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Use of social media for technology dissemination as perceived by farmers

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Abstract
This study was conducted to know the extent of use of digital technology on farmers. It also finds out the impact of digital technology on problem solving behaviour of farmers. Results show that more than 90 queries were raised by the farmers on various aspects like insect pest management, varietal recommendations, weed management, weather information, crop replacement, crop rotation, organic farming, farm machinery, market access, processing, secondary agriculture and Government schemes & plans to get benefit. These queries were resolved by scientists in order to maintain efficiency and motivate farmers to clear their doubts. Some of the queries were repeated by the farmers which show their inability to identify the problem and lack of self-confidence. An analysis of promptness of solution to queries revealed that farmers get solutions of problem immediately which ranges up to 48 hours.

Keywords: information, whatsapp, digital extension, decision making support

Introduction
Digital Revolution helped to transform Indian mindset exponentially. We are witnessing a paradigm shift of information dissemination. A large number of platforms are available which help in easy, flawless, quick, timely and accurate response to farmers query. We Have Moved From Electronic Data Processing (EDP) to Management Information System (MIS) and finally concluding towards Decision Support System (DSS) to help farming community in most user friendly way.

In India agricultural extension mechanism is facing severe problem due to lack of technical human resources. Besides this the public agricultural extension system is involved in multiple development activities which obviously reduces its efficiency of reaching and serving large farming community to a great extent. Researches before evolution of digital media "lack of information to farmers" was the most reported constraints in the process of agricultural development. Under this background social media being a tool of ICT is attaining a greater role and potential in strengthening public agricultural extension system with the tremendous abilities of reaching and benefiting a large number of farmers individually with a personal touch.

Social media are web based tools of electronic communication that allows us to individually interact with others in group for the purpose of exchanging agricultural information and sharing for thoughts. Largely this whole process helps in mutual learning. Looking to the benefits and utility of Social Media, all over the country Krishi Vigyan Kendra are sending weekly advisories to registered farmers through mKisan portal. Other common platforms like face book, WhatsApp, telegram, signal, twitter etc. are also being used by the KVKs in order to overcome traditional redundancy of information sharing and utilization.

Methodology
The present research work was carried out in Rewa district of Madhya Pradesh. The entire investigation was concerned with the farmers using social media of group formed by KVK, Rewa. Presently, for diffusion of need based agricultural technology; there are five WhatsApp group, 1 YouTube channel and one blog functioning in Rewa district and the farmers using the social media are spread over all the nine blocks of district. It has been found that the farmers of these three blocks namely Rewa, Sirmour and Raipur Karchuliyan are availing the desired benefits of social media due to good network connectivity and linkage with the KVK personnel's.

Hence, these three blocks were selected as the operational area of the present investigation. A village wise list of the respondents who were registered in KVK social media group was prepared from the selected blocks. From this list of 750 farmers; 20% farmers were selected from different villages under stratified random sampling thus the size of sample was 150 consisting of farmers using whatsapp and other digital media.

The primary data was collected with the help of pre-tested interview schedule. The collected data was analyzed through the statistical methods *viz*. Frequency, percentage, mean and S.D. The selection of farmers was done by using stratified Random sampling technique. The frequency of use of different ICT tools was measured on six point continuums, *viz*. every day, 2-3 times in a week, once in a week, once in a fort–night, monthly and never with scores of 5, 4, 3, 2, 1 and 0, respectively.

The mean per cent score (MPS) for a particular ICT tool was worked out and ranked accordingly. The data was classified, analyzed interpreted in light of the objectives of the study. Mean per cent score (MPS) was calculated by multiplying total obtained score of the respondents by 100 and divided by the maximum obtainable score. Ranks were accorded in the descending order according to the mean per cent score obtained.

Result and Discussion
During Rabi 2020 Krishi Vigyan Kendra, Rewa delivered 36 crop management advisories in advance through WhatsApp to 750 farmers and field level officials of state department and NGOs. Results show that more than 120 queries were raised by the farmers on various aspects like insect pest management, varietal recommendations, weed management, weather information, crop replacement, crop rotation, organic farming, farm machinery, market access, processing, secondary agriculture and Government schemes & plans to get benefit.

These queries were resolved by scientists in order to maintain efficiency and motivate farmers to clear their doubts. An interesting point found in the study was that after giving solutions by expert, farmer wants to reconfirm so generally a WhatsApp query was followed by a telephonic call.

Table 1: Distribution of raised queries and advisories according to their form

Type of query	Query raised by farmers	Advisories issued by KVK	Total
Text	32 (26.67)	11(30.55)	43
Audio	00(00)	01(2.78)	01
Video	02(1.67)	07(19.45)	09
Photographs	13(10.83)	17(47.22)	30
WhatsApp Calls	73(60.83)	00	73
Total	120 (100)	36 (100)	156

Data in table 1 presents distribution of raised queries and advisories according to their form. It shows that out of total queries raised by farmers maximum queries were in the form of WhatsApp calls (60.83 per cent) followed by text (26.67 per cent), photographs (10.83 per cent). Only 1.67 per cent queries were in form of video where as no query was recieved in the form of audio. It also shows that out of total advisories, maximum advisories were issued in the form of captioned photographs (47.22 per cent) followed by text advisories (30.55 per cent), Videos (19.45 per cent) and Audio (2.78 per cent).

Table 2: Distribution of respondents according to their time spent on Social Media

Parameter	Frequency	Percentage
Less (Up to 2 hours/day)	17	11.33
Medium (2-4 hrs/day)	94	66.67
High/More (>4 Hours/day)	39	26.00
Total	150	100.00

Data in table 2 presents distribution of respondents according to their time spent on social media. It shows that out of total, 66.67 per cent of respondents used to spend medium time on social media ie. 2- 4 hours per day however 26 per cent of the respondents used to spend high time that is more than 4 hours on social media and least 11.33 per cent of the respondents used to spend less time ie. less than 2 hours per day on social media. Globally, an individual spends about 2.4 hours a day on social media (Kemp, 2015) [3] while in 2021; Indians, on average, spend about 2.25 hours on social media daily (https://www.theglobalstatistics.com/india-social-media-statistics/). Results found in sync with above findings.

Table 3: Distribution of respondents according to their preferences of Social Media

Parameter	Frequency			Total Score	Mean Score	Rank
	Less	Moderate	More			
Whatsapp	21 (14.00)	30 (20.00)	99 (66.00)	378	2.52	I
Facebook	56 (37.33)	42 (28.00)	52 (34.67)	296	1.97	II
You Tube	77 (51.33)	38 (25.33)	45 (30.00)	288	1.92	III
Twitter	122(81.33)	19 (12.67)	09 (06.00)	187	1.24	V
Instagram	128(85.33)	17 (11.34)	05 (3.33)	177	1.18	VI
Other (Telegram, LinkedIn and other video sharing app)	106(70.67)	23 (15.33)	21 (14.00)	215	1.43	IV

The data given in table 3 represents distribution of respondents according to their preferences of social media. It shows that WhatsApp ranked first with mean score of 2.52 followed by Facebook (rank II, mean score 1.97) YouTube (rank III mean score 1.92) Twitter (rank V with mean score 1.24) Instagram (ranks VI with mean score 1.18) use of other social media like telegram, LinkedIn was ranked IV with mean score 1.43. The findings are not in congruence with that of Chowdhury and Hambly Odame (2013) [1] where facebook stood as most frequently used social media. It might be due to popularity and user friendliness of the WhatsApp.

Table 4: Content analysis of advisories issued by KVK-Rewa

Parameter	Poor	Good	Excellent	Total Score	Mean Score	Rank
Choice of Words	06	68	76	370	2.46	I
Visibility of Message	00	118	32	332	2.21	II
Completeness of Message /Totality	07	107	36	329	2.19	III
Compatibility	02	119	29	327	2.18	IV
Appropriateness	-	126	24	324	2.16	V
Relevancy	12	103	35	323	2.15	VI
Comprehensibility	21	86	43	322	2.14	VII
Universality	27	106	17	290	1.93	VIII

Content analysis is used in the study as the crucial aspect of the communication process in order to reveal cultural patterns, predict events, identify the communicator's intentions, apply communication standards and describe the response to communication. In the present research work an attempt was made to analyze the content of messages shared by Krishi Vigyan Kendra through digital extension with a view to assess the utility of content of message as perceived by the farmers. The farmers were suggested to express the views against the selected parameters given in table 4.

Table 4 exhibit the content analysis of digital messages shared by the Krishi Vigyan Kendra through different modes. It could be elucidated from the above data that the respondents predominantly perceived that the acquaintance with words (Mean score 2.46, Rank I) and visibility of message (Mean score 2.21, Rank II) was found quite higher in attaining the shared technologies and its application on field followed by Completeness of Message / Totality (Mean score 2.19, Rank III), Compatibility (Mean score 2.18, Rank IV) and Appropriateness (Mean score 2.16 Rank V). Similarly; relevancy (Mean score 2.15, Rank VI), comprehensibility (Mean score 2.14, Rank VII) and universality (Mean score Rank) of message perceived less by the respondents in comparison to other aspects of content analysis.

Content analysis of many daily and weekly newspapers has revealed the space occupied by agricultural content was found quite low (Kumar *et al.* 2003) [5] which is being overcome by evolving social media platforms.

Table 5: Feedback of farmers regarding advisories issued and queries resolved by KVK-Rewa

Parameter	Low /Less	Medium / moderate	High/More	Total
Change in knowledge	05 (3.33)	128 (85.33)	17(11.34)	150
Timeliness	13(8.67)	45(30.00)	92(61.33)	150
Quickness of Response	06(4.00)	137(91.33)	07(04.67)	150
Applicability	14 (09.33)	112 (74.67)	24 (16.00)	150

The data given in table 5 presents feedback of farmers regarding advisories issued and queries resolved by KVK-Rewa.

Change in knowledge: It shows that out of total respondents the maximum respondents had medium change in knowledge (85.33 per cent) due to use of social media followed by high (11.34 per cent) and low (3.33 per cent) change in knowledge respectively.

Timeliness: Regarding timeliness of advisories issued by KVK-Rewa, maximum respondents have perceived that advisories were very timely (61.33 per cent) followed by medium timeliness (30.00 per cent) and less (8.67 per cent) timely respectively.

Quickness of Response: On quickness of response of advisories issued by KVK-Rewa, maximum respondents have perceived that responses received for any queries were very quick (91.33 per cent) followed by moderately quick 4.67 per cent) and less quick (4.00 per cent) respectively.

Applicability: In case of Applicability of advisories issued by KVK-Rewa, maximum respondents have perceived that advisories were highly applicable (74.67 per cent) followed by moderately applicable (16.00 per cent) and less applicable (9.33 per cent) respectively. This result is in sync with results of Singh *et al* (2018) [6].

Table 6: Advantages of Social Media as perceived by farmers

Advantage	Frequency	Percentage	Rank
Ease of Communication	150	100.00	I
Helps in networking	147	98.00	II
Support in Decision making	142	94.67	III
Saves time	139	92.67	IV
Motivates for innovation	114	76.00	V
Saves Money	79	52.66	VI
Enhance mutual learning	76	50.67	VII
Searching & Sorting of Information	72	48.00	VIII

Data in table 6 presents advantages of social media as perceived by the farmers. The result shows that ease of communication ranked First among all advantages of social media followed by helps in development of networking (Rank II), support in decision making (Rank III), saves time (Rank IV) and motivates for innovation (Rank V). However money saving, mutual learning and Searching & sorting of information were reported by less number of farmers as advantages of social media and ranked VI, VII and VIII respectively. These results are quite in congruence with findings of Thakur and Chander (2018) [8].

Table 7: Limitations of Social Media expressed by farmers

Limitation	Frequency	Percentage	Rank
Poor substitute for face to face communication	81	54.00	I
Irrelevant Posts	47	31.33	II
Expensive nature	44	29.33	III
Poor connectivity	39	26.00	IV
Information Fatigue	32	21.34	V

There are also few limitations of social media. Data in table 7 present such limitations of social media as perceived by the farmers. Most of the farmers perceived that social media is a poor substitute for face to face communication as they cannot continuously write the queries prompted after receiving an answers; therefore discussion discontinues (54.00 per cent). Irrelevant Posts are also a major concern for farmers which waste time and data both (31.33 per cent). This problem was

also reported by Thakur *et al*. (2017) [7]. Data packs are also getting expensive making it difficult to avail (29.33 per cent). Some of the farmers reported problem of poor connectivity (26.00 per cent) and lowest number of farmers (21.34 per cent) reported Information fatigue which occurs due to over information on a particular topic which may or may not be relevant to them.

Conclusion
Social media platforms are not only increasing in number but also evolving to be user friendly and more facilitating in terms of languages and patterns. Farmers are also getting in touch with such media platforms to be updated and well informed. However; they need a push to use such platforms initially. Some of the queries were repeated by the farmers at frequent intervals which show lack of self-confidence and their inability to identify the problem by observing photographs and videos. An analysis of promptness of solution to queries revealed that farmers get solutions of problem immediately which ranges up to 48 hours. Delayed response by scientist was closely associated with their workload in the office or field followed by non visibility of symptoms in the low quality photographs sent by farmers and weekend's personal responsibilities related to family. The range and variety offered by social media platforms in agriculture is encouraging. The efficiency and expertise of extension worker to use, appropriate and synchronize these platforms has a vast scope for dissemination of technology for agricultural development.

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