

Original Research Article

Awareness of Farmers about Operational Aspects of Drip Irrigation Method in Arecanut Growing Areas of Chitradurga District of Karnataka

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ABSTRACT

The study on awareness of farmers about operational aspects of drip irrigation method in Arecanut growing areas of Chitradurga district of Karnataka during 2018-2019. By simple random sampling of 40 respondents from 3 taluks (Chitradurga, Hiriuru, Holalkere) of Chitradurga district. The results showed that majority of the drip irrigated farmers (97.50%) having an awareness about In drip irrigation method the evaporation of water will be reduced by placing emitters at the root zone and only few of them (12.50%) have awareness about the discharge rate of water from a nearest and farthest position of water source. Land holding, social participation, extension contact, cosmopolitanism and information seeking behavior were found to be significant at five percent level of significance. Whereas other variables like the age, education, farming experience, annual income, mass media exposure, innovative proneness, extension participation, risk bearing ability was non-significant with the awareness level of the farmers on operational aspects of the drip irrigation method.

Keywords

Awareness,
Operational
aspects, Irrigation
method

Introduction

Agriculture is an important sector with most of the rural population in developing countries depending on it. This sector faces major challenges in enhancing production because situation of dwindling natural resources becoming scanty. Scarcity of irrigation water is a major problem in present agriculture. Even though irrigation includes a network of major and minor canals from Indian rivers, groundwater wells and

enormous number of irrigation projects for agricultural activities, ground water is the major source of irrigation for Indian Agriculture. But ground water depletion is a major constraint and Irrigation efficiency is very low in our country due to loss of irrigation water during conveyance and field application. To achieve higher economics in agriculture, efficient utilization of water needs to be done. This could be achieved, if exists proper irrigation system for different crop under different climatic conditions.

The occurrence and distribution of rainfall in the Karnataka state are highly unpredictable. The average annual rainfall is 1,138 mm received over 55.00 rainy days. It varies from as low as 569.00 mm in the east to as high as 4,029 mm in the west. About 2/3rd of the geographical area of the state receives less than 750.00 mm of rainfall (Chandrakanth, 2009).

Chitradurga district is a basic hard rock area that has a total geo graphical area of 8388sq.kms.It receive slowly to moderate rainfall and is one of the drought-prone districts in the state. Normal annual rainfall in the district based on 30 years data is 574 mm. However, in the last decade, the district received an average annual rainfall of 631.10 mm varies between 668mm in Holalkere in the western part and 457 in Challakere in the north eastern part (Anonymous, 2014).

The farmers of the Chitradurga district were growing Arecanut in 23,697 ha. Among six taluks, Holalkere (13305 ha), Chitradurga (4559 ha), Hiriya (2993 ha) and Challakere (610 ha) are the leading in area and production of arecanut. Arecanut is a water intensive crop which requires about 16-20 litres of water per tree per day. But nowadays the water availability was drastically decreased. In such conditions lack of awareness about their own borewell yield and how much quantity of water required irrigating the crops and how to manage the available water in an efficient manner needs to know by the farmers.

Hence, this investigation was conceived with the objectives as

1. To study the awareness of farmers about the operational aspects of drip irrigation method in Arecanut growing areas of Chitradurha district
2. Relationship between characteristics of farmers and awareness of farmers about

operational aspects of drip irrigation method in arecanut

Prasad (2008) conducted a study on the adoption of drip irrigation technology among the orchard farmers of Nalgonda district. The result showed that the majority of the respondents belong to partial knowledge (60.83%) about the adoption of drip irrigation technology followed by complete knowledge (20.83%) and 18.34 per cent had low knowledge about drip irrigation technology.

Maheshwari (2016) conducted a study on farmer's awareness towards drip irrigation system and flood irrigation system in Coimbatore district. It was found about 74.90 per cent of farmers strongly agree on the fact that drip irrigation increases the yield, about 38.00 per cent of farmers strongly agree on the fact that drip irrigation controls pests and diseases.

Ankit (2016) conducted a study on perception and awareness of farmers towards the over-exploitation of ground water and its management in Punjab. Their study revealed that 65.83 per cent of respondents had high level of awareness followed by 22.50 per cent of respondents were of medium level of awareness while only 11.67 per cent of respondents fall under a low level of awareness about management of groundwater. It was also observed that a large majority (90.83%) of the respondents were aware of regular maintenance and cleaning of water channel while 86.67 per cent of the respondents were aware of the sowing of crops on ridges.

Raghuvanshi *et al.*, (2017) in a study on farmers awareness about climate change stated that age, education, size of land holding, occupation, farming experience, information seeking behavior, mass media exposure, economic motivation and scientific orientation were significantly related with

awareness level of farmers.

Ayo *et al.*, (2018) conducted study on socio-economic characteristics influencing level of awareness of aflatoxin contamination of feeds. The results stated that age, education, Gender, field of specialization, employment category, occupation and location found significant relationship with awareness level of farmers.

Rubina Aziz *et al.*, (2018) conducted study on relationship between socio-economic aspects of farmers and their awareness and adoption of short agricultural messages telecast on PTV. They found that age, education, land holding and tenancy status showed significant relationship with the level of farmers' awareness.

Materials and Methods

The study was conducted in Chitradurga district of Karnataka state. Chitradurga district lies in the central dry zone of Karnataka at 14°00' Northern latitude and 76°50' of Eastern longitude at a mean altitude of 732 meters above sea level. The average annual temperature is around 37°C. The average annual rainfall is 744 mm. The major horticultural crops are Arecanut, Banana, Mango, Pomegranate, and Coconut.

Chitradurga, Holalkere and Hiriyur taluks coming under Chitradurga district 40 respondents from above 3 taluks were selected purposively based on the highest area under arecanut production and practicing different irrigation methods viz., Drip, Sprinkler and Flood irrigation methods.

In the present study, Ex-post-facto research design was used. The researcher had no scope to manipulate the independent as well as dependent variables. Inferences on the relationship between independent and

dependent variables have to be drawn based on effects already manifested.

Results and Discussion

The data represented in Table 1 indicates the awareness of farmers about operational aspects of drip irrigation method. Nearly cent per cent of farmers aware that drip irrigation method reduces the evaporation of water by placing emitters at the root zone (97.50%) followed by 92.50 per cent farmers aware that the drip irrigation had high fertilizer use efficiency and need for flushing of pipes once in a year to avoid algae and other problems. The farmers lack awareness on the operational aspects like in drip irrigation slow water flow may lead to the growth of algae (20.00 %) and 12.50 per cent of farmers had awareness about the discharge rate of water from the nearest and farthest position of the water source.

Relationship between characteristics of farmers and awareness about operational aspects of drip irrigation method in arecanut

The detail of the relationship between independent variables and awareness of the farmers on operational aspects of drip irrigation was presented in Table 2. A close observation of the figure reveals that land holding, social participation, extension contact, cosmopolitanism and information seeking behavior were found to be significant at five percent level of significance. Whereas other variables like the age, education, farming experience, annual income, mass media exposure, innovative proneness, extension participation, risk bearing ability was non-significant with the awareness level of the farmers on operational aspects of the drip irrigation method.

Table.1 Awareness of farmers about operational aspects of drip irrigation method in arecanut

Sl. No.	Awareness statements	RESPONSE			
		AWARED		NOT	
		F	P	F	P
1	In drip irrigation method the evaporation of water will be reduced by placing emitters at the root zone	39	97.50	01	2.50
2	Drip irrigation having high fertilizer use efficiency compared to other methods of irrigation	37	92.50	03	7.50
3	There is a need to flush the pipes once in a year to avoid algae and other problems related to water flow in	37	92.50	03	7.50
4	Regular inspection of leakage of joints, couplers, and bends has to be done for avoiding water loss	37	92.50	03	7.50
5	In drip irrigation method weed management is easy	37	92.50	03	7.50
6	Water born diseases could be minimized by practicing the drip irrigation method	37	92.50	03	7.50
7	Aware about exact placement of valve position in drip irrigation layout	36	90.00	04	10.00
8	Field leveling is not necessary in case of the drip irrigation method	36	90.00	04	10.00
9	Pulsed irrigation could be needed to reduce the amount of water delivery	36	90.00	04	10.00
10	Regular check for damage, clogging /blockage of the filters, laterals, emitters	36	90.00	04	10.00
11	Adoption of drip irrigation method helps to reduce the occurrence of pest and diseases incidence	35	87.50	05	12.50
12	In drip irrigation, recycled and non portable water could be used by using good quality of filters	35	87.50	05	12.50
13	Drip irrigation helps in uniform distribution of water to all plants	33	82.50	07	17.50
14	Before irrigation have you check the water level in tank/farm pond in order to maintain the required	35	87.50	05	12.50
15	Drip irrigation method is better under undulated field conditions	33	82.50	07	17.50
16	In drip irrigation, the labour cost was comparatively less than any other methods of irrigation	31	77.50	09	22.50
17	The initial investment on the installation of drip irrigation unit was very costly	31	77.50	09	22.50
18	Drip irrigation may be functioning at a low pressure of water in bore well	30	75.00	10	25.00
19	In drip irrigation chances of soil erosion was relatively low than any other methods of irrigation	28	70.00	12	30.00
20	Drip pipes cause extra cost at the time of next crop irrigation due to less durability	28	57.50	12	30.00
21	Difficult to carry out the inter cultivation operation in drip irrigated method	28	70.00	12	30.00
22	Drip irrigation is saving the water about 70-80 per cent than any other methods	27	67.50	13	32.50
23	Aware about pressure required to lift the water in drip irrigation	27	67.50	13	32.50
24	Different critical stages of the crop for irrigation under drip irrigation method	27	67.50	13	32.50
25	Quantity of water discharge rate of water from your bore well	27	67.50	13	32.50
26	Quantity of water demanded by plant per day	23	57.50	17	42.50
27	A most suitable method of irrigation for sandy soils	20	50.00	20	50.00
28	Regular cleaning of pipes using chlorine, sulfuric acid after fertigation/pesticide application to avoid	10	25.00	30	75.00
29	In drip irrigation, slow water flow may lead to the growth of algae	08	20.00	32	80.00
30	Have you calculated the discharge rate of water from a nearest and farthest position of water source	05	12.50	35	87.50

F= Frequency, P= Percentage

Table.2 Relationship between characteristics of farmers and awareness about operational aspects of drip irrigation method in arecanut

n=40		
Sl. No.	Independent variables	Fishers Exact Probability
1.	Age	0.631 ^{NS}
2.	Education	0.315 ^{NS}
3.	Landholding	0.007*
4.	Farming Experience	0.527 ^{NS}
5.	Annual income	0.819 ^{NS}
6.	Social participation	0.003*
7.	Mass media Exposure	0.103 ^{NS}
8.	Innovative proneness	0.506 ^{NS}
9.	Extension participation	0.143 ^{NS}
10.	Extension contact	0.001*
11.	Risk bearing ability	0.249 ^{NS}
12.	Cosmopolitaness	0.001*
13	Information seeking behavior	0.003*

*- Significant at 5% level of significance
NS-Non significant

Awareness of farmers about operational aspects of drip irrigation method in arecanut

The data presented in Table 1 indicates that 97.50 per cent of the farmers had awareness regarding reduced evaporation in the drip irrigation method. The probable reason may be the farmers had more experience in practicing drip irrigation, when they place the drippers nearer to the root zone it saves the water, money, and labor. About 92.50 per cent of farmers had awareness regarding high fertilizer use efficiency in drip irrigation because may be the farmer getting a high yield with less quantity of fertilizer application. The reason may be that the farmers had medium extension contact and were falling in middle age category that was

more innovative along with that they are having good practical experience made them have high level awareness about certain aspects. Whereas, only 12.50 per cent of the farmers had awareness about the discharge rate of water from the nearest and farthest position of the water source. Due to lack of contact with progressive farmers and external agency farmers might have poor knowledge in technical aspects might be the reason for the above results. The findings are in line with Ankit (2016)

Relationship between characteristics of farmers and awareness of farmers about operational aspects of drip irrigation method in arecanut

The detail of the relationship between

independent variables and awareness of the drip irrigated farmers on operational aspects was presented in Table 2. Observation of the figure reveals that land holding, social participation, extension contact, cosmopolitanism and information seeking behavior were found to be significant at five per cent level of significance. Whereas other variables like the age, education, farming experience, annual income, mass media exposure, innovative proneness, extension participation, risk bearing ability was non-significant in case of association with awareness.

The above result might be due to the reason that land holdings had a significant influence on the awareness of the respondents it might be due to that the majority of the farmers were having medium and big size land holdings they may easily adopt new irrigation practices and techniques by minimizing installation costs. Further, the farmers were trying to learn and adopt various new water management techniques in arecanut in order to make efficient utilization of available water. The farmers maintain good contact with local bodies like KVK, cooperatives, etc., which is easily reachable, helps to gather information from various available sources. This variable has an influence on their awareness of the operational aspects of the drip irrigation method. The results are in harmony with findings of Fangfung *et al.*, (2017).

In conclusion, the study affirms the majority of the farmers had awareness about operational aspects in drip irrigation method as the evaporation of water will be reduced by placing emitters at the root zone and least percentage farmers had awareness about the discharge rate of water from the nearest and farthest position of the water source. The variable like land holding, social participation, extension contact,

cosmopolitanism and information seeking behavior were found to be significant at five per cent level of significance.

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