

# IRRIGATION AND ECONOMIC DEVELOPMENT



*Edited by*

**Dr.S. THEENATHAYALAN**  
**Dr.P. KANNAN**



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## CHAPTER 3

# AN EMPIRICAL STUDY ON DRIP IRRIGATION

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### **Abstract**

Water is becoming a scarce commodity due to various reasons. Various strategies have been formulated and implemented considering the water availability and requirement for future use by both central and state governments. One such method introduced relatively recently in Indian agriculture is micro-irrigation, which includes both drip and sprinkler method of irrigation. Micro-irrigation (MI) is proved to be an efficient method in saving water and increasing water use efficiency as compared to the conventional surface method of irrigation where water use efficiency is only about 35-40 percent.

Drip irrigation was initially introduced by the Agricultural universities and other research institutions in India with the aim to increase the water use efficiency in crop cultivation. Realizing this situation Government of India introduced various promotional schemes namely National Mission on Micro Irrigation (NMMI), the National Committee on Plasticulture Applications in Horticulture (NCPAH), National Horticultural Mission, National Agricultural Development Project etc. with the subsidy to farmers in all the states. As a result, the area under drip irrigation has increased positively in the country. Over the last ten years, significant growth has been achieved in the area under drip method of irrigation in absolute term in many states. (GOI, 2000). In Tamil Nadu, drip irrigation was implemented in 1, 53,437 ha. Tamil Nadu is one of the important states in the implementation of Micro-irrigation next to Maharashtra.

Keeping all these in view, the present study was designed to study the extent of benefits derived from drip irrigation in coconut crop and to identify the constraints encountered by farmers in adopting the drip irrigation for coconut crop. The results revealed that majority of drip irrigation farmers had expressed the advantages like saving of water, saving in labour cost for irrigation, increased yield, water saving, labour saving, increased quality of produce, reduced weed growth, extended self-life of produce and uniform application of water. The constraints encountered by the farmers had, problem of non-availability of quality material, no follow up services by drip agencies, high initial investment cost, lack of capital to cover maximum holding under drip irrigation, delay in sanction of loan, leakage in the present drip system. Hence, it is clear from the study, drip irrigation agencies, financing institutions and others to supply adequate standard spare parts and other appropriate measures to ensure the satisfactory situation for proper adoption of drip irrigation method.

**Keywords:** water scarcity, scheme on micro irrigation, drip irrigation

### **Introduction**

Water is becoming a scarce commodity due to various reasons. Various strategies have been formulated and implemented considering the water availability and requirement for future use by both central and state governments. One such method introduced relatively recently in Indian

agriculture is micro-irrigation, which includes both drip and sprinkler method of irrigation. Micro-irrigation (MI) is proved to be an efficient method in saving water and increasing water use efficiency as compared to the conventional surface method of irrigation where water use efficiency is only about 35-40 percent.

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### **Objective**

1. To study the extent of benefits derived from drip irrigation in coconut crop and
2. To identify the constraints encountered by farmers in adopting the drip irrigation for coconut crop.

### **Methodology**

This study is basically descriptive and empirical in nature. Tiruppur District of Tamil Nadu has been selected for the study. Hence, the district forms the universe of the study. Three villages of Alampalayam, Devanurpudur, and Erisinampatti in Udumalpet taluks purposively selected where in maximum area of coconut crop is irrigated by drip method. Primary data was collected by administering a pre-tested interview schedule. The study covered a sample of 30 farmers. 10 farmers from each village randomly selected that is irrigated by drip method.

### **Literature Review**

The literature related to technology adoption in agriculture is many. So, the proposed study incorporates some relevant literature according to the objective of the study.

**Larson et al (2015)**, investigated the adoption of water saving technologies in the case of laser leveling, this paper says that the farmers are not adopting to the technology because of financial constraints and if the cost can be subsidized the adoption rate will be higher. This also says that the adoption also depends on the size of the farmer according to their landholding size.

**Parthsarathi A. Pandey et al (2016)**, have analyzed the constraints in adopting the drip irrigation in the state of Gujarat, India, with the sampled farmers it is found that high initial cost is one of the main constraint for a farmer to adopt to the drip irrigation then followed by maintenance cost and then followed by the damage affected by the animals for the drip irrigation system.

**The research of Zakir Aliyev (2017)** has the insights of the efficiency of the irrigation with micro irrigation. He says at the higher level of ground water, good yield of agriculture crops can be achieved through micro irrigation as compared to surface irrigation. **Neşe Üzen et al** studied the role

of micro irrigation in the modern agriculture, which says the micro irrigation system is successful for the horticulture in any kind of weather condition. Which will also increase the yield of the crops, good fertilizer usage, no Stalinization, no disease for crops and the labour cost will also reduce.

### Data Analysis and Interpretation

#### I Benefits of Drip Irrigation

Collected information was analyzed and results are presented in the following table.

**Table 1 Benefits of Drip Irrigation\***

S. No.	Benefits of Drip irrigation farmers	No. expressing the advantages	
		Number (n= 30)	Percent (%)
1.	Saving of water	28	93.33
2.	Saving of labour cost for irrigation	22	73.33
3.	Uniform application	27	90.00
4.	Improved quality of produce	20	66.67
5.	Easy method of irrigation	26	86.67
6.	Decreased weed growth	21	70.00
7.	Increased crop yield	23	76.67

\*Multiple responses

The table 1 revealed that majority of the respondents opined that saving of water (93.33 %) is major benefit of drip irrigation and followed by Uniform application (90.00 %), Easy method of irrigation (86.67 %), Increased crop yield(76.67 %). Saving of labour cost for irrigation(73.33 %) Decreased weed growth(70.00%) and Improved quality of produce (66.67 %).

### II. Constraints Encountered by the Farmers

#### Henry Garrett Ranking Technique

The Garret Ranking Technique was used to rank the constraints encountered by the farmers. The constraints are high initial investment cost, lack of capital to cover maximum holding under drip irrigation, no follow up services by drip agencies, leakage in the present drip system, delay in sanction of loan and non-availability of quality material. To identify the reason is the most vital one.

**Table 2 Constraints Encountered by the Farmers**

Constraints encountered	Mean Score	Average Score	Rank
Non-availability of Quality material	1061	35.46	VI
No follow up services by drip agencies	1546	51.53	III
High initial investment Cost	1649	54.96	I
Lack of capital to cover maximum holding under drip irrigation	1612	53.73	II
Delay in sanction of loan	1295	43.16	V
Leakage in the present drip system	1440	48.00	IV

The above table shows the constraints encountered by the farmers. Out of six constraints "High initial investment cost" secured the highest mean score and stood at first followed by "Lack of capital to cover maximum holding under drip irrigation" stood at second, "No follow up services by drip agencies" stood at third, "Leakage in the present drip system" stood at fourth, "Delay in sanction of loan" stood at fifth. Finally "Non-availability of quality material" secured least mean score and stood at last. Thus it is found that the major constraints encountered by the farmers are high initial investment cost.

#### Conclusion

The Benefits encountered by the farmers are saving of water, uniform application and easy method of irrigation and the constraints are problem of non-availability of quality material and no follow up services by drip agencies. It is clear from the study that the drip irrigation agencies, financing institutions and others to supply adequate standard spare parts and other appropriate measures to ensure the satisfactory situation for proper adoption of drip irrigation method.

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