receive training and provide feedback on areas such as housing, disease control, feeding and management (Irungu et al.,2015). Thus, YouTube as a social media tool offers opportunity for extension organizations to not only use existing videos but also to publish their own videos for watching and sharing .However, quality of videos such as use of local language remains an important factor .

Table 4: YouTube as a tool for information on Dairy Farming in Indian languages (Hindi and other regional languages)

Title of Video	Name of Organization	Video uploaded on	Language	Views as on April 15 th 2015	Views as on 15 th April,2016	Percentage Increase in viewership in One year
1. Success story of a dairy farm	Indian Dairy farming	Feb 2014	Hindi	8058	24623	305.57
2. Dairy Shed	Indian Dairy Farming	Feb 2015	Hindi	1299 Views	25,482	1961.66
3. <i>Hum batayange Swach Dugdh Utpadan Taknik ke Bare Mein</i>	News 18 Hindi	November 2014	Hindi	32 Views	722	2256.25
4. Complete Feed Block	Shramajeevi	December 2013	Hindi	7473	19930	266.69
5. <i>Pasuo ke Liye</i>	IGNOU	December 2009	Hindi	2137	4433	207.44
6. Dairy farming Hindi Access Madhya Pradesh	Digital Green	October 2011	Hindi	22,982	41,558	180.82
7. <i>DugdhSagar Dairy Documentary</i>	<i>DugdhSagar Dairy Co-operative</i>	April 2014	Hindi	3004	7396	246.20
8. How to earn	Saam Marathi	November	Marathi	15,311	97,902	639.42

3.50 lakh from dairy farming		2014				
9. <i>Vichar Taqrar</i> , Dairy Farming Profitability	PTC News	September 2014	Punjabi	1023	3511	343.60

As Evident from table 4, majority of the videos have been uploaded recently (2014 onwards). The percentage increase in viewership (180.83% to 1961.66%) over one year (April 2015-April 2016) has been found to be very high. This indicates that YouTube has become a popular tool to seek animal husbandry based information as well.

Table 5: Use of Face book by Agricultural Research Organizations

Name of the University	Number of Likes as on April,2016
1. Punjab Agricultural University	12480
2. Tamil Naidu Agricultural University	3536
3. Anand Agricultural University, Anand	1554
4. Bidhan Chandra Krishi Vishwavidyalaya	2828

Facebook profile of each of major agricultural university of four regions (North, south, east and west) of India were explored Table 5. Only the Anand Agricultural University was using official Facebook presence. All these institutions were using Facebook to share content about important functions and activities of their institutions. The organisational culture of Indian agricultural extension has limited the full potential of social media use (Saravanan and Bhattacharjee, 2014). Further, using social media for professional activities offers several challenges. This involves quality control and monitoring of posts, ensuring participation, satisfying heterogeneous users, institutionalising social media, continuous engagement, skilled human resource to maintain social media, measuring the impact, lack of capacity for tools and analytics that help monitoring and assessing the value of information, creating awareness about social media's potential at the organisational level, allocating time to update content and encouraging stakeholders to access resources through social media links (Saravanan et al., 2015)

Table 6: Use of Facebook by different state animal husbandry departments

State Animal Husbandry Departments	Type of Profile	Number of likes	Last updated on
1. Animal husbandry department, Punjab	Facebook Page	5116	March 2016
2. Department of animal husbandry,	Facebook Page	1143	April,2016

Government of Jharkhand			
3. Department of Animal Husbandry, Maharashtra.	Facebook Page	3759	July 2015
4. Animal Husbandry & Veterinary Department, Mizoram.	Facebook Page	7	July,18,2012

To study the Facebook activity of development organizations (Table 6), Facebook profile of different state animal husbandry departments were explored. The Facebook presence was used to share circulars and notifications of official activities. However, very little effort was made to use Facebook to deliver information for the benefit of farming community. Many state animal husbandry departments have social media (facebook) presence yet they do not use this tool to meet specific information requirements of farming community (Thakur et al., 2015). The use of social media as an information source is often overlooked due to the perception of information being either worthless or too hard to find (Cook, 2013). This may be due to lack of awareness and readiness to accept social media by farmers as well as extension professionals (Sarvanan et al., 2015).

CONCLUSION

The popular social media tools i.e. Facebook, WhatsApp and YouTube are being used for information delivery and sharing across different agriculture subsectors (crops, horticulture, dairy, goat farming) in India. Most of them are through individual efforts. There is definite lack of organized efforts to use social media from public extension system in India. Appreciably, in recent times, the Government of India including Indian Ministry of Agriculture has given importance to Social Media. The Minister of Agriculture in India not only maintains a Facebook account but also recently he answered the queries of the public online using Facebook (The Statesman, 2016) which is a significant move forward to enhance use of social media. Using social media tool for agricultural extension activities can be regarded as 21st century skill (Neill et al., 2011). However, the stakeholders currently may be unaware about using it for agriculture extension activities (Gharis et al., 2014; Hill, 2014). The quality of information shared through social media would be an important factor for its use by farming community.

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