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Knowledge level and determinants of farmers using Kisan Call Centre (KCC) advisory services

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Abstract

The Kisan Call Centre (KCC) is an ICT initiative that provides need-based advisory services to farmers in their regional language. The present study was conducted to assess the knowledge level of farmers regarding KCC advisories and the factors associated with their knowledge. The study was conducted in Chamarajanagar district of Karnataka during 2021–22. A total of 200 KCC beneficiary farmers (100 dryland and 100 irrigated farmers) were selected using a multistage stratified random sampling technique. The collected data were analysed using frequency, percentage, mean, standard deviation, Chi-square test, and Spearman's rank correlation. The results revealed that 45.5 per cent of the respondents possessed a high level of knowledge, followed by medium (30.0%) and low (24.5%) level of knowledge regarding KCC advisories services. Although a relatively higher knowledge level was observed among of dryland farmers (48.0%) than irrigated farmers (43.00%), with no statistical difference ($\chi^2 = 2.45$, $p > 0.05$) among dryland and irrigated land farmers. Spearman's rank correlation revealed that education, farming experience, family size, mass media exposure, extension participation, social participation, scientific orientation, risk orientation, and management orientation exhibited a positive and significant association with farmers' knowledge. Strengthening awareness and promoting effective utilization of KCC services can further enhance farmers' knowledge and decision-making.

Keywords: Kisan Call Centre, advisory services, knowledge level, dryland farmers, irrigated farmers, agricultural extension,

1. Introduction

Agriculture is the most important sector where in majority of the rural people in developing countries depending on it for their livelihood. In India, the agriculture industry provides about 17 per cent to the country's Gross Value Added (GVA) during 2025–26 while providing livelihood to nearly 45 per cent of the workforce (MoSPI, 2026) ^[10]. Modern agricultural technologies have been in high demand from the customer side in terms of heavy inputs and equipment usage ever since the Green Revolution era. In order to empower young rural people, women on farms, and farmers socially, psychologically, and economically, extension work has been done all over the world and country to help rural youth, farm women, and farmers. Extending the results of research to universities and research stations is the primary purpose of extension. The impact of timely transfer of technology and collecting feedback from farmers but along with the progress made in the area of Information and Communication Technologies (ICT), which comprises of all the devices and software used in the processing of information electronically. ICT is a very general term used for various kinds of technologies including radio and television to the most recent

like mobile phones, multimedia, internet, and satellite communications. Thus, the concept of ICT includes both conventional technology such as prints as well as modern communication technologies. The latest ICT developments have resulted in a conducive environment for spreading innovative agriculture technology (Manjuprakash et. al., 2020; Patil et al., 2023) ^[8, 12].

In order to strengthen ICT-assisted agricultural extension services, the Government of India started the Kisan Call Centre (KCC) scheme on 21st January 2004 by the Ministry of Agriculture and Farmers Welfare. This scheme allows farmers to contact agricultural experts through toll-free number 1800-180-1551 where they can interact with the agricultural expert in their regional language. The scheme is applicable in all states and union territories in 22 regional languages of India. The services provided through this program include advice related to crops, horticulture, livestock, fisheries, plant protection, weather conditions, marketing, and various government schemes (Portal and Portal, 2017) ^[13].

The Kisan Call Center works on a three-tiered process. The first tier (Level I) involves calling from farmers, which is

answered by trained agriculture graduates who give quick solutions to common questions. In case the question needs specialized knowledge, then it is escalated to Level II where it will be addressed by Subject Matter Specialists from State Agricultural Universities, ICAR institutions, Krishi Vigyan Kendras, and line departments. More complicated and research-based questions are escalated to Level III, where senior agricultural scientists give expert recommendations (Ministry of Agriculture & Farmers Welfare, 2024; Ray & Chowdhury (2015))^[9, 17].

Even though many researchers have stated the efficacy of Kisan Call Centre as a means of providing agricultural information and majority of these studies have focused on awareness, satisfaction, and constraint levels of farmers (Raja et. al, 2022; Raja & Naika, 2023; Raja et al., 2024)^[14, 15, 16] in regard to the above service. Very few studies have taken place to find out the knowledge level of KCC advisories and the factors that affect farmers' knowledge. Hence, current study carried out to access the knowledge level and factors affecting on their knowledge about KCC advisories.

2. Materials and Methods

2.1 Study Area

The present investigation was conducted during 2021–22 in Chamarajanagar district of Karnataka to assess the Knowledge level farmers about KCC advisories. Chamarajanagar district was selected purposively because of its predominance of agriculture and the active utilization of Kisan Call Centre services by farmers. The district comprises four taluks, namely Chamarajanagar, Gundlupet, Kollegal, and Yelandur. The geographical location of the study area is presented in Fig.1.

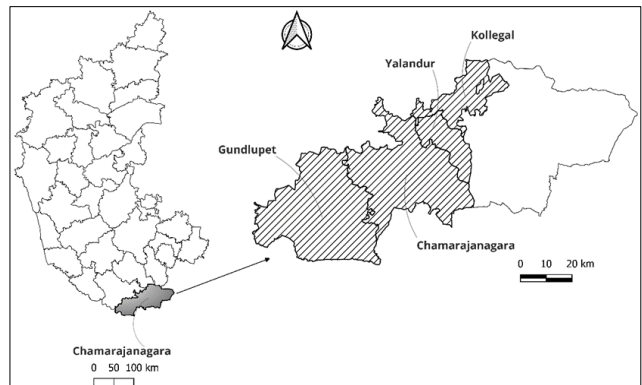


Fig 1: Study area

2.2 Sampling Procedure

A multistage stratified random sampling technique was employed for selecting the respondents. In the first stage, Chamarajanagar district was selected purposively for the study. In the second stage, four taluks of the district, namely Chamarajanagar, Gundlupete, Kollegala, and Yelandur, were selected. In the third stage, farmers were selected using stratified random sampling based on the type of farming. From each taluk, 25 dryland farmers and 25 irrigated farmers who had availed Kisan Call Centre (KCC) advisories were selected randomly. Thus, a total of 50 farmers from each taluk were included in the study. Consequently, the total sample size comprised 200 respondents (100 dryland farmers and 100 irrigated farmers) selected from the four taluks of

Chamarajanagar district.

2.3 Survey design and data collection

A descriptive cross-sectional survey design was adopted. A pre-tested, structured interview schedule was used for the primary data collection from the KCC beneficiaries 2022. In the final stage of sampling procedure. Farmers were unavailable or unwilling to participate in the survey were not considered for the survey. Data were collected through face-to-face interview in the local language. The questionnaire comprised two sections: (i) general characteristics of respondents, (ii) knowledge level of the respondents about KCC advisories

2.4 Knowledge level of farmers on KCC advisories

Knowledge level refers to the extent of factual information and understanding possessed by farmers regarding the advisories disseminated through the Kisan Call Centre (KCC). The knowledge level of the respondents was assessed using the knowledge test developed by Parmar (2014), with suitable modifications to align the statements with KCC advisories. The modified instrument consisted of 15 knowledge statements covering various aspects of KCC advisories.

The respondents were asked to indicate their responses to each knowledge statement. Following the original scoring procedure proposed by Parmar (2014), a score of two (2) was assigned for a "Yes" response and one (1) for a "No" response. Thus, the total knowledge score for each respondent was obtained by summing the scores of all 15 statements. The minimum and maximum obtainable scores were 15 and 30, respectively, with higher scores indicating a higher level of knowledge regarding KCC advisories.

The knowledge score of each respondent was computed and the respondents were classified into three categories low, medium, and high knowledge—using the mean (26.54) and standard deviation (4.29) as the basis for classification. The categorization was carried out as follows.

Sl. No.	Category	Range	Score
1.	Low level knowledge	< (Mean - 1/2 SD)	<24.39
2.	Medium level knowledge	(Mean ± 1/2 SD)	24.39-28.69
3.	High level knowledge	> (Mean + 1/2 SD)	>28.69

2.5 Statistical methods employed for data analysis

2.5.1 Data processing and analysis

The primary data collected from the respondents in the study area was entered in MS-Excel master sheet. Based on the methodology followed, the data was scored, analysed using appropriate statistical tools like, mean, frequency, percentage, standard deviation, range, chi-square, spear man correlation in MS-Excel and Statistical Package for Social Studies (SPSS).

3. Results and Discussion

The success of any agricultural advisory service depends not only on its accessibility but also on how effectively farmers perceive, understand, and utilize the information provided. Assessing farmers' knowledge towards Kisan Call Centre (KCC) advisories provides valuable insights into the effectiveness of this ICT-enabled extension service. Further, factors influencing on knowledge plays an important role in

success of any ICT initiative (Rogers, 2003; Ministry of Agriculture & Farmers Welfare, 2024) ^[18, 9].

3.1 Statement wise knowledge of the farmers towards KCC advisories

The statement-wise knowledge of the beneficiaries towards Kisan Call Centre (KCC) advisories (Table 1) revealed that, 100.0% of the respondents had knowledge about the toll-free number of KCC (1551), followed by knowledge that KCC is a free advisory service (99.50%), provides solutions in the regional language (99.00%), offers information on all agricultural enterprises (93.00%) and that travelling is not required to avail its advisory services (92.00%). This might be the fact that repeated exposure to an innovation improves farmers knowledge (Rogers, 2003) ^[18], and all the respondents were beneficiaries of KCC and had prior experience in utilizing its services and had a Regular interaction with KCC enhances farmers' familiarity with its basic features and advisory mechanism. Similarly, Mahra *et al.* (2015) ^[7] observed that KCC beneficiaries possessed better awareness of the basic services offered through the call centre.

However, 85.0% of the beneficiaries were unaware that KCC services are available from 6.00 a.m. to 10.00 p.m. This may be due to lack of awareness regarding the operational aspects of the service, as farmers generally contact KCC only when they encounter agricultural problems rather than paying attention to its working schedule. Likewise, Koshy and Kishore Kumar (2016) ^[6] reported that although farmers exhibited a favourable attitude towards KCC, but awareness regarding certain operational features of the service was comparatively lower.

Further, 83.50% of the beneficiaries knew that the KCC in Karnataka is located in Bengaluru, whereas the remaining respondents were unaware of its location. This may be because KCC functions as a telephonic advisory service and

farmers receive expert guidance remotely without the need to visit the centre physically. Hence, the physical location of the KCC has limited significance to its users.

Less than three-fourths (71.50%) of the beneficiaries knew that KCC provides timely solutions to farmers' queries. This reflects farmers' confidence in the promptness of the advisory services, which is one of the major strengths of ICT-enabled agricultural extension. Similarly, Raja *et al.* (2024) ^[16] reported that, KCC beneficiaries expressed high satisfaction with the availability of experts, timely response and expert guidance, indicating the effectiveness of KCC in delivering timely technical advisories.

Less than half of the beneficiaries had knowledge that KCC provides SMS advisory services (42.50%) and conference call facilities (42.00%). The lower awareness regarding these advanced features may be because most farmers primarily utilize KCC for obtaining direct telephonic advice and have limited exposure to its supplementary services. Kavitha and Anandaraja (2017) ^[4] reported that farmers were more familiar with the core advisory functions of KCC than with its additional service components. Furthermore, Raja and Naika (2022) ^[14] recognized lack of awareness about various KCC facilities as one of the important constraints expressed by beneficiaries and suggested organizing extensive awareness programmes to improve the utilization of all KCC services.

Overall, the findings indicate that the respondents possessed a high level of knowledge regarding the basic functions and objectives of KCC, whereas awareness about its operational timings and additional facilities such as SMS and conference call services was comparatively low. Therefore, strengthening awareness programmes on the complete range of KCC services would further improve farmers' effective utilization of this ICT-enabled agricultural advisory system, as also suggested by Raja and Naika (2022) ^[14].

Table 1: Statement wise knowledge level of farmers towards KCC Advisory services

Sl. No.	Statement	Yes		No		Rank
		Number	%	Number	%	
1.	1551 is a toll-free number of KCC	200	100	0	0.00	I
2.	KCC is a free advisory service	199	99.50	1	0.50	II
3.	KCC aims to provide the solutions to the farmers in their regional language	198	99.00	2	1.00	III
4.	KCC provide all the information about agriculture	186	93.00	14	7.00	IV
5.	Travelling is not required in availing the advisory services of KCC	184	92.00	16	8.00	V
6.	KCC provides information about marketing and post- harvest technology?	183	91.50	17	8.50	VI
7.	KCC provides solution within 48 hours of the call made, if it is unable to solve the issues instantly	179	89.50	21	10.50	VII
8.	KCC provides information for subsidy, loan and financial helps for agriculture and the allied sector	175	87.50	25	12.50	VIII
9.	KCC is an initiative of Govt. of India	174	87.00	26	13.00	IX
10.	Information about agriculture is provided by agricultural graduates and experienced professionals	170	85.00	30	15.00	X
11.	The KCC service is available from 6.00 am to 10.00 pm	170	85.00	30	15.00	XI
12.	The location of KCC in Karnataka is at Bengaluru	167	83.50	33	16.50	XII
13.	KCC caters the needs of the farmers by providing solutions at a right time to their calls	143	71.50	57	28.50	XIII
14.	KCC provides SMS service to the farmers	85	42.50	115	57.50	XIV
15.	KCC provides a conference call facility	84	42.00	116	58.00	XV
*Multiple Response						

3.2 Overall knowledge level of the dryland and irrigated land farmer towards services of KCC

Overall knowledge level of the dryland and irrigated land farmer towards services of KCC is presented in table 2. Among the dryland farmers, 48.00 per cent possessed a high level of knowledge, followed by 27.00 per cent with low

knowledge and 25.00 per cent with medium knowledge. The higher proportion of dryland farmers in the high knowledge category may be attributed to their greater dependence on Kisan Call Centre (KCC) advisories for weather forecasts, contingency crop planning, drought management, and other climate-related information due to the inherent uncertainties

of rainfed agriculture. However, a considerable proportion (27.00%) also exhibited low knowledge, possibly because of limited access to information sources, lower extension contacts, or infrequent utilization of KCC services. Similarly, Mahra *et al.* (2015) [7], reported that regular utilization of KCC services improved farmers' knowledge of agricultural recommendations

In contrast, among irrigated farmers, the 43.0% had high knowledge, followed closely by the medium (35.0%) knowledge category while only 22.00% had low knowledge. This distribution may be because irrigated farmers have relatively assured water availability and access to multiple information sources, including extension personnel, input dealers, and fellow farmers, which reduces their exclusive dependence on KCC services. Consequently, most irrigated farmers maintained a moderate to high level of knowledge

regarding KCC advisory services.

The pooled analysis (Table 2) showed that 45.5% of the beneficiaries had a high level of knowledge, followed by medium (32.5%) and low (22.0%) levels of knowledge. The findings are in conformity with Mahra *et al.* (2015) [7], who reported that regular utilization of Kisan Call Centre services significantly improved farmers' knowledge and awareness of agricultural recommendations.

The chi-square test indicated that there was no significant difference in the knowledge level between dryland and irrigated farmers ($\chi^2 = 2.45$, NS), indicating that the farming system did not significantly influence farmers' knowledge of KCC advisory services. This may be because both groups had equal access to the same ICT-based advisory platform and received similar technical support through KCC.

Table 2: Overall knowledge level of the dryland and irrigated land farmer towards services of KCC

Category	Dryland Farmer (n=100)		Irrigated Land Farmer (n=100)		Overall (n=200)		χ^2 Test
	No.	%	No.	%	No.	%	
Low level knowledge	27	27.00	22	22.00	44	22.00	2.45 ^{NS}
Medium level knowledge	25	25.00	35	35.00	65	32.50	
High level knowledge	48	48.00	43	43.00	91	45.50	
Mean $\pm$ SD	26.99 $\pm$ 3.77		26.10 $\pm$ 4.73		26.54 $\pm$ 4.29		

3.3 Relationship between profile characteristic with knowledge of the farmers towards KCC advisories

The correlation analysis (table 3) revealed that education ($r = 0.213$), farming experience ($r = 0.167$), family size ($r = 0.684$), mass media exposure ($r = 0.661$), extension participation ($r = 0.430$), social participation ($r = 0.151$), scientific orientation ($r = 0.236$), risk orientation ($r = 0.287$), and management orientation ($r = 0.160$) had a positive and significant relationship with the knowledge level of farmers. This indicates that better educated farmers with greater access to information sources and active participation in extension activities possessed higher levels of knowledge. Similar observations were reported by Anderson and Feder (2007) [2], who emphasized that education and extension services are important determinants of farmers' knowledge and decision-making. Glendenning *et al.* (2012) [3] also reported that farmers with higher educational levels and greater use of information sources exhibited better information-search behaviour and greater access to agricultural knowledge. Further, Aker (2011) [1] highlighted that ICT-enabled advisory services significantly enhance farmers' knowledge by improving access to timely agricultural information.

Among the significant variables, family size ($r = 0.684$) and mass media exposure ($r = 0.661$) exhibited the strongest positive association with farmers' knowledge, indicating that interaction within the family and access to agricultural information through mass media contributed substantially to knowledge enhancement. Similar findings were reported by kumar *et al.* (2026) [5], who found that mass media exposure and extension contact significantly improved farmers' accessibility to ICT tools and agricultural information.

In contrast, age ($r = 0.055$), occupation ($r = 0.002$), landholding ($r = 0.022$), annual income ($r = 0.016$), cosmopolitaness ($r = 0.030$), achievement motivation ($r = 0.083$), and decision-making ability ($r = 0.129$) exhibited a non-significant relationship with the knowledge level of

farmers, indicating that these variables had little influence on farmers' knowledge under the present study conditions.

Table 3: Correlation between independent variables and knowledge level of farmers

Sl. No.	Independent Variables	Correlation coefficient (r)
X ₁	Age	0.055NS
X ₂	Education	0.213**
X ₃	Occupation	0.002NS
X ₄	Farming Experience	0.167*
X ₅	Land Holding	0.022NS
X ₆	Annual Income	0.016NS
X ₇	Family Size	0.684**
X ₈	Cosmopolitaness	0.030NS
X ₉	Mass Media Exposure	0.661**
X ₁₀	Extension Participation	0.430**
X ₁₁	Social Participation	0.151*
X ₁₂	Achievement Motivation	0.083NS
X ₁₃	Scientific Orientation	0.236**
X ₁₄	Risk Orientation	0.287**
X ₁₅	Decision-making Ability	0.129NS
X ₁₆	Management Orientation	0.160*

4. Conclusion

The study revealed that a majority of the beneficiaries possessed a medium to high level of knowledge regarding Kisan Call Centre (KCC) advisory services. While farmers were well aware of the basic features of KCC, their knowledge of operational aspects such as service timings, SMS advisories, and conference call facilities was comparatively low. Education, farming experience, family size, mass media exposure, extension participation, social participation, scientific orientation, risk orientation, and management orientation showed a positive and significant relationship with farmers' knowledge. The findings indicate that enhancing awareness of the complete range of KCC services through extension activities and mass media would further improve farmers' knowledge and effective utilization

of KCC advisories.

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