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Analysis of Farmer's Perception and Usage of Social Media in Agriculture

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ABSTRACT

The present investigation was conducted during from June, 2021 to February, 2022 in twelve villages under District Agricultural Advisory and Transfer of Technology Centre, six each in Bhuvanagiri and Jangaon districts, Telangana, India to study the use of social media as a source of agricultural information, use pattern, preference towards different modes of information receiving and sharing, and frequency of use among farmers. The ex-post facto research design has been used for the study and samples were selected by using both purposive and random sampling techniques. The data was collected from 120 respondents through a structured interview schedule. The study revealed that 47.50% of the farmers were in the middle age group, 80.00% of them had high school and above education levels. 84.16% of the farmers used mobile phones and social media platforms for getting agriculture related information. 61.67% of the farmers used social networking sites like You tube, Twitter whereas 78.33% of the farmers used messaging platforms like Whatsapp, Telegram and Snapchat several times in a day. You tube was the preferred media out of all the social networking sites (67.50%), whatsapp for messaging (44.17%), You tube for media sharing (35.00%) and more than 90.00% of the farmers used Twitter for microblogging and none used blogs. The personal characteristics of the respondents' such as education, farm size, social participation, scientific orientation, innovativeness, annual income, information seeking behaviour were significant and positively correlated while age and farming experience had significant but negative relationship with social media use.

KEYWORDS: Agricultural information, dissemination, perception, social media, Whatsapp, You Tube

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1. INTRODUCTION

Agriculture makes the country secure in terms of food, fodder and other raw materials as feedstock for industries (Anonymous, 2015). It contributes a significant figure to the country's overall economic growth and determines the standard of life for 54.60% of the population (Anonymous, 2018). So it is very important to maintain sustainability in terms of growth in the agriculture sector over the long run (Amanjit et al., 2022). Traditional agricultural extension services in India and other developing countries confront several constraints that restrict their effectiveness in providing services (Shanmukha et al., 2022a). The problem with the country's extension system is the lack of human resources in agriculture extension agencies. The National Sample Survey Organization (Anonymous, 2014) reported that only 41% of farmers have access to one or more sources of information, while the remaining 59% were ignorant in transferring knowledge to them, which results in a considerable decline in field gaps.

Social media are web-based tools of electronic communication that allow users to personally interact with others individually or in groups for the purposes of exchanging information, sharing thoughts, opinions, influencing and facilitating decision-making by creating, storing, retrieving and exchanging information in any form (text, pictures, video etc.) by anyone in the virtual world (Saravanan and Suchiradipta, 2016; Andres and Woodard, 2013). Social media also helps farmer to connect with extension agents, specialists, facilitates mass-personal communication (Carr and Hayes, 2015) and to get real time solution to their specific problems (Kerlinger, 1976; Joshi and Dhaliwal, 2019).

Social media has now become, a mainstream form of communication across the globe and its influence is increasing with the rise in the number of smart phone users (Lathiya et al., 2015) although television, radio, agriculture officer, progressive farmers and other personal sources still dominate into strong group of information sources, usefulness and overall agricultural information system (Ravikumar et al., 2015; Nain et al., 2015). They are mostly used to get benefit of general communication, entertainment purpose (Panda et al., 2019) and assists to connect with peers through maintaining a continuous connection with technology (Jagadeeswari et al., 2019; Jaclyn Carbal, 2011). The acceptance of social media has increased; thus, various applications, tools, platforms, functions and features have been evaluated (Sandeep et al., 2022b) as such developing awareness and skill of the farmers to use ICT tools for their farming benefits is required (Parmar et al., 2020; James et al., 2020). Social media has been the fastest adopted media technology in the world as it took around 38 years for radio, 13 years for television, 4 years for iPod, 3 years for internet but one year for Facebook and 9 months for twitter to reach 50 million users (Chui et al., 2012; Sandeep et al., 2022a). The most popular social media used among the farming community is WhatsApp (Owiny et al., 2014), followed by Facebook, YouTube, Twitter and LinkedIn (Balkrishna and Deshmukh, 2017). A majority of farmers were using social media for receiving and sharing agricultural information (Panda et al., 2019; and Singh et al., 2017). Social media platforms are not confined only to transfer and sharing of agricultural information but also provide farmers with holistic knowledge about ongoing developments in their surroundings (Shanmukha et al., 2022b). The extension mechanism for purposeful farmer to farmer learning exchange is also created which in turn may be a step towards innovative farmer led extension delivery mechanism (Nain et al., 2019). Keeping these observations in view, this study aims to get an insight on the use of social media by farmers, use pattern and preferred social media platforms.

2. MATERIALS AND METHODS

The state of Telangana was purposively selected for the study and it was conducted in Bhuvanagiri and Jangaon districts of Telangana state, India that lies between 17.4533°N latitude, 78.9288°E Longitude during 2021–22 from June, 2021 to February, 2022. The study was designed and responses were collected from farmers using social media. In line with the objectives of the study, ex-post facto research design was employed. The employed research design is a systematic experimental inquiry in which the researcher does not directly control on independent variables (Kerlinger and Katz, 1976). Sample was drawn by adopting purposive and random sampling techniques. Three (3) mandals from each district and two (2) villages from each mandal thus a total of twelve (12) villages were selected from six (6) Mandals by simple random sampling technique. From each village ten farmers were selected purposively, those farmers who were using mobile, making 120 respondents for the study. The data were collected through personal interview technique with the help of structured interview schedule and analysed using MS Excel and Statistical Package for Social Sciences (SPSS). In order to measure social-media use, the respondents were asked questions about use of different social media, time spent on social media, purpose of using social media, perceived benefits of using social media, pattern of social media use and usefulness of social media, etc. The scores for these questions were added to get overall score of a respondent and then respondents were categorized into low, medium and high based on his/her total score using mean and standard deviation. Also, to get more clarity on the use of social media, respondents were asked to rank in order of preference, the purpose for which they use social

media, what social media means to them and which social media were most preferred by them and the ranking done by all of the respondents were analysed using Henry Garret ranking technique. In total, ten profile characteristics i.e., age, education, farming experience, farm size, family size, social participation, innovativeness, scientific orientation, annual income, information seeking behaviour were selected for the study to find out the relationship with the agricultural information disseminated through social media as perceived by the respondents after reviewing the available literature. The variables were measured with suitable scales. The data collected were classified, tabulated and analysed. Statistical methods, such as the frequency, percentage and the correlation coefficient were used.

2.1. Correlation analysis

Pearson's correlation coefficient when applied to a sample is commonly represented by the letter "r" and may be referred as the sample correlation coefficient or the sample Pearson correlation coefficient. It is used with two variables (independent and dependent) to determine a relationship/ association.

3. RESULTS AND DISCUSSION

3.1. Socio–economic characteristics of respondents

It can be inferred from the study that nearly 47.50% of the farmers were in the middle age group with 80.00% of the farmers under upper school and above educational levels.

Nearly three quarters (67.50%) of the farmers had 2.5 acres or above farm size with 59.17% of the respondents had more than 10 years of experience in farming. The family size was restricted up to 4 members in 52.50% of the farm families, 42.50% of the respondents had membership in more than one organization, 43.33% of the farmers had high scientific orientation and 45.83% of the them had high innovativeness with more than 50.83% of the farmers having medium annual income, 52.50% of the farmers had medium information seeking behaviour. The results were in tune with the findings of Madhushekar et al. (2021) reported that most of the paddy farmers were middle aged and more than three quarters of the farmers had education above 7th class, Meena et al. (2013), Dhola and Pandhya (2019) who reported similar findings with regard to farm size, farming experience and information seeking behaviour whereas Jat et al. (2021), Hemantha et al., (2022), Madhushekar et al. (2022a) reported that nearly 50.00% of the farmers had nuclear families restricting to 4 members and nearly one fourth of chilli and Groundnut farmers had membership in more than one social organization.

3.2. Media, farmers were using for getting agriculture related information:

It is evident from Table 2 that 84.16% of the farmers

Table 1: Socio-economic characteristics of respondents (n=120)

Sl. No.	Variables	Category	Frequency	%
1.	Age	Young (24–39)	46	38.33
		Middle (40–54)	57	47.50
		Old (55–69)	17	14.17
2.	Education	Illiterate	09	7.50
		Primary school	15	12.50
		Upper school	22	18.34
		High school	29	24.16
		Above matriculation	45	37.50
3.	Farm size (in acre)	Marginal (0–2.5)	39	32.50
		Small (2.5–5)	58	48.33
		Large (5 and above)	23	19.17
4.	Farming experience (in years)	<10 years (less than 10 years)	49	40.83
		11–20 years	53	44.17
		>20years (more than 20years)	18	15.00
5.	Family size	1–4 members	63	52.50
		5–8 members	43	35.83
		More than 8 members	14	11.67
6.	Social participation	No participation	17	14.17
		Membership in one organization	34	28.33
		Membership in more than one organization	51	42.50
		Membership with office bearer	18	15.00
7.	Scientific orientation	Low (1–9)	25	20.83
		Medium (10–18)	43	35.83
		High (19–27)	52	43.33
8.	Innovativeness	Low (1–8)	20	16.67
		Medium (9–16)	45	37.50
		High (17–24)	55	45.83
9.	Annual income	Low (up to ₹ 25000)	21	17.50
		Medium (₹ 25,000 to ₹ 50,000)	61	50.83
		High (more than ₹ 50,000)	38	31.67

Table 1: Continue...

Sl. No.	Variables	Category	Frequency	%
10.	Information seeking behaviour	Low (<27.13)	17	14.17
		Medium (27.14–43.13)	63	52.50
		High (>43.13)	40	33.33

1US$= 75.32 INR, February, 2022

Table 2: Distribution of respondents according to media used for getting information (n=120)

Sl. No.	Media	Response	Percentage	Ranks
1.	Mobile phone/social media	101	84.16	1
2.	Newspaper/ print media	81	67.50	2
3.	Television	75	62.50	3
4.	Neighbouring farmers	65	54.17	4
5.	Public extension system (MAO's/ AEO's/Scientists)	58	48.33	5
6.	Radio	54	45.00	6
7.	Computer	43	35.83	7

used mobile phones or social media platforms for getting agriculture related information followed by Newspaper or Print media by 67.50% of the farmers and third preference was given to television by 62.50% of the farmers. The results are in unity with the findings of Sandhu et al., 2012, Singh et al., 2017 and Sethy and Mukhopadhyay, 2020 who reported that farmers used smart phones for getting agricultural information, news, online chatting and for entertainment purpose.

3.3. Social media use

The data in Table 3 reveals that nearly 59.17% of the respondents belonged to medium category with respect to overall social media use followed by high category (30.83%). It can be concluded from the data that vast majority of farmers were actively using social media although their extent of use differs.

Table 3: Distribution of respondents based on overall use of social media (n=120)

Sl. No.	Category	Response	Percentage
1.	Low (< 43)	12	10.00
2.	Medium (43–67)	71	59.17
3.	High (>67)	37	30.83

Affordable smart phones, improved connectivity in villages, cheaper data plans and increasing awareness about ICT might be the reasons for these results. The findings were also supported by Jat et al. (2021), Nirmalkar et al. (2022) and Singh et al. (2021) who revealed that majority of farmers (59.70%) were in medium group of ICT use. Farmers used ICT's for getting agriculture information along with connecting with Govt. departments, agencies etc and ICT's also helped in enhancing agricultural growth.

3.4. Social media usage

It is clear from Table 4 that 61.67% of the farmers used social networking sites like You-tube, Twitter, Face book etc several times a day whereas 78.33% of the farmers used messaging platforms like Whatsapp, we chat, Messenger etc several times in a day along with 55.83% of them used media sharing platforms like You tube, Facebook, LinkedIn for obtaining agricultural information but more than 60.00% of the farmers occasionally or never used the microblogs and blogs. The results were also supported by the study of Khou and Suresh (2018) and Singh et al. (2021) which stated that YouTube was the most popular social media among all the age groups of farmers followed by Facebook and WhatsApp whereas a small group of educated young farmers preferred Instagram and Twitter.

3.5. Preference of different social media usage by farmers

It is observed from Table 5 that 67.50% of the farmers used You tube as the preferred media out of all the social networking sites, 44.17% of the farmers used Whats app for messaging, 34.17% used Telegram, 35.00% of them used You tube for media sharing and more than 90.00% of the farmers used Twitter as microblog and none used blogs. The findings are similar to Joshi and Dhaliwal (2019), Khou and Suresh (2018) who revealed that more than half of the farmers were regularly using Facebook while 82.00% and 78.00% farmers were using WhatsApp and YouTube respectively.

3.6. Perception of the respondents on the uses of social media in agriculture

Different perception levels of the respondents on the use of social media in agriculture was analysed and presented in Table 6, it can be observed that 82.50% of them enquired about crop disease and pest management measures. From this, it can be inferred that most of the respondents utilized the social media very effectively in developing their knowledge levels by seeking and sharing the information followed by 76.67% of them on seed availability. In order to motivate and encourage the farmers, various state governments took new initiatives in documenting the success stories of innovative farmers and getting the same replicated in similar agro–climatic regions for better productivity. Thus, the respondents placed at third place with 67.50% of the farmers enquiring about the successful examples and case

Table 4: Response analysis of social media usage (n=120)

Sl. No.	Media	Constantly logged in	Several times a day	Once in a day	Occasionally	Never
1.	Social networking sites	05 (4.17)	74 (61.67)	24 (20.00)	07 (5.83)	10 (8.33)
2.	Messaging platforms	04 (3.33)	94 (78.33)	06 (5.00)	13(10.84)	3 (2.50)
3.	Media sharing platforms	11 (9.17)	67 (55.83)	35 (29.17)	5 (4.17)	2 (1.67)
4.	Microblogs	2 (1.67)	23 (19.17)	21(17.50)	55 (45.83)	19 (15.84)
5.	Blogs	1(0.83)	5 (4.17)	14 (11.67)	25 (20.84)	75 (62.50)

Table 5: Distribution of respondents according to preference of different social media usage (n=120)

Sl. No.	Media	You tube	Linked in	Twitter	Skype	Flicker
1.	Social networking sites	81 (67.50)	07 (5.83)	21 (17.50)	09 (7.50)	02 (1.67)
		Whats app	We chat	Telegram	Instagram	Snapchat
2.	Messaging platforms	53 (44.17)	09 (7.50)	41 (34.17)	03 (2.50)	14 (11.67)
		Linked in	You tube	Facebook	Twitter	Instagram
3.	Media sharing platforms	11 (9.17)	42 (35.00)	29 (24.17)	23 (19.17)	15 (12.50)
		Twitter	Twister	Tumbler	Gab	Reddit
4.	Microblogs	109 (90.83)	0	11 (9.17)	0	0
		Cup of Joy	Agril India	Fat Boy	Soil world	Paddy world
5.	Blogs	0	0	0	0	0

Table 6: Distribution of respondents according to enquiries made in social media (n=120)

Sl. No.	Statement	Response	Percentage	Ranks
1.	Crop disease and pest management/ Plant protection measures	99	82.50	1
2.	Source of seeds / Availability	92	76.67	2
3.	To know the successful examples, case studies of farmers etc.	81	67.50	3
4.	Weather forecasts and Early warning messages	75	62.50	4
5.	Nursery management	74	61.66	5
6.	Marketing of the agricultural commodities	72	60.00	6
7.	Information about different government schemes	70	58.33	7
8.	Farm Mechanization	65	54.16	8
9.	Livestock management	57	47.50	9

studies of farmers followed by weather forecasts and early warning messages. The respondents perceived social media as a tool which can easily disseminate different technological innovations happening in the farming sector with in less time. The results are in conformity with the findings of Tambade et al. (2019), Thakur and Chander (2018) who confirmed that major information seeking aspects of farmers were on plant protection and seed.

3.7. Relationship between profile characteristics of respondents with social media use

It can be concluded from Table 7 that profile characteristics of the respondents' such as Education, Farm size, Social participation, Scientific Orientation, Innovativeness, Annual income, Information seeking behaviour were significant and positively correlated with social media use while age and farming experience had significant but negative relationship with social media use. This might be due to the fact that young farmers use great number of social media apps for multiple purposes as compared to old farmers who use lesser number of social media and for limited purposes. Further old aged and high farming experienced farmers have poor skills to revive information on social media and choose direct contact with experts than connecting

Table 7: Pearson correlation analysis on the socio-economic characteristics

Sl. No.	Socio economic characteristics	Pearson correlation	Significance
1.	Age	- 0.206**	S
2.	Education	0.315**	S
3.	Farm size	0.359**	S
4.	Farming experience	- 0.489**	S
5.	Family size	- 0.248	NS
6.	Social participation	0.472**	S
7.	Scientific orientation	0.543**	S
8.	Innovativeness	0.675**	S
9.	Annual income	0.246**	S
10.	Information seeking behaviour	0.592**	S

NS: Non-significant; *p=0.05; ** p=0.01

digitally. This is supported by the study of Kaur and Singh (2021) and Kale et al. (2016) which revealed that social media use varied between different age groups and young generation spend greater time on social media than the older generation. Also, as social participation, contacts with extension functionaries, participation in extension activities increases use of social media, as farmers tend to make use of social media to build relationship, make connections and interact with peers and experts. Similarly, education makes farmer more capable of understanding the benefits of ICTs like social media and make their better utilization. The findings are similar to Joshi and Dhaliwal (2019) who revealed that age had negative relation with social media utilization while education has positive relationship. Further, Annual income also showed significant relationship as higher incomes means greater affordability which in turn affects availability and accessibility of modern ICT tools such as smartphones, desktops and laptops. The results are also supported by the Madhushekar et al. (2022c), Sandeep et al. (2022a), Raghuprasad et al. (2012), Madhushekar et al. (2022b) who found that education, farm size and annual income had positive and significant relationship with utilization of ICT tools.

4. CONCLUSION

The majority of farmers were in medium category of social media use and used social media platforms for getting agriculture information. Farmers used social networking sites like You-tube, Twitter, Facebook several times a day, You-tube was the most preferred media out of all the social networking sites. Socio-personal traits like education, farm size, social participation, scientific orientation, income, information seeking showed positive relationship with social media use while age showed negative relationship. Farmers perceived that information available on social media was effective.

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