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Assessment of the Kisan Mobile Advisory System (KMAs) on technology dissemination for farmers in Hanumangarh district

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Abstract
The Kisan Mobile Advisory System (KMAs) is an ICT initiative that provides farmers with customized knowledge and real-time agricultural information to improve their decision-making skills in agriculture. The KMAs are delivered to farmers in their mobiles, covering topics such as agricultural production, livestock management, weather forecasts, marketing, public awareness, and secondary agricultural activities. The study aims to assess the impact of the KMAs on the dissemination of agriculture technology to beneficiary farmers in Hanumangarh district, Rajasthan with a sample of 150 farmer beneficiaries of KMAs. The study found that beneficiaries in the area had the most prevalent type of knowledge with irrelevant knowledge being the most prevalent. The highest percentage complete information was found in sub-topic information on extension activities (52.67%), climate and rain (16.67%) and sowing time (45.33%), respectively. In the partial knowledge of the advisory the maximum responses were found in sub aspects on vegetable production (38.67%) followed by nursery preparation and diversification of the crop (37.33%), respectively. In the irrelevant continuum, maximum responses were found in sub topics post-harvest management (41.34%) and followed by storage and processing (40.67%). The Kisan Mobile Advisory system addressed topics unrelated to their circumstances, such as low educational attainment, underdeveloped infrastructure, and lack of network and electricity.

Introduction
The study was conducted in a randomly selected block of the district, and 150 beneficiary farmers were selected for data collection. The study used a survey method and a well-structured interview schedule to collect data through personal contact from selected farmers in 2022.

In order to improve farmers' technical knowledge and decision-making skills in agriculture, the Kisan Mobile Advisory system (KMAs) is being used to deliver the necessary agricultural information through messages (SMS). This will support farmers to increase their production and productivity to meet market demands while also securing a better quality of life and income in an increasingly competitive rural economy. The notifications were delivered to the intended farmers in their mobiles which covered a wide range of topics including agricultural production, livestock management, weather forecasts, marketing, public awareness, and secondary agricultural activities.

In a nutshell, the Kisan Mobile Advisory System (KMAs) is one of these ICT initiatives that offer the farming community in a given area location- and crop-specific farm advisory services and amenities. The Kisan Mobile Advisory system (KMAs) provides customized knowledge and real-time agricultural information to farmers to help them make better decisions that will lead to increased production and productivity, better matching farm output to market demands, better quality assurance, and improved price recovery in a highly competitive global agrarian economy. The previous study on utility of KMAs reported by found that message was needful & timely reported by 82 per cent of farmers and 88.57 & 66.67 per cent for extension personnel and input dealers, respectively. The messages were fully applicable perceived by 42 per cent of farmer, whereas medium & partially applicable was reported by 48 & 49 per cent of farmers (Kumar *et al.* (2014) [1] & Patel *et al.* (2015) [2]. Nargawe (2017) [4] reported that majority of the respondents i.e. 54.28 per cent indicate medium level impact of Kisan Mobile Advisory Services followed by those 22.86 per cent who considered high as well as low

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impact of Kisan Mobile Advisory Services. The above-mentioned investigators found the KMAs very useful for farmers as this fulfil the information requirement of them helps them to make rapid decision in making farming decisions.

The present study entitled " Assessment of the Kisan Mobile Advisory System on technology dissemination for farmers in Hanumangarh district" has been chosen with the specific objective to assess the impact of the Kisan Mobile Advisory system (KMAs). Advisories were delivered to the beneficiary's farmers containing appropriate technological information keeping in mind the significance of their in-crop production and other aspects of agriculture.

Material and Methods

The present study was carried out in Hanumangarh district of Rajasthan. In the Hanumangarh district, the Kisan Mobile Advisory (KMA) system was introduced to the farming community in 2013–2014 by the Krishi Vigyan Kendra, Sangaria. Currently, this initiative is in operation in blocks of Hanumangarh district. As one of the district's key extension systems by KVK for disseminating agricultural technology, the Kisan Mobile Advisory (KMA) system should have its impact to be evaluated in order to make further improvements. The Hanumangarh district has been chosen purposively for the current investigation. Out of seven blocks of the district, one block (Sangaria) was randomly selected from the list of blocks. To select a sample of villages, a comprehensive list of all villages of Sangaria block was prepared and randomly, five villages namely Jandwala Sikhan, Bhakhranwali, Singhpura, Indergarh and Morjand Sikhan were selected from this list. A comprehensive list of the farmers in the five selected villages that has benefitted from Kisan Mobile Advisory (KMA) has been prepared. Among the list, using simple random sampling method, 30 beneficiary farmers were selected from each village. In this way 150 beneficiary farmers have been selected for collecting responses on utility of KMAs. Keeping the purpose of the study, a well-structured interview schedule was developed for the purpose. The survey method interview technique was used to collect the data through personal contact among selected farmers in the year 2022.

Results and Discussion

Information and communication technologies have made possible to disseminate innovations and knowledge quickly, and by making it easier for farmers to acquire agricultural information, they are playing a significant role in changing the agrarian condition and farmers' lives today. Services provided by Kisan Mobile Advisory through messages, essential agricultural information is delivered and, in particular, farmers' agricultural technical knowledge and decision-making skills are improved, enabling them to increase production and productivity to meet market demands while also securing a better quality of life and income in the current competitive agrarian economy. Farmers have received bulk SMS services related to agricultural topics. In order to improve the programs in the future, their effectiveness must be evaluated. 21 agricultural technology components have been taken into consideration in the study to evaluate the farmers' perceptions of their level of knowledge or information received from the Kisan Mobile Advisory system (KMAs) as technological information obtained by the beneficiaries.

KMAs develop and delivered to the farmers

The KMAs was started in the year 2013-14 with once a week frequency. During the period 2020-22, total 187 advisory were issued. The details of broad aspects and number of advisories issued by Krishi Vigyan Kendra, Sangaria has been given in table- 1.

Table 1: Details of KMAs delivered/ issued by KVK, Sangaria during 2020-2022

S. No.	Area of Advisory	No. of advisory delivered
1	Marketing aspects	15
2	Information on extension aspects	25
3	Agronomy aspects	27
4	Horticulture Aspect	68
5	Homestead and Livelihood aspect	56
6	Animal Husbandry aspects	78
7	Climate and weather aspects	43
8	Plant protection aspects	45
9	Total	187

In the investigation responses were taken from beneficiaries on the content received by them through SMS in their mobile phones. It is evident from the table 1 that total 187 advisories were issued to the beneficiaries' farmers in the selected duration. Out of which animal husbandry, horticulture, homestead and livelihood aspects were covered in more numbers i.e. 78, 68, & 56 respectively. The broad aspects given above table- 1 have been further divided in 21 subs - aspects. The responses were recorded in three-point continuum *viz.* complete information, Partial information and Irrelevant by the investigator. On the basis of their frequency in the degree of information they have perceived, the beneficiaries have been grouped using the necessary statistical procedures and are presented in the table 2.

The data in table 2 shows frequencies of the beneficiaries on the three-point continuum in given sub topics. It is evident from the table, among all the subtopics the highest percentage complete information was found in sub topic information on extension activities (52.67%), climate and rain (16.67%) and sowing time (45.33%), respectively. In the partial knowledge of the advisory the maximum responses were found in sub aspects on vegetable production (38.67%) followed by nursery preparation and diversification of the crop (37.33%), respectively. The frequencies and percentage given in table 2 on irrelevant continuum, maximum responses were found in sub topics post-harvest management (41.34%) and followed by storage and processing (40.67%). The findings of the investigation fall in the line of findings of Nargawe, Lalita (2017) [4], Rana, Sheesham (2017) [3] & Kanesiya Trilok, *et al.* (2018) [5]. The high responses in irrelevant continuum of the beneficiaries may be due to untimely, language and utility of the KMAs in his farming condition. The results of the study showed that among beneficiaries in the area, irrelevant knowledge predominated, followed by complete knowledge and partial knowledge, in that order. Since many of the subjects covered by the Kisan Mobile Advisory system (KMAs) were deemed to be somewhat unrelated to their field situation, such as low educational attainment, underdeveloped infrastructure, a lack of network and electricity, there was a lack of likelihood that the majority of beneficiaries discovered the Information. The Kisan Mobile Advisory system (KMAs) is disseminating new technologies, although the average farmer is not very interested in it.

Table 2: Distribution of the beneficiaries according the technological information received through Kisan Mobile Advisory system (KMAs). (n=150)

S. No.	Area of technology	Complete knowledge	Partial knowledge	Irrelevant
1	Soil Management	55 (36.67)	38 (25.33)	57 (38.00)
2	Soil nutrient management	50 (33.33)	47 (31.33)	53 (35.34)
3	Water management	56 (37.33)	49 (32.67)	45 (30.00)
4	Nursery preparation	43 (28.67)	56 (37.33)	51 (34.00)
5	Sowing time	68 (45.33)	39 (26.00)	43 (28.67)
6	Seed variety	58 (38.67)	48 (32.00)	44 (29.33)
7	Seed treatment	55 (36.67)	49 (32.67)	46 (30.66)
8	Recommended dose of fertilizer	41 (27.33)	55 (36.67)	54 (36.00)
9	Weed management	49 (32.67)	46 (30.67)	55 (36.66)
10	Pest management	46 (30.67)	45 (30.00)	59 (39.33)
11	Disease management	44 (29.33)	48 (32.00)	58 (38.67)
12	Vegetable production	33 (22.00)	58 (38.67)	59 (39.33)
13	Dairy: Nutrition and health	58 (38.67)	40 (26.67)	52 (34.66)
14	Poultry: Nutrition and health	53 (35.33)	41 (27.33)	56 (37.33)
15	Goat: Nutrition and health	41 (27.33)	54 (36.00)	55 (36.67)
16	Climate and rainfall	78 (52.00)	31 (20.67)	41 (27.33)
17	Information on extension activities	79 (52.67)	46 (30.67)	25 (16.66)
18	Diversification of the crops	34 (22.67)	56 (37.33)	60 (40.00)
19	Post-harvest management	35 (23.33)	53 (35.33)	62 (41.34)
20	Storage and processing	35 (23.33)	54 (36.00)	61 (40.67)
21	Marketing information	46 (30.67)	51 (34.00)	53 (35.33)
22	Overall average	50 (33.33)	48 (32.00)	52 (34.67)

*Figure in parentheses shows percentage to total responses

Conclusion

The present was undertaken on KMAs started by the KVK, Sangaria. The study has been based on three-year advisory issued on different aspect on farming and other associated activities. Total 187 advisory has been issued and response of the beneficiary were collected on three-point continuum for its utility. The study found that the beneficiaries had access to complete (High level) "information on extension activities" Climate and rain, agriculture technology including "sowing time", seed treatment","" "seed variety and "dairy: nutrition and health." respectively.

Partial (Medium level) information about agricultural technology, such as "vegetable production," "nursery preparation," and "diversification of the crops" was obtained by the beneficiaries, according to the study.

In the end, it can be said that the recipients only received low-level (Irrelevant) knowledge of agricultural technology for "Post-harvest technology" and "storage and processing "technology. According to the findings regarding the overall effect of the Kisan Mobile Advisory system (KMAs), which were obtained by farmers, the majority of beneficiary's 34.67 percent had irrelevant continuum, followed by 33.33 percent of beneficiaries who had complete knowledge and 32.00 percent of beneficiaries who had partial knowledge of the KMAs.

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