

RESEARCH ARTICLE :

Impact of drip irrigation on sugarcane growers

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SUMMARY : The study was conducted during 2015 among sugarcane growers of Belagavi district of Karnataka. The results revealed that the average yield of sugarcane among drip adopters was high 53.60 t/ac compared to non-adopters of drip 44.80 t/ac indicating 8.80 difference. The average per acre income of the adopters of drip irrigation was high Rs. 72350/- compared to non-adopters Rs. 53580/-, indicating the difference of Rs. 18770/-. The results also revealed that advantages experienced by drip adopters, cent per cent of adopters expressed that drip irrigation saves water, decreased weed growth (86.66%), uniform distribution of water (83.33%) and decrease in labour requirement (76.66%).

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KEY WORDS :

Drip irrigation,
Impact, Sugarcane,
Adoption,
Constraints

BACKGROUND AND OBJECTIVES

Water is the most important natural resource. Though 70 per cent of planet Earth is covered with water, its usage for human being is very meager. Rising population, industrialization and low and uneven distribution of rainfall has contributed to lesser availability of water for agriculture. On the other side due to globalization, liberalization and privatization of agriculture, the adoption of modern cultivation practices for higher production is much essential. Hence, technology calls for efficient use of water for obtaining good quality and disease free higher crops yield through drip irrigation.

Drip or trickle irrigation developed by Symcha Blass, an Israeli engineer during early 1940's, is well established world over as the most efficient irrigation method, especially in water scarce areas for most of the field,

plantation, vegetable, forest and green/ grass house crops. An appealing outcome on the adoption of drip irrigation is its impact on livelihood status. Farmers who adopt the system also have the possibility of extending irrigated or cultivated area on their land. This has a significant effect on the income of farmers, as higher yields bring higher earning.

Impact assessment of drip irrigation is very much obvious in this situation not only for the stakeholders but also the donors. Impact assessment enhance the understanding of the extent to which project, programme and policy interventions affect the target population and magnitude of this intervention effects on the welfare of the intended beneficiaries.

The present study was undertaken to assess the impact of drip irrigation with following objectives:

– To analyze the impact of drip irrigation on

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sugarcane growers.

–To study the constraints in adoption of drip irrigation.

RESOURCES AND METHODS

The study was conducted in Hebbal village of Belagavi district of Karnataka. Using purposive sampling 30 adopters and 30 non-adopters of drip irrigation were selected, thus, total sample size was 60. The data were collected using structured interview schedule. Two sets of schedules were prepared ; one for collecting data from adopters of drip irrigation and other for non-adopters of drip irrigation. The average yield of both adopters and non-adopters were consolidated and average difference of yield calculated. The data were analyzed using frequency, percentage and results are presented as below.

OBSERVATIONS AND ANALYSIS

The data in the Table 1 shows that, the average

yield and average per acre income of sugarcane crop among adopters and non-adopters. The average yield of sugarcane among drip irrigation adopters was 53.60 t/ac whereas the average yield of non-adopters of drip irrigation was 44.80 t/ac indicating 8.80 differences. The results are in line with Behera *et al.* (2013). The average per acre income of the adopters of drip irrigation was Rs. 72350/- whereas the average per acre income of non-adopters was 53580, indicating the difference of Rs. 18770/-. The results were supported by Singh and Singh (2005) and Chandrakanth *et al.* (2013).

The data presented in Table 2 highlights the advantages experienced by drip adopters, cent per cent of adopters expressed that drip irrigation saves water, and high per cent of adopters experienced decreased weed growth (86.66%), uniform distribution of water (83.33%). Decrease in labour requirement was expressed by 76.66 per cent, half of the adopters said intercropping is possible. The benefits of improved quality of produce was highlighted by 26.66 per cent of farmers. The

Sugarcane	Adopters (n ₁ =30)	Non-adopters (n ₂ =30)	Difference
Average yield (t/ac)	53.60	44.80	8.80
Average income (Rs./ac)	72350	53580	18770

Sr. No.	Advantages	f	%
1.	Saves water	30	100
2.	Decreases weed growth	26	86.66
3.	Uniform distribution of water	25	83.33
4.	Labor requirement decreases	23	76.66
5.	Inter-cropping is possible	15	50.00
6.	Improved quality of produce	8	26.66
Multiple responses considered			

Sr. No.	Constraints	f	%
1.	High initial cost of drip irrigation system	60	100.00
2.	Complexity in obtaining subsidy	57	95.00
3.	Inter-cultivation is difficult	54	90.00
4.	Clogging of drippers or emitters	54	90.00
5.	Problem in cleaning the laterals, filters and drippers	52	86.66
6.	Irregular supply of electricity	50	83.33
7.	Difficulty in operation and maintenance of drip irrigation system	45	75.00
8.	Non-availability of spare parts in local markets	43	71.66
9.	Damage by rats, squirrels and dogs	31	51.66
10.	Frequent repairs of equipments	17	28.33

differential perception of advantages implies that drip irrigation farmers might not have planned properly to reap maximum benefit from drip irrigation. Hence, required awareness about planned usage of drip irrigation through demonstration by concerned departments.

Similarly, the results of water saving, reduced weed growth, labour saving and improved quality of produce have been reported by Shashidhara *et al.* (2007) .

It was evident from the Table 3 that high initial cost (100%) was emerged as the most important constraints faced by the farmers in adopting drip irrigation followed by complexity in obtaining subsidy (95.00%), difficulty in inter-cultivation operation (90.00%), clogging of emitters (90.00%), problem in cleaning filters and laterals (86.66), irregular supply of electricity (83.33%). Difficulty in operation and maintenance of drip system (75.00%), non-availability of spare parts (71.66%), damage by animals (51.66%) and frequent repair of equipment (28.33%) were the other constraints faced by the farmers in adoption of drip irrigation. The similar results were found by Ahire *et al.* (2003) and Uday *et al.* (2007).

Conclusion :

The benefits experienced by sugarcane growers shows that, adopters of drip irrigation have more crop yield which resulted in more income compared to non-adopters of drip irrigation. The results also shows that respondents, especially non-adopters, not have reaped the benefits of drip irrigation to the maximum extent which might be due to non-adoption of drip irrigation. Hence, there is need for educating the farmers through trainings and demonstration in a planned manner by concerned departments and agencies.

Hence, it is clear from the study that there is need for government to provide subsidy for farmers to reduce the initial cost burden on farmers and also they should reduce the complexity in subsidy giving procedure.

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