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# Knowledge level of drip owners towards drip irrigation management practices

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## ABSTRACT

The present study was designed to know the knowledge level of drip owners towards drip irrigation management practices. A multistage random sampling technique was used for selection of talukas, villages and respondents. Sabarkantha district was selected purposively. Among the different talukas of Sabarkantha district Idar, Vadali and Himmatnagar talukas were randomly selected. Five villages were selected from each selected taluka on the basis of highest number of drip owners. Thus, total 15 villages having maximum number of drip owners were selected. A list of farmers who installed drip irrigation system on their farm was prepared for each selected village. Ten respondents from each village were selected by using random sampling techniques and thus making a sample of 150 respondents. Appropriate statistical methods were used for analysing the data. From the result of the study it can be concluded that 64.67 per cent of the drip owners possessed medium level of knowledge. The age, education, social participation and cropping intensity were positively and significantly correlated with knowledge level of drip owners. Whereas, area under DIS, irrigation potentiality, annual income, economic motivation, attitude towards drip irrigation system and extension contact had positive and non-significant relationship with knowledge level of drip owners.

**Keywords:** Association, Knowledge, Drip owners

## INTRODUCTION

More than 70 per cent of the cropped area in the country is depend on the vagaries of monsoon. The agricultural production and productivity are therefore, the challenging task for management of the agriculture to meet the growing needs of the people of nation. For increasing the agricultural production, the importance of irrigation is fully realized, but the proper use of water is seldom practiced in our country. The regularized and controlled irrigation increases crop production, reduce water cost, conserves soil, covers more area under irrigation and thus, brings prosperity at home. World Bank predicted that by the year 2035, three million people will live in the tough conditions because of water shortage. According to the Human Development Report, by the year 2080 climate change would affect the life of many people throughout the world and more than 1.8 billion people would face water shortage.

Rainfall is irregular and uneven in many parts of the country. Gujarat is also facing this situation. Shortage of water has become one of the main problems in Gujarat for farmers. Therefore, efficient use of available water has become extremely important and which can be done through

drip irrigation system.

The total geographical area of Gujarat state is 196.12 lakh ha, out of this,106.3 lakhs ha is under gross cultivation. In Gujarat slightly more than three fourth (76.00 per cent) of the area under irrigation depends largely upon rainfall and remaining about one-fourth (24.00 per cent) of land is under irrigation. The area under drip irrigation in Gujarat state has been increased sizably during last eight years.

Generally, farmers look for a method of irrigation, which is most efficient with less water, labour, fertilizer and power requirements. Among the irrigation methods the drip irrigation system, is the advanced method of irrigation to overcome the various problems of water losses and other problems such as labour, money and water management. This method is rapidly gaining importance in the area where water is scare and high value crops are produced. Drip irrigation is an effective and efficient method of providing water directly to the root zone of plant. Drip irrigation represents one of the fastest expanding technologies in modern agriculture. Water is applied at low rate under pressure to keep soil moisture within the desired range for plant growth. This system saves 40 to 70 per cent of irrigation water. A well drip irrigation system also promotes the utilization of fertilizer, pesticides and other water soluble chemicals along with irrigation water. Research studies conducted worldwide have shown that this method leads not only to appreciable water saving, but also achieving high crop yield as compared to surface irrigation methods. This system is adaptable to most of the crops, under most of the soils and particularly suited to soil under condition of water scarcity. Crops like sugarcane, fruits, vegetables, oilseeds and cotton are ideally suited crops for drip irrigation. The present study was undertaken know the knowledge level of drip owners towards drip irrigation management practices

## MATERIALS AND METHODS

The present study was confirmed to "Ex-Post Facto" research design as the independent variables had already operated in the study area. A multistage random sampling technique was used for selection of talukas, villages and respondents. Sabarkantha district was selected purposively. Among the different talukas of Sabarkantha district Idar, Vadali and Himmatnagar talukas were randomly selected. Five villages were selected from each selected taluka on the basis of maximum number of drip owners. Thus, total 15 villages having maximum number of drip owners were selected. A list of farmers who installed drip irrigation system on their farm was prepared for each selected village. Ten respondents from each village were selected by using random sampling techniques and thus making a sample of 150 respondents. Knowledge level of drip owners was considered as dependent variable in the study. The data were collected with the help of structured interview schedule. The collected data were coded, classified, tabulated and analyzed by using the statistical tools such as frequency, per cent, mean, standard deviation and correlation coefficient.

## RESULTS AND DISCUSSION

### A. Selected attributes of drip owners

Knowledge level of drip irrigation management practices was influenced by different attributes of the farmers. It was beyond the scope of the present study to include all important characteristics of the respondents. However, some important characteristics of farmers were selected and classified into four groups viz., personal, agro-economic, psychological and communication attributes. The findings of these attributes have been presented in the following Table 1.

Table: 1. Selected attributes of drip owners (n=150)

| No. | Selected attributes of drip owners | | Frequency | Percent |
|---|---|---|---|---|
| (A) | Personal Attributes | | | |
| 1 | Age | Young age (up to 35 years) | 37 | 24.67 |
| | | Middle age ( 36 to 50 years) | 82 | 54.67 |
| | | Old age (above 50 years) | 31 | 20.66 |
| 2 | Education | Illiterate | 19 | 12.67 |
| | | Can read only | 06 | 04.00 |
| | | Can read and write | 28 | 18.66 |
| | | Primary | 27 | 18.00 |
| | | Middle | 37 | 24.67 |
| | | High | 24 | 16.00 |
| | | Post-Graduate and above | 09 | 06.00 |
| 3 | Social participation | No membership | 15 | 10.00 |
| | | Member of one organization | 98 | 65.33 |
| | | Member of more than one organizations | 28 | 18.67 |
| | | Office holders | 09 | 06.00 |
| (B) | Agro-economic attributes | | | |
| 4 | Area under DIS | Up to 1.00 ha | 19 | 12.67 |
| | | 1.01ha to 2.00 ha | 63 | 42.00 |
| | | 2.01 ha to 3.00 ha | 39 | 26.00 |
| | | Above 3.01 ha | 29 | 19.33 |
| 5 | Irrigation potentiality | Low (Up to 49.40 score) | 43 | 28.67 |
| | | Medium (Between 49.40-90.00 score) | 71 | 47.33 |
| | | High (Above 90.00 score) | 36 | 24.00 |
| | | **Mean=69.70** | **S.D. = 20.30** | |
| 6 | Cropping intensity | Low (Up to 208.35 score) | 38 | 25.33 |
| | | Medium (Between 208.35-297.65 score) | 76 | 50.67 |
| | | High (Above 297.65 score) | 36 | 24.00 |
| | | **Mean=253** | **S.D. = 44.65** | |

| | | | | |
|---|---|---|---|---|
| 7 | Annual income | Low (Up to 160039) | 16 | 10.67 |
| | | Medium (Between 160039 - 609269) | 127 | 84.66 |
| | | High (Above 609269) | 07 | 04.67 |
| | | **Mean=384654** | **S.D. =224615** | |
| (C) | Psychological attributes | | | |
| 8 | Economic motivation | Low (Up to 23.50 score) | 28 | 18.67 |
| | | Medium (Between 23.50-29.18 score) | 82 | 54.67 |
| | | High (Above 29.18 score) | 40 | 26.66 |
| | | **Mean=26.34** | **S.D. = 2.84** | |
| 9 | Attitude towards DIS | Less favourable (Up to 105.40 score) | 42 | 28.00 |
| | | Moderately favourable (Between 105.40-140.20 score) | 87 | 58.00 |
| | | Highly favourable (Above 140.20 score) | 21 | 14.00 |
| | | **Mean=122.80** | **S.D.=17.40** | |
| (D) | Communicational attributes | | | |
| 10 | Extension contact | Low (Up to 1.50 score) | 21 | 14.00 |
| | | Medium (Between 1.50-3.60 score) | 91 | 60.67 |
| | | High (Above 3.60 score) | 38 | 25.33 |
| | | **Mean=2.55** | **S.D.=1.05** | |

The data presented in Table1 indicates that more than half (54.37 %) of the drip owners were from the middle age group. 87.33 per cent of the drip owners were educated whereas, 12.67 per cent were uneducated. Almost two third (65.33%) of the drip owners were member of one organization. Slightly more than two fifth of (42.00%) drip owners had 1.00 to 2.00 ha area under drip irrigation system. Nearly half of the drip owners (47.33%) were having medium level of irrigation potentiality. Whereas, 50.67 per cent of the drip owners possess medium level of cropping intensity and 84.66 per cent of the drip owners had medium level of annual income. More than half of the drip owners (54.67%) possess medium to high level of economic motivation. While, 58.00 per cent had moderately favorable attitude towards drip irrigation system. Slightly more than three fifth of the drip owners (60.67%) had medium level of extension contact.

**B. Knowledge level of drip owners towards drip irrigation management practices**

Knowledge is a cognitive behavior of an individual. In the present study, it was operationalized as total understanding regarding drip irrigation management practices. The information in this regard was collected from drip owners are presented in Table 2.

Table 2: Distribution of drip owners according to their level of knowledge regarding drip irrigation practices (n = 150)

| Sr. No. | Knowledge level | Frequency | Per cent |
|---|---|---|---|
| 1 | Low (Up to 28.15 score) | 29 | 19.33 |
| 2 | Medium (Between 28.15-36.75 score) | 97 | 64.67 |
| 3 | High (Above 36.75 score) | 24 | 16.00 |
| | Total : | 150 | 100.00 |
| | Mean = 32.45<br>S.D. = 4.30 | | |

It is evident from Table 2 that slightly less than two third (64.67 per cent) of the drip owners possessed medium level of knowledge, followed by 19.33 and 16.00 per cent of drip owners possessed low and high level of knowledge regarding drip irrigation management practices, respectively.

**C. Association between selected attributes of drip owners and their level of knowledge**

The correlation coefficient 'r' was worked out to know the association between independent and dependent variables. The correlation coefficient was calculated for knowledge level of drip owners with ten independent variables which were grouped into (i) personal attributes, (ii) agro-economic attributes, (iii) psychological attributes and (iv) communicational attribute. The results in this regards are discussed under following sub-titles and presented in Table 3.

The age, education, social participation and cropping intensity were positively and

Table 3 : Association between selected attributes of drip owners and their knowledge level (n=150)

| Sr. No. | Independent variables | Correlation coefficient ('r' value) |
|---|---|---|
| [I] | Personal variables : | |
| (1) | Age | 0.182* |
| (2) | Education | 0.185* |
| (3) | Social participation | 0.168* |
| [II] | Agro-economic variables : | |
| (1) | Area under DIS | 0.112NS |
| (2) | Irrigation potentiality | 0.089NS |
| (3) | Cropping intensity | 0.236** |
| (4) | Annual income | 0.087NS |
| [III] | Psychological variables : | |
| (1) | Economic motivation | 0.061NS |
| (2) | Attitude towards DIS | 0.032NS |
| [IV] | Communication variables : | |
| (1) | Extension contact | 0.006NS |

** = Significant at 1% level; * = Significant at 5% level; NS = Not significant

significantly correlated with knowledge level of drip owners. Whereas, area under DIS, irrigation potentiality, annual income, economic motivation, attitude towards drip irrigation system and extension contact had positive andnon-significant relationship with knowledge level of drip owners.

## CONCLUSION

The regularized and controlled irrigation increases crop production, reduce water cost, conserves soil, covers more area under irrigation and brings prosperity at home. It can be articulated that nearly two thirds (64.67 per cent) of the drip owners possessed medium level of knowledge. While in case of association, age, education, social participation and cropping intensity were positively and significantly correlated with knowledge level of drip owners. Whereas, area under DIS, irrigation potentiality, annual income, economic motivation, attitude towards drip irrigation system and extension contact had positive and non-significant relationship with knowledge level of drip owners.

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