

Effectiveness of Social media-WhatsApp for Dissemination of Improved Crop Production Technology

Comment [cs1]: Is WhatsApp a real social media? If so, what is the logic of using the phrase "Social media-WhatsApp"?

ABSTRACT

Across India, WhatsApp groups are not only connecting farmers to their customers in the virtual market ~~also they're, but they're also~~ creating a network of resources and support for the country's farmers who need it most. It is one of the world's most popular communication applications in the 21st century. Therefore, a study on ~~effectiveness of WhatsApp for dissemination of Agriculture technologies in Paddy Crop was conducted at Krishi Vigyan Kendra, Jabalpur (M.P.) during the effectiveness of WhatsApp for the dissemination of agricultural technologies in Paddy Crop was conducted at Krishi Vigyan Kendra, Jabalpur (M.P.), in 2022.~~ An exhaustive WhatsApp user list was prepared from 06 villages, ~~Khiriya Kalan and Kathoda, from Panagar block, Badkhera and Dunda from Kundam Block, and Agasi, -; Khiriya Kalan and Kathoda from Panagar block, Badkhera and Dunda from Kundam Block, and Agasi and Ahrora from Sahnura block~~ were selected randomly. Thus, 50 farmers from the ~~3-three~~ blocks of the district using WhatsApp were selected randomly and grouped ~~for sending the messages of to send messages about~~ agricultural aspects. The present study highlights and examines the usefulness of WhatsApp among farmers. The social ~~media-enabled WhatsApp is helping farmers to solve farming-related~~ ~~media-enabled WhatsApp is helping farmers solve farming-related~~ problems more efficiently by making them digitally literate. It can be concluded that by ~~the use of WhatsApp farmers are able to seek information on farm operations, clarify their doubts on agriculture and paddy crop production technology, disease & insect pest using WhatsApp, farmers can seek information on farm operations and clarify their doubts about agriculture and paddy crop production technology, disease & insect pests, etc.~~ It also saved ~~the time and expenses for solving~~ ~~time and money needed to solve~~ the problems. ~~As they~~ They perceived in the study that the WhatsApp messages used were clear and ~~satisfactorily-satisfactory~~ satisfactory for them. ~~Immediate solution to the farmers on mass level through this App could have been achieved by KVK~~ ~~KVK could have achieved immediate solutions to the farmers on a mass level through this App, and need & time-based services and need & time based service~~ to the farming communities were served. On the level of daily interaction, the WhatsApp groups are successful ~~for providing complete assistance and in-in providing complete assistance and~~ motivating farmers.

Keywords: WhatsApp; social media; technology dissemination; paddy, digital farming, mobile.

1. INTRODUCTION

Agriculture is one of the most important sectors in India. In that ~~regards, extensive use of modern information technologies need to be promoted to farm level for the transfer of technologies and information in a cost-effective~~ regard, extensive use of modern information technologies needs to be promoted to the farm level for the transfer of technologies and ~~information in a cost-effective~~ manner [1]. Information and Communication Technology is ruling the world in all walks of life ~~and access to mobile phones and internet facility, and access to mobile phones and internet facilities~~ is growing in India at a rapid rate in recent years. 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 to the farmers but the farm families and~~

~~youth altogether for~~, and that improves the scope of reaching not only the farmers but also ~~the farm families and youth altogether for a~~ higher impact [8]. Low-cost information and communication technology (ICT) tools possess the ability to deliver timely, relevant, and actionable information to farmers at lower costs than traditional extension services[10].

Social media is becoming a popular way of communication. ~~Integration of Information and Communication Technologies is rapidly transforming the way of agricultural technology transfer [8]. It is not only one of the driving forces of globalization but it played important role in liberalization of world trade in the field of agriculture development across the world~~The integration of Information and Communication Technologies is rapidly transforming the way agricultural technology transfers [8]. It is not only one of the driving forces of globalization, but it played an important role in the liberalization of world trade in the field of agriculture development worldwide. ~~ICT like web portals, mobile phones and social media are the most popular and most widely used and can enhance the interaction among researchers, extension personnel, like web portals, mobile phones, and social media, is the most popular and widely used and can enhance interaction among researchers, extension personnel, and farmers [5].~~

This innovative method ~~utilize ICT technologies, social medias like WhatsApp in delivering information to farmer by personal calls, voice and text SMS, pictures, videos~~utilizes ICT technologies and social media like WhatsApp to deliver information to the farmers by personal calls, voice and text SMS, pictures, videos, etc.[8]. The trump card for WhatsApp has been the group messaging ability of the platform to send messages, photos and videos to individuals and groups in a ~~cost-effective manner cheap than most MMS-based platform~~cost-effective manner, cheaper than most MMS-based platforms in the market [5]. India is a land of diversity ~~and thus package of practices for raising crops differ significantly from place to place, today most of the farmer do not have access to information at~~, and thus, the package of practices for raising crops differs significantly from place to place. Today, most farmers do

~~not have access to information at the~~ right time, so farmers' approach towards receiving agricultural information has been completely changed by getting ~~ICT base tool in their hand~~ ICT-based tools in their hands [6]. The role of ICT in agriculture for management ~~decision in modern farming require to be up to date and localized for information on weather forecasts, regional recording~~ decisions in modern farming requires that it be up-to-date and localized for information on weather forecasts, regional recording of crop disease and pests, plant protection, irrigation management, harvesting, ~~of crop disease and pests, plant protection, irrigation management, harvesting~~ and marketing.

~~As the social media use for agriculture sector and extension has gained momentum in the~~ The use of social media in the agriculture sector and its extension have gained momentum in recent times. WhatsApp is a major platform that ~~is being used by extension professionals~~ extension professionals are using to communicate with peers or client farmers ~~but the communication (individual and group) being personal in nature, not, but the communication (individual and group) is personal; not~~ much information is available about the groups other than when highlighted by the media[4]. ~~Smart phone~~ Smartphone users spend considerably more time on social media platforms such as WhatsApp. Thus, there exists an ample opportunity to utilize WhatsApp for agricultural extension activities[13].

~~The~~ Communication technology enables user-to-user ~~interactivity and interactivity and promotes the creation of social wealth in the form of discussion forums of~~ interactivity and promotes the creation of social wealth in the form of discussion forums for Innovative farmers for learning exchange [4]. Additionally, information sharing is possible at any place and at any time without worrying about background disturbances[13]. It can help farmers ~~to seek information on farm operations, clarify their doubts on plants/ livestock disease symptoms and can have immediate access to market related~~ seek information on farm operations, clarify their doubts about plant/ livestock disease symptoms, and have immediate access to market-related information. However, this can be possible only when they are

socially networked with human resources—agricultural researchers, extension agents, veterinarians, progressive farmers, sellers & other buyers—in virtual space. With increasing internet penetration levels in India and ~~smartphone increasingly becoming very affordable one is left to imagine how a platform such as WhatsApp can transform agriculture value chain actors such as Agro dealers, Agribusiness SMEs, and Agriculture extension workers and ultimately create value for the small holders~~smartphones increasingly becoming very affordable, one is left to imagine how a platform such as WhatsApp can transform agriculture value chain actors such as Agro dealers, Agribusiness SMEs, and Agriculture extension workers and ultimately create value for the smallholder farmers [5].

Even though some problems do exist, such as -

1. Lack of timely dissemination of agricultural messages.
2. Insufficiency of ~~on-time available solutions of~~on-time available solutions to the problems.
3. Unawareness about agri. Related news and events.
4. Lack of interaction of farmers with agri. Scientists and experts.

Therefore, the present study was conducted on ~~effectiveness of Social Media (WhatsApp) for dissemination of Agriculture technologies in Paddy Crop in Jabalpur District~~the effectiveness of Social Media (WhatsApp) for disseminating Agricultural technologies in Paddy Crops in Jabalpur District, Madhya Pradesh.

2. MATERIALS AND METHODS

The study was conducted at Krishi Vigyan Kendra, Jabalpur ~~during, in~~ 2022. The KVK utilized WhatsApp (social media) for the dissemination of agricultural technology in the Jabalpur district of Madhya Pradesh. The three (03) blocks ~~namely Panagar, Kundam and Sahpura of District Jabalpur,~~ namely Panagar, Kundam and Sahpura of District Jabalpur, were selected for the study. ~~Total 06 villages i.e. Khiriya Kalan and Kathoda, from Panagar block, Badkhera and Dunda from Kundam Block; and Agasi, Ahrora from Sahpura block~~A total of 06 villages, i.e. Khiriya Kalan and Kathoda from Panagar block, Badkhera and Dunda

from Kundam Block, and Agasi, Ahrora from Sahpura block, were selected randomly. Thus, 50 farmers from the 03 blocks of the district using WhatsApp were purposively selected randomly; the list was prepared and grouped for sending to send the messages of messages on agricultural aspects. Time to Time agro advisories, weather report, new varieties, sowing method, seed availability, market rates, new technologies and how to take precaution from the coming disease and pest outbreak reports, new varieties, sowing methods, seed availability, market rates, new technologies and how to take precautions from the coming disease and pest outbreaks were delivered to the farmer's group. To assess the overall impact of technology an interview schedule was developed, an interview schedule was developed, and responses were recorded on a 03-continuum scale for each aspect and assigned scores.

The farmers were personally interviewed, and responses were collected on:

Performance Indicators/ Parameter-

1. Perception of Respondents for WhatsApp Usage
2. Content of the Message
3. Time of the Message sent
4. Visibility of the content
5. No. of total message messages sent
6. Need of the message
7. Feedback message of farmers

Data was collected through personal interview. The data thus collected was organized and tabulated using simple statistical method, tables and percentage interviews. The data was organized and tabulated using simple statistical methods, tables, and percentages.

3. RESULTS AND DISCUSSION

3.1 Perception of Respondents for WhatsApp Usage:

3.1.1 Reasons to use of WhatsApp :

The Tables 1 shows the reasons of Table 1 shows the reasons for the use of WhatsApp. Because of the peer presence in social media, it makes a great platform to discuss ideas and problems and get professional views. The major uses of social media, according to the respondents, were to find information related to agriculture news (72.00%), to exchange agriculture knowledge (66.00%), to connect with agriculture experts and farmers

(62.00%), To share agriculture information (58.00%), to share agriculture professional professional activities (58.00%) and to find agriculture related interest (56.00%). Findings of Thakur and Chander, 2018 [12] ~~is the similar with~~ The findings of Thakur and Chander, 2018 [12] are similar to the present finding.

Table-1. Reasons to use WhatsApp (%) n=50

S. No.	Reasons	(%)
1.	Find agriculture related <u>agriculture-related</u> interest	56.00
2.	Share agriculture professional activities	58.00
3.	Connect with agriculture experts and farmers	62.00
4.	To share agriculture information	58.00
5.	Exchange agriculture knowledge	66.00
6.	Find out agriculture related <u>agriculture-related</u> news	72.00

Even though the use of social media for agricultural information was fairly high among the respondents, there were some major concerns ~~for~~ about not using it intensively for the purpose. Also, sparse use of the platforms for professional use, lack of authentic information, lack of awareness about its use, lack of competence in using the social media platforms properly, unavailable or bad internet connections, and biased information and advertisements were found to be acting as deterrents among the respondents in using WhatsApp for professional purposes reported earlier by Naruka et al., 2017 [5].

Table- 2. Drawbacks in using Whats App per cent (n=50)

S. no.	Reasons	(%)
1.	Fear of get <u>getting</u> lost	12.00
2.	Lack of know how <u>know-how</u> in social media	28.00
3.	Low battery baek up <u>backup</u>	18.00
4.	Fruitless use of time	30.00
5.	Bad internet connectivity	36.00

3.1.2 Drawback in using WhatsApp:

Table No.2 shows the major drawbacks ~~in~~ of using WhatsApp as a social media. Bad internet connectivity (36.00%) and fruitless use of time (30.00%) were considered as the major

~~drawback~~ ~~drawbacks~~ ~~in~~ ~~of~~ using WhatsApp (Table 2). Lack of ~~know-how~~ ~~know-how~~ was also reported by about 28.00 per cent of the respondents. Concerns about privacy, wastage of time, and lack of expertise in using WhatsApp ~~is~~ ~~are~~ in line with the findings of Newbury *et al.*, 2014 [7]. While internet connections are infrastructural issues and ~~needs to be looked into by the service providers and governments,~~ ~~personal constraints and privacy concerns can be easily taken care of with awareness creation and learning to better use social media through trainings~~ need to be looked into by the service providers and governments, ~~personal constraints and privacy concerns can be easily taken care of with awareness creation and learning to better use social media through training~~ and workshops, if needed [11].

Table-3. Content of the Message (n=50)

Poor	Good	Very good	High Frequency	Percentage
5 (10 %)	5 (10%)	40 (80%)	40.00	80.00

3.2 Content of the Message-

Relevant information is one of the key requirements for increased productivity and increased income to reduce poverty among food producers in underprivileged communities [9]. ~~Content~~ ~~The content of message most important factor for the message is the most important factor for the effective dissemination of technology.~~ ~~The Tables 3 shows about the Content of the Message to share message~~ Table 3 shows the Content of the Message to share messages related to paddy crop production technology and insect pest management. ~~Total 40 (80%) respondent said the content was very good, 5 (10 %) response was good message & 5 (10 %) responded poor message~~ A total of 40 (80%) respondents said the content was very good, 5 (10 %) responses were good messages & 5 (10 %) responded poor messages.

Table-4. Time of the Message sent (n=50)-

Before	On-time On-time	Delayed	High Frequency	Percentage

26 (52%)	21 (42%)	3 (6%)	26	52
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3.3 Time of the Message sent –

Timeliness–The timeliness of agricultural information is very crucial to farmers’ success. Farmers need to be provided with the information at the right time so as to apply that information in their farming activities for better farm productivity. Table 4 shows about the time of the message sent, 26 (52%) of respondent, replied the messages send before sowing of paddy crop, 42 % respondent responded that messages send on time of crop & while, 6% respondent told message sent delay Table 4 shows the time of the message sent; 26 (52%) respondents replied to the messages sent before the sowing of the paddy crop, 42 % of respondents responded that messages were sent on the crop & while, and 6% of respondents said messages were delayed. social–Socialmedia makes a great platform to discuss ideas is a great platform to discuss ideas and problems and get professional views. Similar findings were also recorded by Naruka et al., 2017 [5].

Table-5. Visibility of the content (n=50)-

Low	Medium	High	High Frequency	Percentage
6 (12 %)	5 (10 %)	39 (78 %)	39	78

3.4 Visibility of the content-

It is clear from Table No - 5 that the audio-visuals messages used to relay the information was very simple and easy to understand by No. -5 that the audio-visual messages used to relay the information were very simple and easy for the farmers to understand–the farmers. Total–A total 39 (78 %) of farmers replied that it was easy to understand, photo-related to paddy crop shared via WhatsApp and content of message visibility clear, 10% responded medium visibility & while, of 39 (78 %) of farmers replied that it was easy to understand, photos related to paddy crops shared via WhatsApp and the content of the message visibility was

clear; 10% responded with medium visibility & while 12 % had low visibility. Very easy to group share of information of text, audio, video and image form. It is very easy to group and share information in text, audio, video, and image form. We were very satisfied with the quality, simplicity of language and content of the WhatsApp messages. Similar observation A similar observation was also reported by Muthiah, 2015 [2] that the agricultural information that was disseminated through WhatsApp could be easily comprehended by farmers.

Table-6.No. of total message-messages sent (n=50)-

Low<5	Medium (5)	High>5	High Frequency	Percentage
7 (14 %)	4 (8 %)	39 (78 %)	39	78.00

3.5 No. of the total message-messages sent-

It is recorded from TableNo-06 that, 78 percent (39) of people said that the No of the message was more than five and was sufficient. At the same time while, 8 % of farmers responded that the No of the message was five. It was in medium frequency, while 14 % of people responded that the it was in medium frequency, while 14 % people responded that No of the message was less than five and was low in frequency. It is also clear most of the farmers are satisfied with No of message sent related to that most of the farmers are satisfied with the message that was sent about rice crop production.

Table-7.Need of the message (n=50)-

No Need	Partially need	Full Need	High Frequency	Percentage
4 (8 %)	18(36 %)	28 (56 %)	28	56.00

3.6 Need of the message-

Table No-7 shows that 56 % of messages is full need based of farmers, 36 % Partially need based, related to disease and insect pest management of paddy crop are fully need-based on farmers, and 36 % are Partially based, related to disease and insect pest management of paddy crops. While, 8 % farmers reported that there was no need of message, it was due to

~~that some farmers already having good experience for management of rice crop 8 % of farmers reported that there was no need for a message, it was due to that some farmers already had good experience in the management of rice crops.~~ The main purpose of delivering information through WhatsApp was to make farmers aware of the usefulness of modern crop management practices in enhancing a crop's productivity and subsequently ~~to convince the farmers~~ convince them to adopt the technologies communicated. The WhatsApp messages delivered to registered farmers contained agricultural information covering different aspects of fertilizer application, pesticide application, pest management, disease management, best agricultural practices, seed varieties, seed treatment, weeding and government schemes. Similarly, it has been stated that although mobile ~~phone can help in disseminating agricultural information to improve the farm productivity and rural incomes,~~ phones can help in disseminating agricultural information to improve farm productivity and rural incomes, the trustworthiness of information is one of the important aspects that need to be considered while delivering to farmers to meet their needs and expectations [3]. *Naruka et al., 2017* [5] ~~reported the similar result regarding the need of message sent for agriculture crop cultivation purpose~~ a similar result regarding the need for messages sent for agricultural crop cultivation purposes.

Table-8. Feedback message of farmers (n=50)-

S.No	Parameter	Always (%)	Sometimes (%)	Never (%)
1.	Adequate Rice and Agriculture information	86.00	12.00	2.00
2.	Information acc. to the farmers request and need	80.00	16.00	4.00
3.	Quickly dissemination of information	66.00	32.00	2.00
4.	Quickly communication and solution	60.00	32.00	8.00
5.	Very-It is very easy to group and share of information through text, audio, video and image form	78.00	20.00	2.00

3.7. Feedback message of farmers-

With reference to feedback ~~of farmers, the data from Table 8~~from farmers, the data from Table 8 indicated that farmers (86%) were very satisfied with the quality and adequate information on rice. ~~80-Eighty~~per cent farmers responded that the message was as ~~per farmers request and need, 66 per cent farmers responded that the~~ of farmers responded that the message was as per farmers' request and need, and 66 per cent of farmers responded that WhatsApp can be used in agriculture for quick dissemination of information. ~~60 Sixty~~percent of farmers were satisfied to find quick solution by ~~per cent of farmers were~~ satisfied with finding quick solutions through fast communication. ~~78-Seventy-eight~~per cent farmers expressed that it is very easy to share agriculture information in form of text, audio, video and image through WhatsApp in comparison ~~percent of farmers expressed that it is very~~ easy to share agricultural information in the form of text, audio, video, and image through WhatsApp compared with other sources of information. ~~Similar result~~ A similar result was also affirmed by *Naruka et al., 2017* [5].

4. CONCLUSION

Across India, WhatsApp groups are not only connecting farmers to their customers in the virtual market—they're creating a network of resources and support for the country's farmers who need it most. The social ~~media-enabled~~WhatsApp is helping farmers to solve farming related problems more efficiently by making them digitally literate as they perceived in the study that the WhatsApp messages used were clear and satisfactorily ~~media-enabled~~ WhatsApp is helping farmers solve farming-related problems more efficiently by making them digitally literate, as they perceived in the study that the WhatsApp messages used were clear and satisfactory for them. WhatsApp is very useful ~~which saved the~~, as it saves time and money when solving problem ~~time and expenses for solving the problem. Immediate solution to the farmers on mass level through this App could have been achieved by KVK and need & time based service to the farming communities were~~The immediate solutions to the farmers on a mass level through this App could have been achieved by KVK, and the

need & time-based service to the farming communities was served. From the study ~~it can be concluded that by the use of WhatsApp farmers are able to seek information on farm operations, clarify their doubts on agriculture and paddy crop production technology, disease & insect pest,~~ it can be concluded that through the use of WhatsApp, farmers can seek information on farm operations and clarify their doubts about agriculture and paddy crop production technology, disease & insect pests, etc. On the level of daily interaction, the WhatsApp groups are successful at providing a sounding board of assistance and in motivating farmers.

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