# Assessing the Association of various Attributes of Farmers with the Applicability of KMAS

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**ABSTRACT: Although the use and adoption of mobile phones has skyrocketed, these fundamental socioeconomic and demographic factors—income, education, gender, and age—remain barriers to adoption and use. By giving the rural public a new platform, mobile devices in a way draw attention to the value of bilateral contact and its potential for personalized information. The study was conducted using a random sampling technique on 120 farmers in the Raipur district of Chhattisgarh state with the aim of determining the relationship between the various attributes such as Socio economic, Socio psychological, Communication, various dimensions of message of farmer-subscribers and the applicability of the messages delivered by the Kisan Mobile Advisory Service (KMAS). The respondents were personally interviewed while the data was being gathered using a structured schedule. Mean, Standard deviation, Frequency, Percentage, Karl Pearson's correlation coefficient (r), Multiple regression were used to examine the data in order to provide a meaningful interpretation. The correlation coefficient analysis discovered that respondents' characteristics such as education, land holding size, annual income, innovativeness, contact with extension workers, mass media exposure, understandability of the message and usefulness of the message have a significant relationship with the applicability of the advisory delivered through Kisan Mobile Advisory Service at the 0.01 level of probability, whereas scientific orientation, risk orientation, and use of information has a significant relationship with applicability of the advisory delivered through Kisan Mobile Advisory Service at 0.05 level of probability. While the regression analysis showed that there is significant relationship between the selected independent and dependent variables i.e. 47.7% of the variations in dependent variable are due to the selected independent variables.**

**Keywords: Kisan Mobile Advisory Service (KMAS), ICT, Applicability of ICT, SMS, Regression analysis.**

## INTRODUCTION

The digital economy is one of the most important drivers propelling global innovation and economic progress in the twenty-first century. Technology breakthroughs, cost reductions, and competition all contributed to an upsurge in mobile telecommunications. Although we have always pictured a farmer pulling a bullock cart and using a plough, it is only thanks to the miracle of technology that we are now witnessing farmers using mobile phones.

Agriculture extension systems play a critical role in transferring technologies from lab to land. However, because human resources are restricted in this system, the dissemination of information and technologies are sometimes delayed, which is a major drawback. The availability of adequate information is critical for increasing agricultural productivity (Sharma *et al.*, 2012; Nain *et al.,* 2015). A cost-effective and efficient communication technology is therefore essential for the informed dissemination of information in order to become a leader in this evolving agricultural scenario.

Additionally popular information sources include radio and television, particularly for weather-related topics. The majority of Indian farmers lack access to any informational resources (Claire *et al.,* 2010). By providing farmers with the knowledge they need, information and communication technologies (ICTs) play a crucial role in agricultural extension services. Many organizations in India are heavily utilizing present information technology to promote communication between researchers, extension personnel, and farmers for the more effective transfer of technologies and information (Saravanan, 2010; Kameswari, 2011; Nikulsinh, 2010).

Farmers who were new to or experienced with mass media were more enthusiastic about the system (Ganesan *et al.,* 2013). The beneficiaries of cosmopolite nature are innovative and using modern means of ICTs. The farmers with strong communication network may

have more insight about KMAS programme (Nargawe, 2017). Farmers' background characteristics that influence respondents' knowledge and attitudes towards the usage of KMAS must be considered in any rural communication programme (Patil and Patel 2021).

ICAR has launched KMAS with an aspiration of passing the need based agricultural information to most of the farmers in their local language through SMS without any expense. KVKs are in charge of managing it across India. Other media outlets can get free location-based information in the native language from KMAS. To communicate with the farmers, KVK makes use of the Kisan Portal, the Ministry of Agriculture, and the Government of India.

Since 2017, KVK Raipur has used the Kisan Mobile Advisory Service to send messages to farmers regarding agriculture. The Kisan Mobile Advisory Service (KMAS) gives farmers access to personalized information and real-time agricultural data to help them make better decisions that will help them maximize production and productivity, better match farm output with consumer demands, ensure better quality, and accelerate price recovery in a highly competitive global agricultural economy. The current rural information delivery system's low productivity and the lack of field employees in the agriculture department are the main issues in the Raipur district.

## METHODOLOGY

The research was carried out in purposively chosen Raipur district of Chhattisgarh. There are 4 blocks in Raipur district viz., Arang, Abhanpur, Dharsiwa, and Tilda. Out of which 2 blocks namely; Arang and Abhanpur were selected because more number of farmers in these blocks was the subscribers of Kisan Mobile Advisory Service. For the purpose of the study, five villages from each selected block were selected. Thus, total 10 villages were selected for the study. Twelve farmers from each of the selected villages were selected randomly. In this manner, a sample of 60 KMAS beneficiary farmers from each block was selected randomly, comprising a total of 120 KMAS beneficiary farmers who were selected from Arang and Abhanpur block of Raipur district for the study purpose. The applicability of messages with respect to different areas of agriculture like agronomy, soil science, plant protection, horticulture, etc. is considered. Correlation coefficient analysis and multiple regression analysis were carried to find out the relationship of independent variables with the dependent variable.

## RESULTS AND DISCUSSION

**Profile Characteristics.** The data in Table 1 indicates that out of 120 respondents, 85.84% belong to middle and young age group and very low 14.16% were from old age group.

In terms of education equal percentage of respondents falls under the category of graduation 20% and higher secondary 20%. It can also be observed that middle school; 16.67% and high school; 16.67% also got the same weightage, followed by the noticeable number of respondents under no formal education group 14.16%. A total of 12.5% of respondents falls under the primary education group.

Maximum number of respondents has marginal (37.5%) whereas respondents with small, semi- medium and medium size of land holding are equal i.e. 19.166 per cent, followed by large (5%) size of land holding.

Majority (79.16%) of the respondents have medium level of social participation. The findings are in line with the findings of Verma *et al.* (2016).

The results on annual income revealed that about 1/3rd (45%) respondents earned Rs. 60,001 – 1, 20,000 per annum, followed by 26.66 per cent respondents who earned above Rs. 2,40,000 while 24.17 per cent respondents earned Rs. 1,20,001 to 2,40,000 whereas only 4.17 per cent respondents earned less than 60,000.

Majority 60 percent of the respondents have shown medium level of innovativeness followed by low level of innovativeness with 25 per cent of respondents falling under the category whereas only 15 per cent of respondents have high level of innovativeness. Out of 120 respondents, more than half of the respondents belong to medium category of innovativeness.

Maximum number of respondents belong to medium category of economic motivation 66.66 per cent, followed by low category with 23.34 per cent whereas on 10 per cent of them belong to high economic motivation category.

Maximum number of respondents i.e. 65.83 per cent comes under medium scientific orientation category followed by low scientific orientation category with 20.83 per cent whereas only 13.34 percent respondents comes under high scientific orientation category. Similar results were reported by Patil and Patel (2018).

The results of risk orientation revealed that most of the respondents 70 per cent; belong to medium level of risk orientation followed by low level 22.5 per cent whereas, only 7.5 per cent respondents belong to high risk orientation group.

Data in Table 2 reveals that vast majority of the respondents (65.84%) had used various sources of information up to medium level while only 6.66 per cent of them used information sources at a high level. Therefore, it can be said that majority of respondents were using various categories of information sources at medium level.

The data also reveals that the overall extension contact of respondents have medium level (67.5%) of extension contact.

The data on overall mass media utilization showed that about half of the respondents (50.84%) have medium mass media utilization.

The data about timeliness of the message revealed that 80.84 per cent of respondents reported that messages were always sent on time by the KVK.

The analysis of understandability of the message revealed that 47.5 per cent of respondents perceived that the messages were moderate understandable by them whereas 35 per cent of respondents perceived the messages to be highly understandable.

**Table 1: Socio-economic and Socio-psychological Characteristics of Farmer-Beneficiaries of KMAS.**

| Variables | Profile Characteristics | Category | Frequency | Percentage |
|---|---|---|---|---|
| **Socio-economic variables** | **Age** | Young (Up to 35) | 48 | 40 |
| | | Middle (Up to 36 to 50) | 55 | 45.84 |
| | | Old (Above 50) | 17 | 14.16 |
| | **Education** | No formal education | 17 | 14.16 |
| | | Primary school | 15 | 12.5 |
| | | Middle school | 20 | 16.67 |
| | | High school | 20 | 16.67 |
| | | Higher Secondary | 24 | 20 |
| | | Graduation and above | 24 | 20 |
| | **Land Holding** | Marginal (< 1 Ha.) | 45 | 37.5 |
| | | Small (1-2 Ha.) | 23 | 19.166 |
| | | Semi – Medium (2- 4 Ha.) | 23 | 19.166 |
| | | Medium (4 – 10 Ha.) | 23 | 19.166 |
| | | Large (> 10 Ha.) | 6 | 5 |
| | **Social Participation** | Low (< 2) | 9 | 7.5 |
| | | Medium (2-3) | 95 | 79.16 |
| | | High (> 3) | 16 | 13.34 |
| | **Annual Income** | Up to 60,000 | 5 | 4.17 |
| | | 60,001 – 1,20,000 | 54 | 45 |
| | | 1,20,001 – 2,40,000 | 29 | 24.17 |
| | | Above 2,40,000 | 32 | 26.66 |
| **Socio-psychological variables** | **Innovativeness** | Low (up to 10) | 30 | 25 |
| | | Medium (11–18) | 72 | 60 |
| | | High (Above 18) | 18 | 15 |
| | **Economic Motivation** | Low (up to 18) | 28 | 23.34 |
| | | Medium (19 – 24) | 80 | 66.66 |
| | | High (Above 24) | 12 | 10 |
| | **Scientific orientation** | Low (up to 17) | 25 | 20.83 |
| | | Medium (18 – 25) | 79 | 65.83 |
| | | High (Above 25) | 16 | 13.34 |
| | **Risk orientation** | Low (up to 15) | 27 | 22.5 |
| | | Medium (16 – 25) | 84 | 70 |
| | | High (Above 25) | 9 | 7.5 |

**Table 2: Variables Related to Communication and Various Dimensions of Message.**

| Variables | Profile Characteristics | Category | Frequency | Percentage |
|---|---|---|---|---|
| Communication | Extent of information sources | Low (up to 7) | 33 | 27.5 |
| | | Medium (8 – 15) | 79 | 65.84 |
| | | High (Above 15) | 8 | 6.66 |
| | Extent of contact with extension workers | Low (up to 6) | 25 | 20.84 |
| | | Medium (7 – 12) | 81 | 67.5 |
| | | High (Above 12) | 14 | 11.66 |
| | Extent of mass media exposure | Low (up to 6) | 36 | 30 |
| | | Medium (7 – 10) | 61 | 50.84 |
| | | High (Above 10) | 23 | 19.16 |
| Dimensions of message | Timeliness of the message | Timely | 97 | 80.84 |
| | | Sometimes late | 23 | 19.16 |
| | | Always late | 0 | 0 |
| | Understandability | Less understandable (1-2) | 21 | 17.5 |
| | | Moderate understandable (3-4) | 57 | 47.5 |
| | | Highly understandable (5-6) | 42 | 35 |

**Correlation Analysis.** The data given in Table 3 illustrate the correlation coefficient values indicating the relationship of socio-economic, socio-psychological, communication and variables related to various dimensions of message with applicability of advisory. The data indicate that the respondents' characteristics namely education, size of land holding, annual income, innovativeness, contact with extension workers, mass media exposure, understandability of the message and usefulness of the message has a significant relationship with applicability of the advisory delivered through Kisan Mobile Advisory Service at 0.01 level of probability while scientific orientation, risk orientation, use of information sources has a significant relationship with applicability of the advisory delivered through Kisan Mobile Advisory Service at 0.05 level of probability. The result also depicts that characteristics like age, social participation, economic motivation, need of the message and timeliness of the message have no significant relationship with applicability of the advisory delivered through Kisan Mobile Advisory Service. This finding is in line with the findings of Chouhan (2016).

**Table 3: Correlation between the selected variables and applicability of the messages.**

| Sr. No. | Characteristics | Correlation coefficient(r) |
|---|---|---|
| A | Socio- economic | |
| 1 | Age | -0.045 |
| 2 | Education | .549** |
| 3 | Size of land holding | .384** |
| 4 | Social participation | -0.014 |
| 5 | Annual income | .298** |
| B | Socio- psychological | |
| 6 | Innovativeness | .415** |
| 7 | Economic motivation | 0.099 |
| 8 | Scientific orientation | .229* |
| 9 | Risk orientation | .229* |
| C | Communication | |
| 10 | Use of information sources | .188* |
| 11 | Contact with extension workers | .263** |
| 12 | Mass media exposure | .348** |
| D | Variables related to various dimensions of message | |
| 13 | Need of the message | 0.120 |
| 14 | Timeliness of the message | 0.094 |
| 15 | Understandability of the message | .444** |
| 16 | Usefulness of the message | .386** |

**Multiple Regression Analysis.** The combined effect of independent variables in explaining variation in the dependent variables was determined using multiple regression analysis. The data in the Table 4 revealed that coefficient of determination ($R^2$) of the independent variables was 0.477. $R^2$ value suggests that 47.7% of the variations in dependent variable i.e. applicability of the message are due to the selected independent variables such as usefulness of the message, social participation, timeliness of the message, need of the message, economic motivation, mass media exposure, age, annual income, contact with extension workers, scientific orientation, risk orientation, education, use of information sources, innovativeness, size of land holding, understandability of the message. While standard error was of 3.657 which might be due to unexplained variation caused by the factors which were not included in the present study.

**Table 4: Model Summary of Multiple regression analysis.**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| Usefulness of the message, Social participation, Timeliness of the message, Need of the message, Economic motivation, Mass media exposure, Age, Annual income, Contact with extension workers, Scientific orientation, Risk orientation, Education, Use of information sources, Innovativeness, Size of land holding, Understandability of the message | 0.691a | 0.477 | 0.396 | 3.65744 |

**Table 5: ANOVA.**

| Model | Sum of square | df | Mean square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 1256.776 | 16 | 78.549 | 5.872 | .000b |
| Residual | 1377.815 | 103 | 13.377 | | |
| Total | 2634.592 | 119 | | | |

The data in (Table 5) the ANOVA *i.e.,* F-stat value (5.872) indicates the significance for the entire regression analysis at α=0.005. This means that in multiple regression analysis relationship between independent and dependent variable was significant.

**CONCLUSIONS**

On the basis of above findings, it can be concluded that the farmers education, land holding size, annual income, innovativeness, contact with extension workers, mass media exposure, understandability of the message, usefulness of the message, scientific orientation, risk orientation, and use of information have significant relationship with the applicability of the message. The results allow us to draw the conclusion that these variables should be taken into account when choosing farmers to participate in extension programmes. When it comes to assisting farmers in our nation make informed decisions that will result in profitable farming in areas where the ratio of extension agents to farmers is low, KMAS has a wide range of options. In India, where mobile networks and handsets are becoming more widely used, there is a chance to provide farmers with vital information more quickly and widely.

## FUTURE SCOPE

Given that this study was limited to Raipur district farmers. As a result, the results' applicability to a wide range of scenarios may be limited. Similar efforts should be made in other blocks and districts of Chhattisgarh state.

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