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Association Relationship between Personal Variables and Numbers of ICTs, Accessibility of ICTs, Agriculture Practices and Animal Husbandry Practices: Study in Haryana

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ABSTRACT

The present study was carried out in four districts of Haryana state i.e., Yamunanagar, Karnal, Hisar and Fatehabad, which were selected randomly. In total 240 respondents viz., 60 farmers from each district, 30 farmers from each block and 15 farmers from each village were selected for the present study. Correlation coefficient and regression coefficient of personal variables were found positively significant, negative significantly and non significant with numbers of ICTs, accessibility of ICTs, agriculture practices information and animal husbandry practices.

Keywords: ICT, Accessibility, Agriculture and Animal husbandry Practices.

INTRODUCTION

The farmers in the study area had access to a wide range of sources/media for seeking agricultural information. These range from interpersonal sources (friends and elders) to new ICTs (mobile phones). Despite wide ownership, some media like television or mobile phones were rarely used for this purpose. Access to ICTs (in this case mobile phone) and the ability to use them does not alter the relationship between the producers and sellers in the rural context. Farmers are often forced to accept the price quoted by the middlemen due to the perishable nature of produce, lack of storage facilities and inaccessibility of markets and other institutions. Also, in the study area, the middlemen are major creditors for small-holder farmers in the absence of rural financial institution (Kameswari, 2011).

METHODOLOGY

The present study was carried out in four districts of Haryana state *i.e.,* Yamunanagar, Karnal, Hisar and Fatehabad, which were selected randomly. Radaur and Chhachroli blocks from Yamunnanagar and Indri and Nilokheri blocks from Karnal districts were selected as well as Bakana and Kandroli villages from Radaur; Bhagwanpur and Sherpur from Chhachroli; Kalri and Kukhnai from Nilokheri were selected. Hisar I and Hisar II and Bhattu and Fatehbad blocks were selected with villages Sathrod and Mizapur from Hisar I and Balsamand and Budhak from Hisar II; Dhand and Bnawali from Bhattu and Daulatpur and Hizrawan from Fatehabad were selected. In total 240 respondents *viz.,* 60 farmers from each district, 30 farmers from each block and 15 farmers from each village were selected for the present study. Each of the selected respondents was interviewed personally. Interview for data collection with the help of interview schedule was generally conducted at the farmers' houses and occasionally also at their farms when they were free to talk to the researcher. The researcher had to make repeated visits to the study area with a view to develop sufficient rapport with the farmer. The correlation coefficient between the dependent and independent variables were calculated with the help of Pearson's formula of correlation coefficient. Multiple regression equation was fitted to find out the amount of variation caused by independent variables constituting personality traits of respondents on dependent variables. On the basis of statistical analysis, conclusions were drawn and report writing was done keeping in view the objectives of the study.

RESULTS AND DISCUSSION

The data presented in Table1 indicate the correlation and regression coefficients between number of ICTs and

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personal variables of farmers. The data revealed that correlation out of 10 variables, only seven variables namely education (0.903), socio-economic status (0.405), extension contact (0.929), mass media exposure (0.926), scientific orientation (0.403), economic motivation (0.905) and risk orientation (0.316) exhibited positive significance whereas age (0.897) exhibited negative significance with number of ICTs usage by farmers. However, land holding (0.017) and irrigation facilities (0.141) was non-significant but positively correlated with number of ICTs usage by farmers. Similarly regression coefficient of variables namely education (1.931), socio-economic status (3.067), extension contact (4,785), mass media exposure (3.183), scientific orientation (2.004), economic motivation (1.470) and risk orientation (0.590) exhibited positive significance whereas age (0.329), land holding (0.804) and irrigation facilities (1.690) were negatively significant with number of ICTs usage by farmers. Dhaka *et. al.* (2010), Meera *et al.* (2004) found that education was positively associated with ICT use in both correlation and regression indicating that as education level improves, the usage of various information services provided in i-kisan was also improved. Study conducted in Rajasthan and India also showed that land holding did not have any significant relationship with ICT use by the farmers.

Table 1: Relationship between respondent's personal variables and Number of ICTs tools using by farmers

Variables	Correlation coefficient (r)	Regression coefficient	't' values
Age	-0.897*	-0.004	-0.329*
Education	0.903**	0.181	1.931*
Socio-economic status	0.405*	0.107	3.067*
Landholding	0.017NS	-0.018	-0.804*
Irrigation facilities	0.141NS	-0.068	-1.690*
Extension contact	0.929**	0.256	4.785**
Mass media exposure	0.926**	0.230	3.183**
Scientific orientation	0.403*	0.074	2.004*
Economic motivation	0.905**	0.090	1.470*
Risk orientation	0.316*	0.150	0.590*

* Significant at 5% level of significance and, ** Significant at 1% level of significance
$R^2 = 0.9030$

The perusal of data in Table 2 depicts the correlation and regression coefficient between availability/ accessibility of ICTs and independent variables of farmers. The data revealed that the variables of education (0.559), socio-economic status (0.575), land holding (0.036), extension contact (0.601), mass media exposure (0.581), scientific orientation (0.532), economic motivation (0.536) and risk orientation (0.571) exhibited positive significance where as age (0.584) exhibited negative significance but irrigation facilities (0.070) non-significant but positively correlated with availability/ accessibility of ICTs by farmers. Similarly regression coefficient of variables of education (0.549), socio-economic status (2.237), extension contact (2.401), mass media exposure (1.030), scientific orientation (1.227), economic motivation (2.827) and risk orientation (1.376) exhibited positive significance and age (1.404), land holding (0.171) and irrigation facilities(0.665) were negatively significant with availability/accessibility of ICTs by farmers. Osondu et al. (2015) reported that farmers had a clear and favorable perception of the relevance of ICTs in extension service delivery. Farmers' education level and income had a positive significant relationship with the number of ICTs farmers in Imo State had access to. It was therefore recommended that ICT education should be built into the extension delivery package of extension agents to farmers particularly the use of the mobile phone since this was capable of eliminating the series of wasteful trips to get at the extension workers and vice versa.

Table 2: Relationship between respondent's personal variables and accessibility of ICTs tools by farmers

Variables	Correlation coefficient (r)	Regression coefficient	't' values
Age	-0.584*	-0.071	-1.404*
Education	0.559**	0.225	0.549*
Socio-economic status	0.575**	0.342	2.237**
Landholding	0.036*	0.017	-0.171*
Irrigation facilities	0.070NS	-0.117	-0.665*
Extension contact	0.601**	0.564	2.401**
Mass media exposure	0.581**	0.327	1.030*
Scientific orientation	0.532**	-0.198	1.227*
Economic motivation	0.536**	-0.759	2.827**
Risk orientation	0.571**	0.252	1.376*

* Significant at 5% level of significance and, ** Significant at 1% level of significance
$R^2 = 0.4044$

The data presented in Table 3 indicated the correlation and regression coefficients between agricultural practices and personal variables of farmers. The study revealed that correlation out of 10 variables, eight variables education (0.647), socio-economic status (0.666), land holding (0.086), extension contact (0.652), mass media exposure (0.666), scientific orientation (0.326), economic motivation (0.630) and risk orientation (0.214) exhibited positive significance whereas age (0.648) exhibited negative significance but irrigation facilities (0.095) non-significant but positively correlated with agricultural practices. Similarly, regression coefficient of variables education (0.214), socio-economic status (2.228), land holding (0.397), extension contact (0.366), mass media exposure (0.786), scientific orientation (0.842), economic motivation (1.787) and risk orientation (0.304) exhibited positive significance, however of age (1.362) and irrigation facilities (0.580)

was found negatively significant with agricultural practices. Rajpoot et al. (2016) who concluded that impact of "ICTs mediated agricultural extension service" on gain in knowledge and level of adoption of respondents, regarding the selected package of cultivation practices for rice crops was found significant. The results depicted that majority of the respondents were dominated by middle age group, OBC category and belonged to the nuclear family. The results from data analysis of socio-economic status of the farmers revealed that majority of the respondents having small land holding and caring out agriculture as the main occupation used the commercial bank as the source of finance. Majority of the respondents were of medium category regarding social participation, extension contact and innovativeness.

Table 3: Relationship between respondents' personal variables and usages of ICTs for agriculture practice by farmers

Variables	Correlation coefficient (r)	Regression Coefficient	't' values
Age	-0.648*	-0.589	-1.362*
Education	0.647**	0.747	0.214*
Socio-economic status	0.666**	2.905	2.228**
Landholding	0.086*	0.584	0.397*
Irrigation facilities	0.095 NS	-0.871	-0.580*
Extension contact	0.652**	0.733	0.366*
Mass media exposure	0.666**	2.126	0.786*
Scientific orientation	0.326*	-1.158	0.842*
Economic motivation	0.630**	-4.088	1.787*
Risk orientation	0.214*	0.473	0.304*

* Significant at 5% level of significance and, ** Significant at 1% level of significance
R^2= 0.4660

The data presented in Table 4 indicate the correlation and regression coefficient between animal husbandry practices and personal variables of farmers. The data revealed that the variables of education (0.635), socio-economic status (0.655), extension contact (0.661), mass media exposure (0.663), scientific orientation (0.239), economic motivation (0.140) and risk orientation (0.380) exhibited positive significance with animal husbandry practices, whereas age (0.671) exhibited negative significance with number of ICTs usage by farmers. However, land holding (0.028) and irrigation facilities (0.133) were non-significant but positively correlated. Similarly, regression coefficient of variables namely education (0.956), socio-economic status (1.408), extension contact (0.528), mass media exposure (0.163), scientific orientation (0.156), economic motivation (1.080) and risk orientation (0.179) exhibited positive significance with animal husbandry practices. Age (1.783), land holding (0.04) and irrigation facilities (1.168) were found negatively significant with animal husbandry practices. Similarly, Babu et al. (2015) found that effective utilization of ICT had potential to make the dairy farmers prosperous as it enables the dissemination of requisite information in user friendly form, easy to access and cost effective ways at the right time. ICT use and skills were two most important aspects that ensure effective and efficient utilization of ICT services being provided by either public or private organizations in the country. In this study, it was found that chief factors like education, experience, land holdings, innovativeness, annual gross income, social participation and exposure to ICT were found to be significant contributing factors that enabled the farmers in efficient utilization of ICT services being provided under i-kisan project in the study area. Hence it is necessary to focus on these factors by providing training on ICT, enhancement of income levels through agripreneurship, encouraging participation in extension programmes and social events etc. among farming community that helps in harnessing ICT services in the rural areas to maximum extent. Study indicate that ICT based information delivery helps the livestock farmers to make significantly better quality decisions on various livestock practices as compared to non-ICT users (Ali,2011).

Table 4: Relationship between respondent's personal variables and usage of ICTs for animal husbandry practices by farmers

Variables	Correlation coefficient (r)	Regression coefficient	't' values
Age	-0.671*	-0.817	-1.783*
Education	0.635**	0.243	0.956*
Socio-economic status	0.655**	1.943	1.408**
Landholding	0.028NS	-0.003	-0.004*
Irrigation facilities	0.133NS	-1.858	-1.168*
Extension contact	0.661**	1.118	0.528**
Mass media exposure	0.663**	0.467	0.163*
Scientific orientation	0.239*	0.227	0.156*
Economic motivation	0.140*	-2.616	1.080*
Risk orientation	0.380*	0.246	0.179*

* Significant at 5% level of significance and, ** Significant at 1% level of significance
R^2 = 0.4984

CONCLUSION

Correlation coefficient of education, socio-economic status, extension contact, mass media exposure, scientific orientation, economic motivation, risk orientation were found positively significant with numbers of ICTs, accessibility of ICTs , agriculture practices information and animal husbandry practices. Age was found negatively significant with numbers of ICTs, accessibility of ICTs, agriculture practices and animal husbandry practices. Landholding was found non-significant with numbers of ICTs and animal husbandry practices, positively significant with accessibility of ICTs and agriculture practices. The variable of irrigation facilities

was found non-significant with numbers of ICTs, accessibility of ICTs, agriculture practices information and animal husbandry practices. Similarly regression coefficient of education, socio-economic status, extension contact, mass media exposure, scientific orientation, economic motivation, risk orientation were found positively significant with numbers of ICTs, accessibility of ICTs , agriculture practices information and animal husbandry practices. Age was found negatively significant with numbers of ICTs, accessibility of ICTs, agriculture practices and animal husbandry practices. Landholding was found negatively significant with numbers of ICTs, accessibility of ICTs and animal husbandry practices, positively significant with agriculture practices. The variable of irrigation facilities was found negatively significant with numbers of ICTs, accessibility of ICTs, agriculture practices and animal husbandry practices. Major constraints found were lack of confidence in operating of ICTs followed by the erratic power supply, lack of awareness benefits of ICTs, poor internet connectivity. Majority of farmers suggest training programmes related to ICT for farmers followed by sufficient funding for ICT at village level and improved internet connection.

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