# Knowledge of Farmers about ICT (Information and Communication Technology) Tools in Bilaspur District, Chhattisgarh

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**ABSTRACT: The study was conducted in CHHATTISGARH state during the year 2019-20 to assess the knowledge of farmers about ICT tools in farm communication and to find out the relationship with socio-economic characteristics of farmers using these tools. Many farmers of these districts are already getting Multi Message Services (MMS) and using other ICT tools. Total 120 farmers were randomly selected from the 2 villages i.e. Birkona and Biranpur from Bilha block of Bilaspur district. The ex-post facto research design was used for the study. The findings of the study revealed that 37.50 per cent of the farmers had medium level of knowledge about ICT tools followed by high (34.17%) and low (28.33%) level of knowledge. Variables such as material possession, social participation, extension participation, mass media exposure and cosmo-politeness had positive and significant relationship with knowledge of farmers about ICT tools at one per cent level of significance whereas; education and annual income had positive and significant relationship at five percent level of significance. Keywords: Farmers, Level of Knowledge, ICT Tools, Bilaspur**

## INTRODUCTION

ICTs are technologies offering new ways for communicating and exchanging information and knowledge. ICT can be broadly understood as the technologies that facilitate communication, processing and transmission of communication by electronic means. It includes a range of technologies starting from radio, television, telephone up to modern technologies like mobile phone, multimedia, internet and satellite-based communication systems.

India has not lagged behind in the use of ICT to provide the required information to the farmers. A beginning was made in the use of ICT with the designing of Financial Accounting Information System in 1971 by Jute Corporation of India covering seven states viz., Andhra Pradesh, Assam, Bihar, Meghalaya, Orissa, Tripura and West Bengal. Later many projects like Information village centre, Gyanadoot project, e- choupal, e-grama etc came into existence. Information village centre project started by M.S. Swaminathan Research Foundation in 1998 covered 12 villages in Pondicherry region serving rural families particularly marginal farmers, fishermen and asset less. Gyanadpoot is a community-owned, self-sustainable and low-cost rural intranet project, initiated on January 1st, 2000, at Dhar district.

Keeping in view the importance of ICT in agriculture the results of the study i.e. knowledge of farmers about ICT, are expected to be useful to policy makers, state department of agriculture, private agencies to chalk out future strategies to integrate ICTs with other extension strategies. It also helps them to improve the current ICT projects and increase their outreach to large number of farmers.

## MATERIALS AND METHODS

The present investigation is conducted in Bilaspur district of CHHATTISGARH state during the year 2019-20. Out of 27 districts in Chhattisgarh, Bilaspur district purposively selected due to the reason of BARRISTER THAKUR CHHEDILAL COLLEGE OF AGRICULTURE AND RESEARCH STATION is situated in Bilaspur district and it is a hub for agricultural training programs for the farmers to implement various improved agricultural practices. There are 7 blocks in Bilaspur district, out of which Birkona and Biranpur villages from Bilha block were randomly selected for the study. From each of the selected villages, initially a list of 120 farmers was prepared based on the farmers getting multi message services, attended video conference programs and using other ICT tools to get farm information. The primary data was collected with the help of well-structured and pre-tested interview schedule, designed especially in the light of objectives, whereas secondary data was collected from sources like thesis, journals, literature etc. It is conceived that the dependent variables knowledge was influenced by the independent variables like age, education, land holding, family type, farming experience, material possession, annual income, innovativeness, social participation, extension participation, mass media exposure, economic motivation, risk orientation, scientific orientation and cosmo-politeness. The statistical measures like frequency, percentage, mean, standard deviation, correlation and multiple regression analysis were used to analyse the data to draw tangible inferences.

## RESULT AND DISCUSSION

**Socio-economic Profile of Farmers:** Socio-economic characteristics of respondent farmers were analysed and presented in Table 1. Result shows that majority (75.83%) of the farmer's belonged to middle age group followed by old age (19.17%) and young age (5.00%) group. The frequency distribution was highly skewed towards the younger respondents.40.00 per cent of the respondents had education up to middle school, followed by 19.17 per cent had education up to high school and 18.33 per cent had education up to primary level. Majority (60.00 %) of the respondents belonged to joint family and 40.00 per cent belonged to nuclear family. It is apparent that 46.67 per cent of the respondents had medium farming experience whereas, 42.50 per cent had high farming experience and 10.83 per cent had low farming experience.

**Table 1: Salient Features of Socio-economic Profile of the selected Farmers (n = 120)**

| Variable | Category | Frequency | % | Variable | Category | Frequency | % |
|---|---|---|---|---|---|---|---|
| **Age** | Young <35 | 6 | 5.00 | **Risk orientation** | Low | 67 | 55.83 |
| | Middle (35 to 50) | 91 | 75.83 | | Medium | 34 | 28.33 |
| | Old (>50) | 23 | 19.17 | | High | 19 | 15.84 |
| **Education** | Illiterate | 0 | 0.00 | **Cosmo-politeness** | Low | 29 | 24.17 |
| | Can't read and write | 5 | 4.17 | | Medium | 77 | 64.17 |
| | Primary School | 22 | 18.33 | | High | 14 | 11.66 |
| | Middle School | 48 | 40.00 | **Mass media exposure** | Low | 27 | 22.50 |
| | High School | 23 | 19.17 | | Medium | 74 | 61.67 |
| | PUC | 18 | 15.00 | | High | 19 | 15.83 |
| | Degree | 4 | 3.33 | **Extension participation** | Low | 33 | 27.50 |
| **Family type** | Nuclear | 48 | 40.00 | | Medium | 52 | 43.33 |
| | Joint | 72 | 60.00 | | High | 35 | 29.17 |
| **Farming experience** | Low | 13 | 10.83 | **Social participation** | Low | 19 | 15.83 |
| | Medium | 56 | 46.67 | | Medium | 57 | 47.50 |
| | High | 51 | 42.50 | | High | 44 | 36.67 |

| Innovativeness | Low | 32 | 26.67 | **Material possession** | Low | 43 | 35.83 |
|---|---|---|---|---|---|---|---|
| | Medium | 46 | 38.33 | | Medium | 46 | 38.33 |
| | High | 42 | 35.00 | | High | 31 | 25.84 |
| **Economic motivation** | Low | 55 | 45.83 | **Annual income (Rs.)** | Low | 39 | 32.50 |
| | Medium | 38 | 31.67 | | Medium | 57 | 47.50 |
| | High | 27 | 22.50 | | High | 24 | 20.00 |
| **Scientific orientation** | Low | 11 | 9.16 | **Land holding** | Low | 42 | 35.00 |
| | Medium | 68 | 56.67 | | Medium | 36 | 30.00 |
| | High | 41 | 34.17 | | High | 41 | 34.17 |

Considerable percentage (38.33%) of the respondents had medium innovativeness whereas, 35.00 per cent and 26.67 per cent of them had high and low innovativeness, respectively. The findings indicated that 45.83 per cent of the respondents had low economic motivation followed by medium (31.67%) and high (22.50%). Majority (56.67%) of the respondents had medium scientific orientation followed by high (34.17and low (9.16%). More than half (55.83%) of the respondents had low risk orientation, 28.33 per cent had medium and 15.84 per cent had high risk orientation. 64.17 per cent had medium degree ofcosmo-politenesswhile,24.17percenthadlow  a n d 11.66 per cent had high cosmo-politeness. Mass media exposure revealed that more than half (61.67%) of the respondents had medium level whereas, 22.50 per cent had low and 15.83 per cent had high. Extension participation revealed that 43.33 per cent of the respondents had medium level participation while, 29.17 per cent had high and 27.50 per cent had low participation. 47.50 per cent of the respondents had medium level of social participation followed by high (36.67%) and low (15.833%).

Majority (38.33%) of the respondents possessed medium level of materials followed by low (35.83%) and high (25.84%). Near about half (47.50%) of the respondents had medium level of annual income, followed by 32.50 per cent had low and remaining 20.00 per cent had high annual income. Here near about equal per cent (35.00%) of respondents had low and (34.17%) high land followed by 30.83 per cent of respondents had medium size of land holding.

**Knowledge of Farmers about ICT Tools:** A perusal of table 2 presents the data obtained regarding knowledge of farmers about ICT tools. A great majority (87.50%) of the respondents knew that TV provides information regarding agriculture and 12.50 per cent did not know about this. More than three- fourth (76.67%) of respondents knew that through mobile agricultural information can get and 23.33 per cent of the respondents didn't know about it.(52.50%)of farmers didn't know that agricultural information broadcasting through radio whereas 47.50 per cent of the respondents knew about it. (74.17%) of the respondents didn't know internet provides agricultural information and25.83 per cent of respondents had knowledge about it. Further, 80.00 per cent of respondents did not know videoconferencing provides agricultural information and 20.00 per cent of respondents knew it. More than four-fifth (90.83%) of respondents did not had knowledge on DVDs/CDs provides information regarding agriculture and 9.17 per cent of the respondents know about DVDs/CDs providing agriculture information and more than two-fifth (45.00%) of the respondents knew that agricultural information can get through telephone.

**Table2: Statement wise analysis of knowledge of farmer about ICT tools (n = 120)**

| Sl. No | Statements | Know | | Don't know | |
|---|---|---|---|---|---|
| | | **F.** | **%** | **F.** | **%** |
| 1 | Television provides agricultural information | 105 | 87.50 | 15 | 12.50 |
| 2 | Mobile provides agricultural information | 92 | 76.67 | 28 | 23.33 |
| 3 | Radio provides agricultural information | 57 | 47.50 | 63 | 52.50 |

| | | | | | |
|---|---|---|---|---|---|
| 4 | Internet provides agricultural information | 31 | 25.83 | 89 | 74.17 |
| 5 | Video conference provides agricultural information | 24 | 20.00 | 96 | 80.00 |
| 6 | DVDs/CDs provides agricultural information | 11 | 9.17 | 109 | 90.83 |
| 7 | Telephone provides agricultural information | 54 | 45.00 | 66 | 55.00 |
| 8 | Videoconferencing is a two-way communication. | 29 | 24.17 | 91 | 75.83 |
| 9 | DVD's/CD's documentaries provide detailed information with audio and video. | 26 | 21.67 | 94 | 78.33 |
| 10 | ICT tools provide retrievable information. | 28 | 23.33 | 92 | 76.67 |
| 11 | ICT tools provide information regarding crop production, protection, post-harvest technologies and other allied activities. | 92 | 76.67 | 28 | 23.33 |
| 12 | ICT tools provide marketing and storage information of agriculture. | 88 | 73.33 | 32 | 26.67 |
| 13 | ICT is the quick mode of communication. | 92 | 76.67 | 28 | 23.33 |
| 14 | ICT provides weather information. | 68 | 56.67 | 52 | 43.33 |
| 15 | ICT tools provide information on crop insurance and other government programs. | 47 | 39.17 | 73 | 60.83 |
| 16 | ICT tools are user friendly. | 61 | 50.83 | 59 | 49.17 |
| 17 | To use ICT tools minimum knowledge is required. | 78 | 65.00 | 42 | 35.00 |

*F = Frequency, % = Percentage

More than three-fourth (75.83%) of the respondents did not know that videoconferencing is a two-way communication and 24.17 per cent of the respondents knew about it.78.33 per cent of respondents didn't know that DVD's/CD's documentaries provide detailed information along with audioandvideoand21.67percentoftherespondentsknewaboutit.A large number (76.67%) of respondents didn't know that ICT tools provide retrievable information and 23.33 per cent of the respondents knewit.76.67 per cent of the respondents knew that ICT tools provide information regarding crop production, protection, post-harvest technologies and other allied activities and 23.33 per cent of the respondents didn't know. More respondents (73.33%) of the respondents knew that ICT tools provide marketing and storage information of agriculture and 26.67 per cent of the respondents didn't know about it. Majority (76.67%) of the respondents knew that ICT is the quick mode of communication and 23.33 per cent of the respondents didn't know. More than half (56.67%) of the respondents knew that ICT provides weather information and 43.33 per cent of the respondents didn't know aboutit.39.17 per cent of the respondents knew that ICT tools provides information on crop insurance and other government programs and 60.83 per cent of the respondents were didn't know. Considerable percentage (50.83%) of the respondents knew that ICT tools are user friendly and 49.17 per did not know about it. Majority (65.00%) of the respondents knew that to use ICT tools minimum knowledge is required and 35.00 per cent of the respondents didn't know.

**Overall Knowledge of farmers about ICT tools:** It could be noticed from Table 3 that 37.50 per cent of farmers had medium level of knowledge about ICT tools, as they possess few important ICT tools and using regularly followed by high (34.17 %) and low (28.33%) level of knowledge about ICT tools.

**Table 3: Overall knowledge level of the respondents about ICT tools (n = 120)**

| Category | Score | Frequency | Percentage |
|----------|-------|-----------|------------|
| Low | <11.14 | 34 | 28.33 |
| Medium | 11.14-15.85 | 45 | 37.50 |
| High | >15.85 | 41 | 34.17 |
| | Total | 120 | 100.00 |

**Relationship between the independent variables with knowledge of farmers:** In order to measure the relationship that exists between the 15 independent variables with knowledge of farmers, the correlation coefficients were worked out and their statistical significance presented in the Table 4.

**Table 4: Correlation between knowledge of farmers about ICT tools with independent variables (n = 120)**

| Sl. No | Variables | Correlation coefficient |
|--------|-----------|-------------------------|
| 1 | Age | 0.024 NS |
| 2 | Education | 0.203* |
| 3 | Land holding | 0.067NS |
| 4 | Family Type | 0.035NS |
| 5 | Farming experience | 0.036NS |
| 6 | Material possession | 0.259** |
| 7 | Annual income | 0.217* |
| 8 | Innovativeness | 0.019NS |
| 9 | Social participation | 0.282** |
| 10 | Extension participation | 0.458** |
| 11 | Mass media exposure | 0.273** |
| 12 | Economic motivation | 0.073NS |
| 13 | Risk orientation | 0.107NS |
| 14 | Scientific orientation | 0.096NS |
| 15 | Cosmopolitanisms | 0.346** |

**Significant at 0.01 LoS; *Significant at 0.05 LoS; NS- Non-Significant

Variables such as material possession, social participation, extension participation, mass media exposure and cosmopolitanisms had positive and significant relationship with knowledge of farmers at one per cent level of significance whereas, education and annual income had positive and significant relationship with knowledge of farmers at five per cent level of significance. Other variables such as age, land holding, family type, farming experience, innovativeness, economic motivation, risk orientation and scientific orientation were found to have non- significant relationship with knowledge of the farmers about ICT tools.

**Multiple Regression Analysis:** The regression analysis was applied to ascertain the contribution of independent variables on knowledge of farmers about ICT tools and the results of the regression analysis are shown in Table 5. The data show that all the fifteen variables fitted together in the regression model explained 66.40 percent of the variation in the knowledge of farmers about ICT tools.

**Table 5: Multiple regression analysis of knowledge of farmers about ICT tools with independent variables (n=120)**

| Sl. No. | Variables | Regression co-efficient (β) | Std. Error | 't' value |
|---|---|---|---|---|
| 1 | Age | 0.067 | 0.118 | 0.530 NS |
| 2 | Education | 1.732 | 0.633 | 2.216* |
| 3 | Land holding | 0.053 | 0.157 | 0.458NS |
| 4 | Family Type | 0.493 | 0.705 | 0.246NS |
| 5 | Farming experience | 0.096 | 0.106 | 0.982NS |
| 6 | Material possession | 1.465 | 0.732 | 2.047* |
| 7 | Annual income | 1.325 | 0.333 | 3.728** |
| 8 | Innovativeness | 0.077 | 0.283 | 0.349NS |
| 9 | Social participation | 0.836 | 0.332 | 2.492* |
| 10 | Extension participation | 1.032 | 0.533 | 2.185* |
| 11 | Mass media exposure | 0.495 | 0.132 | 2.197* |
| 12 | Economic motivation | 0.255 | 0.261 | 0.864NS |
| 13 | Risk orientation | 0.434 | 0.408 | 1.042NS |
| 14 | Scientific orientation | 0.153 | 0.321 | 0.597NS |
| 15 | Cosmo-politeness | 0.839 | 0.336 | 2.193* |

$R^2$=0.715; **Significant at the 0.01level; *Significant at the 0.05 level; NS: Non-Significant

The calculated 't' value for each of the partial 'b' values presented, and among them the one partial b value is significant at 0.01 level is related to annual income. The calculated 't' value for each of the partial 'b' valuesarepresented,andamongthemthesixpartialbvaluesaresignificantat0.05 level are related to education, material possession, social participation, extension participation, mass media exposure and cosmo-politeness. These six partial b values had positive relationship. According to 't' test criterion, these seven variables had contributed most for variation in the knowledge of farmers about ICT tools.

## SUMMARY AND CONCLUSION

It was found that most of the farmers depended on TV and mobile for getting wide range of information because of its accessibility. But about new ICT tools like, internet and agricultural DVDs they had very less knowledge. Hence, there is a need to provide farm information through other tools since internet has got more space, wider reach and retrievable form of information it is possible to have two-way interactions through video conferencing. Hence, there is a need to establish multipurpose ICT centres in village level comprising all ICT tools. Variables like education and extension participation were found significant to the knowledge of farmers. Hence, there is a strong need to educate the farmers during extension programmes regarding usefulness of ICT tools, type of information provided and authenticity of information to make them aware about these tools.

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