

## A study on adoption of drip irrigation system in Maharashtra State

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### ABSTRACT

Drip irrigation was introduced in India during early seventies and significant development has taken place in the research on drip irrigation from eighties till date. The technology of drip irrigation is becoming increasingly popular in regions of water scarcity where the available water is non sufficient to irrigate the command area by surface irrigation. The present investigation was carried out to find drip irrigation adoption among the farmers. It was found that medium educated farmers having medium socio-economic status and procured information from progressive farmers. It was revealed that more than half of the drip adopters had medium level of adoption of recommended practices related to drip irrigation system followed by one fourth of the respondents who had low level of adoption and (19.00 per cent) had high level of adoption. Education, Size of land holding, Annual income, Socio-economic status, Scientific orientation, Risk orientation, were observed to be positively and significantly related to adoption.

**Key words :** Drip irrigation, Adoption, Maharashtra.

### INTRODUCTION

Drip irrigation more popular in all over the country, due to its efficiency one can use optimum or little quantity of irrigation water for crop production. Several results of research established that about 40 to 60 per cent of available water could be saved by adopting drip irrigation. In India 33 per cent (83 million ha) area is under irrigation out of total cropped area (237 million ha). In Maharashtra out of 21.1 million hectares cultivated area only 15.4 per cent area (3.3 million ha) is under irrigation).

It is clear that use of advanced, technique like drip irrigation has become a vital aspect of development programme in irrigation water management. Technology is the positive answer to increase agricultural production. It is proved that an availability of irrigation water for agricultural and its management in scientific way helps to increase the agriculture production many folds.

It is therefore, essential to adopt improved water management practices along with concern technology for increasing the yields of crops. The present investigation was undertaken in Malshiras Tahsil of Solapur district of Maharashtra with following specific objectives.

### Objectives :

1. To study the different socio-economic aspects of drip irrigators.
2. To study the adoption of different techniques of drip irrigation system in project area.
3. To study the relationship of personal, socio-economic and psychological variables of respondents with their knowledge of drip irrigation system.

### MATERIALS AND METHODS

The study was conducted in Malshiras tehsil of Maharashtra state. The ten villages were selected from Malshiras tahsil considering the availability of drip irrigation sets. List of villages and farmers having drip irrigation sets in working condition were obtained from the office of Malshiras Panchayat Samiti and from dcalcrs. All the farmers considered for study. Randomly ten villages and hundred respondents were selected. A specially designed interview schedule was used as an instrument of data collection in personal interview with respondents.

In order to get an overall picture of adoption of recommended management and maintenance practices of drip irrigation system by the farmers, the adoption score was calculated. For measuring the level of adoption aspects developed for measurement of knowledge was used. The respondents asked to state whether they adopted the same or otherwise score two for the 'full adoption' of the practice, score one for 'partial adoption' and score zero was assigned for 'non-adoption' of the practice. The maximum possible score was 50

and minimum score was zero. The data were subjected to statistical tests such as frequencies, percentages, coefficient of correlation and multiple regression for drawing inferences.

### RESULTS AND DISCUSSION

#### Personal, socio-economic, psychological characteristics of drip irrigators :

The study (Table 1) pointed out that most of the drip adopters had (40.00 per cent) secondary education and majority of drip adopters (66.00 per cent) had medium level of income. It was observed that over two third of the respondents belonged to medium level of socio-economic status. Majority of the respondents (60.00 per cent) had medium level of risk orientation category. However, two third of respondents (65.00 per cent) had medium level of scientific orientation. Fifty five per cent drip adopters had medium hectares of area under drip. Regarding the other characteristics, it is seen that progressive farmers (52.00 per cent) were major motivators for adoption of drip irrigation followed by Radio (42.00 per cent). It can be concluded from the data medium educated farmers having medium socio-economic status and procured information from progressive farmers.

#### Adoption level of drip irrigators :

Table 2 revealed that more than half of the drip adopters (55.00 per cent) had medium level of adoption of recommended practices related to drip irrigation system followed by one fourth of the respondents (26.00 per cent) who had low level of adoption and (19.00 per cent) had high level of adoption. It can be said that most of the respondents had medium level of adoption. The practices were new for some of the respondents, they might have fear about adoption of all the recommended practices of drip system. The similar results were found in the study of Takate (1987) and Sakhare (1998).

#### Relationship between personal attributes and adopters and adoption of drip systems :

The data regarding the relationship between personal attributes and adoption of drip system are presented in Table 3.

It is observed from Table 3 that among the selected in depend variables, five variables viz. Education, Size of land holding, Annual income, Socio-economic status, Scientific orientation, Risk orientation, were observed to be positively and significantly related to adoption. These variables are found statistically significant at 1 per cent level of significance. Significance of education were similar to the findings of Salvi (1968). Risk orientation exhibited non significant relation with adoption. The findings is in line with findings of Wilson and Chaturvedi (1985), and Supe et al. (1990).

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Table 1 : Distribution of respondents according personal social and economic characteristics.

| Sr. No. | Attributes  | No. of respondents Frequency<br>n=100 | Percentage |
|---------|---|---------------------------------------|------------|
| I       | Personal Characteristics                                      |                                       |            |
|         | A. Education  |                                       |            |
|         | 1. Illiterate   | 6                                     | 6          |
|         | 2. Primary Education (up to 4 <sup>th</sup> )                 | 12                                    | 12         |
|         | 3. Secondary Education (5 <sup>th</sup> to 10 <sup>th</sup> ) | 40                                    | 40         |
|         | 4. Higher education (11-12 <sup>th</sup> )                    | 20                                    | 20         |
|         | 5. College (12 <sup>th</sup> and above)                       | 22                                    | 22         |
| II.     | Socio-Economics Characteristics                               |                                       |            |
|         | A. Size of land holding                                       |                                       |            |
|         | 1. Small land holding (up to 2ha)                             | 6                                     | 6          |
|         | 2. Medium land holding (2hato 4ha)                            | 66                                    | 66         |
|         | 3. Large land holding (above 4ha)                             | 28                                    | 28         |
|         | B. Annual Income  |                                       |            |
|         | 1. Low (Up to 65000)  | 23                                    | 23         |
|         | 2. Medium (65001 to 95000)                                    | 61                                    | 61         |
|         | 3. High (above 95000)   | 16                                    | 16         |
|         | C. Socio-economics Status                                     |                                       |            |
|         | 1. Low (Score Up to 24)                                       | 22                                    | 22         |
|         | 2. Medium (Score 30to 42)                                     | 65                                    | 65         |
|         | 3. High (Score above 42)                                      | 13                                    | 13         |
| III     | Psychological Characteristics                                 |                                       |            |
|         | A. Risk Orientation   |                                       |            |
|         | 1. Low (Score Up to 7)  | 17                                    | 17         |
|         | 2. Medium (Score 8 to 11)                                     | 65                                    | 65         |
|         | 3. High (Score above 11)                                      | 18                                    | 18         |
|         | B. Scientific Orientation                                     |                                       |            |
|         | 1. Low (Score up to 21)                                       | 20                                    | 20         |
|         | 2. Medium (Score 22 to 27)                                    | 65                                    | 65         |
|         | 3. High (Score above 27)                                      | 15                                    | 15         |
| IV      | Situation Characteristics                                     |                                       |            |
|         | A. Area under drip  |                                       |            |
|         | 1. Small (Up to 0.5ha)  | 36                                    | 36         |
|         | 2. Medium (0.6ha to 10ha)                                     | 55                                    | 55         |
|         | 3. Large (above 10ha)   | 9                                     | 9          |

Table 2 : Distribution of drip adopters by their level of adoption of recommended practices.

| Sr. No. | Level of adoption            | Frequency n=100 | Per cent |
|---------|------------------------------|-----------------|----------|
| 1.      | Low-score upto 26            | 26              | 26.00    |
| 2.      | Medium-(score between 27-36) | 55              | 55.00    |
| 3.      | High (score above 36)        | 19              | 19.00    |
| Total   |                              | 100             | 100.00   |

Table 3 : Correlation and multiple regression analysis of adoption level.

| Sr. No. | Variable               | Correlation coefficient | Regression 'b' value | Coefficient 't' value |
|---------|------------------------|-------------------------|----------------------|-----------------------|
| 1.      | Education              | +0.499**                | 0.5622               | 3.79**                |
| 2.      | Size of land holding   | +0.531**                | 0.3525               | 2.87**                |
| 3.      | Annual income          | +0.267**                | 0.2528               | 1.65NS                |
| 4.      | Socio-economic status  | +0.226**                | -0.1005              | -0.32NS               |
| 5.      | Scientific orientation | +0.365**                | 0.3516               | 2.30*                 |
| 6.      | Risk orientation       | -0.131NS                | 0.4267               | 1.37NS                |
| 7.      | Knowledge              | +0.916**                |                      |                       |

\* Significant at 5% level of probability  $R^2 = 0.62$ 

\*\*Significant t 1% level of probability.

NS = Non significant.

**CONCLUSION**

It is revealed that six independent variables have explained 62 per cent of the total variation in adoption as the dependent variables. Regression coefficient indicated that education could effects, 3.79 units, 2.87 units and 2.30 units, respectively. Annual income, socio-economic status and risk orientation have non-significant contribution in adoption of improved practices related to drip irrigation system.

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