Indian Journal of Extension Education
Vol. 55, No. 4 (October-December), 2019, (51-54)

Influence of Profile Characteristics on Knowledge Level about Drip Irrigation System

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ABSTRACT

This paper tries to find out the knowledge level of sugarcane farmers about drip irrigation system and also the profile characteristics influencing knowledge level of sugarcane drip farmers. The investigation was carried out in three districts of Telangana state with 240 sugarcane drip farmers. The three districts were selected purposively as they had highest area under sugarcane cultivation. The results revealed that most of the sugarcane drip farmers had medium level of knowledge about drip irrigation system. Finally correlation and step-down regression analysis was used to find out the most influencing profile characteristics on level of knowledge of sugarcane drip farmers.

Keywords: Correlation, Drip irrigation system, Education, Knowledge, Profile characteristics, Regression, Sugarcane, Training

INTRODUCTION

Water is a precious natural resource in the world. Of the available water, major chunk is utilized for agriculture. The estimated global withdrawal of water for agriculture is 69 per cent followed by 21 and 10 per cent by industries and municipalities respectively (Palanisami and Paramasivam, 2003). Various studies reported that by 2025, one-third of the developing countries in the world will face severe water crisis. Present alarming situation demands scientific management of available water. Drip irrigation is a pragmatic advancement in irrigation science. In India, drip irrigation is adopted in 4 lakh ha (Karpagam *et al.*, 2010). Maharashtra is the leading state where 1.42 lakh ha area is under drip irrigation system followed by Karnataka (64,000 ha). However, total drip irrigated area is less than one percent of the total irrigated area in India. There are several factors which have influenced the adoption and maintenance of drip irrigation; among them knowledge on drip irrigation system is very important one. The study not only explored the knowledge level of sugarcane drip farmers but also brings out the personal characteristics which influence the knowledge level of the sugarcane drip farmers.

METHODOLOGY

The study was conducted using descriptive type of research design applying ex-post facto research. The state of Telangana was chosen purposively for the study, three zones of the state (Southern Telangana, Northern Telangana and Central Telangana) were selected purposively, One district was selected purposively from each agro climatic zone based on highest area under sugarcane crop, thus the study area constitute three districts, accordingly Nizamabad from Northern Telangana, Medak from Central Telangana and Mahabubnagar from Southern Telangana districts were selected. Two mandals were selected randomly from each district, thus constitute six mandals, four villages were

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selected randomly from each mandal thus constitute 24 villages for the study. The respondent for the study was operationally defined as the farmers who adopted drip irrigation system in sugarcane crop. Ten respondents were selected from each village constituting 240 farmers.

A knowledge test was developed through item analysis. Out of 60 items 25 items were selected for the final knowledge test by calculating the item difficulty index, item discrimination and point biserial correlation. All the 25 items in the knowledge test read out to the sugarcane drip farmers after establishing rapport with them and were asked to answer the items by themselves. A score of one and zero was assigned for correct and wrong answer for each item respectively and the total number of correct responses given by sugarcane drip farmers out of the 25 items was the knowledge score obtained by him or her.

To study the influence of profile characteristics on knowledge level of sugarcane drip farmers correlation and step-down regression analysis were used.

RESULTS AND DISCUSSION

The knowledge level of sugarcane farmers about drip irrigation system is presented in Table 1. The results in the Table 1 indicates that, 42.50 per cent of the sugarcane drip farmers were under the category of medium knowledge followed by low level of knowledge (30.00%) and high level of knowledge (27.50%). These results are in conformity with the findings of Timbadia *et al*. (1993); Joshi (2004); Jitarwal and Sharam (2007); Modi *et al*. (2008) and Ghanghas *et al.* (2015).

The medium to low level of knowledge of respondents on drip irrigation system in sugarcane crop can be attributed to the fact that to complete targets, MI (micro irrigation) companies and subsidy given by government agency, MI companies supply the drip materials to farmers without considering farmers knowledge about drip irrigation system.

Table 1: Distribution of the sugarcane drip farmers according to their level of knowledge (n=240)

Category	Frequency	Percentage
Low	72	30.00
Medium	102	42.50
High	66	27.50

Influence of profile characteristics on level of knowledge of sugarcane drip farmers was studied by using correlation and step down regression analysis of profile characteristics with level of knowledge are furnished in Table 2 and Table 3.

Among all the selected thirteen variables there was a positive and significant relationship between level of knowledge of sugarcane farmers on drip irrigation system and the education, trainings undergone, extension contact, sociopolitical participation, information management behaviour, risk taking ability, level of aspiration and there was a negative and significant relationship between level of knowledge of sugarcane farmers on drip irrigation system and age.

The value of the coefficient of multiple determination (R^2) as given in table. indicates that the ten independent variables *viz.*, education, farm size, farming experience, area of sugarcane under drip, annual income, trainings undergone, socio-political participation, information

Table 2: Relationship of profile characteristics with the level of knowledge drip irrigation system by sugarcane farmers

Independent variables	Level of knowledge
Age	-0.228389*
Education	0.349145**
Farm size	0.038801^{NS}
Farming experience	-0.01565^{NS}
Area of sugarcane under drip	0.035687^{NS}
Annual income	0.013868^{NS}
Trainings undergone	0.439389**
Extension contact	0.227724*
Socio political participation	0.257926*
Information management behaviour	0.3275599*
Risk taking ability	0.245625 *
Innovativeness	0.041021^{NS}
Level of aspiration	0.235482*

*Significant at 5% level of significance; **Significant at 1% level of significance.
NS=Non Significance

Table 3: Contribution of profile characteristics towards level of knowledge of sugarcane drip farmers

No.	Profile characteristics	Sugarcane drip farmers (n=240)			
		'b' value	SE	't' value	Sig.
X_2	Education	0.250	0.065	2.826	0.020**
X_3	Farm size	0.051	0.090	1.571	0.050**
X_4	Farming experience	0.129	0.058	1.242	0.026**
X_5	Area of sugarcane under drip	0.089	0.130	1.686	0.042**
X_6	Annual income	0.180	0.133	0.350	0.178
X_7	Trainings undergone	0.095	0.066	2.9953	0.005*
X_9	Socio political participation	0.145	0.061	0.2436	0.019**
X_{10}	Information management behaviour	0.158	0.059	2.6907	0.008*
X_{12}	Innovativeness	0.069	0.055	1.0476	0.036**
X_{13}	Level of aspiration	0.181	0.063	4.3963	0.004*

management behaviour, innovativeness and level of aspiration put together could explain 79.90 per cent of variation in the dependent variable of the level of knowledge of sugarcane farmers on drip irrigation system.

Education equips individuals with the necessary knowledge to respond to unforeseen events. Literate individuals are very keen to get information and use it. Education promotes awareness about the possible advantages of modern agriculture and the use of modern technologies. This might be due to the fact that extension personnel are the best and reliable sources of information; contact with extension personnel gives more knowledge about drip irrigation system in sugarcane crop. Training is an investment to upgrade the human resource. It brings changes in knowledge and skills related to one's profession. It is a common feature that farmers who actively participate in social activities through social & political organizations come across different types of people, exchange one's views and experiences, seek solutions for their problems and thereby gain more and more new knowledge. This might be due to the fact that an individual having medium to high innovativeness desires to seek changes in farming and introduces in his own operation and try to have more knowledge of those techniques to decide the pros and cons of them before actually implementing them. The probable reason might be that a farmer who wants to take risk during operation and maintenance of drip irrigation system in sugarcane crop will try to develop his knowledge with regard to the crop and its operation. The result supports the general view that medium information management behaviour enhances the knowledge of the farmers on several aspects of farm technology. Farmers who keep in touch with Personal-cosmopolite channels and localite channels are likely to have better knowledge on the current advances in agriculture. Higher aspiration leads to a desire to acquire higher knowledge in order to keep themselves abreast with recent improved agricultural practices.

CONCLUSION

In the present scenario, adoption and extent of use of agricultural technologies is a very crucial factor. The medium to low level of knowledge of sugarcane farmers will lead to medium extent of use and maintenance of drip irrigation system, so there is need to offer more training programmes about maintenance of drip irrigation system in sugarcane crop.

Paper received on : October 25, 2019
Accepted on : November 10, 2019

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