

Impact Assessment of Krishi Vigyan Kendra's Interventions on Adoption of Drip Irrigation among the Farmers of Barwani District, Madhya Pradesh

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Abstract

The study was conducted in Barwani district of Madhya Pradesh due to its having maximum number of farmers of KVK using drip irrigation. In this study, the total sample was consisted of 120 respondents for the study. KVK is playing most important role in dissemination of technology. Main advantages perceived the respondents, were water and labor saving in guiding irrigation. Out of the total 120 untrained farmers, Majority 51.67 per cent respondents had medium adoption of drip irrigation technology followed by 40.83 percent of the farmers had high adoption of drip irrigation. Education and knowledge was found very important factor and it had highly significant with adoption of drip irrigation. High cost of inputs was the major constraints reported by 78.33 per cent farmers.

Key Words: *Impact, Adoption, Perception, Micro Irrigation, Drip Irrigation and Krishi Vigyan Kendra.*

Introduction

Madhya Pradesh is one of the state in India where rainfed farming accounts the maximum cultivated area. The rainfed area needs proper and regular management of irrigation water particularly to save as wastage from conventional type of irrigation. Micro-irrigation (MI) is proved 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.

The Barwani district is known as for their peculiar character of black soil. The main crops of this area i.e. cotton and chilly, as well as vegetables & fruits also but cotton and chili are the main source of income to the farmers. The annual average rainfall rate of last two years is 746 mm hence water scarcity and sources of irrigation are not sufficient for the cultivation of crops influentially the farmers are to be suffered to this problem.

In recent years, The Krishi Vigyan Kendra and other Govt. Institutes are continuously making efforts to create awareness among the farmers about scientific cultivation and adoption of drip irrigation. Krishi Vigyan Kendra is playing major role for promoting the micro irrigation technology through Training programme, Exhibition, Kisan Mela, Sangosthi and other programme for dissemination of information about conservation of water and environmentally safe condition. The success of any programmes depends greatly on the perception of the trainees towards it. Hence it is worthwhile to assess the impact of drip irrigation in term of trainees' perception so that the farmers may adopt these technologies and enhance their production and productivity. The present study was under taken with the following objectives:

- To measure the Perception of the farmers about advantages of drip irrigation
- To study the adoption level of drip irrigation system among the farmers.
- To Study the impact of KVK intervention about micro irrigation.
- To explore the relationship between

socio-personal profile of the farmers with their adoption of drip irrigation.

- To deduct the problems and prospects of drip irrigation system in view of farmers.

Materials and Methods

In order to fulfill these objectives, the study was conducted during 2020 in purposively selected Thikari, Barwani and Rajpur blocks of Barwani district of West Nimar region M.P, due to maximum activities and programme were organized by KVK on micro irrigation and these having maximum number of farmers who adopted drip irrigation in different crops. A list of villages where activities/programmes on drip irrigation technology were conducted by KVK was prepared and out of which 12 villages (4 from each block) were selected randomly. A village wise list of farmers, who are

trained/awarded about drip irrigation technology by Krishi Vigyan Kendra was prepared and from each village ten farmers were selected by using simple random sampling method. Thus, the total sample was consisted of 120 respondents for the study. The data were collected with the help of pre-tested interview schedule. The data thus collected was tabulated and presented in the form of tables and graphs as per necessity. Keeping in view the objectives of the study and to draw logical results mean, percentage, and correlation tests was applied where they were required.

Results and Discussion

1. Perception of the farmers about advantages of drip irrigation technology

The advantages were perceived by the respondents after laying drip irrigation and they have more than two years of exposure in drip irrigation. Main advantages perceived the respondents, were water and labor saving in guiding irrigation. Labor saving was ranked first among the advantages of drip irrigation. The district experiences a huge shortage in

labor force for agricultural operations due to industrialization. So, the respondents' perceived labor saving was the main advantage and it reduced the drudgery of the agricultural labors as well as labor cost. Water saving is also prime among the advantages of drip irrigation. All the respondents felt that, they experienced around 30-40 per cent water saving by adopting drip irrigation.

Table 1 Perception of the respondents regarding advantages of drip irrigation technology

<i>SN</i>	<i>Particulars</i>	<i>frequency</i>	<i>Percent</i>	<i>Rank</i>
1	<i>Enormous water saving</i>	120	100.00	I
2	<i>Efficient use of fertilizer</i>	92	76.67	III
3	<i>Higher yield than normal irrigation</i>	112	93.33	II
4	<i>Reduction of labor cost</i>	120	100.00	I
5	<i>Less evaporation losses of water</i>	79	65.83	V
6	<i>Reduce weeds</i>	84	70.00	IV

Much emphasis is given on the yield increase compared to conventional irrigation system and the respondents also had a similar perception. Majority 93.33 percent of respondents accepted yield increase due to the adoption of drip irrigation. The respondents (76.67%) felt that application of fertilizers through drip irrigation was very easy and economical though they did not realize it prior to adoption.

Limited wetting of soil through drip irrigation has minimized weed growth. Also, reduced hand weeding resulted in labor saving and effective utilization of

2. Adoption of drip irrigation technology among the farmers-

Drip irrigation system is water saving device and constantly gaining momentum and contributing significantly towards the upliftment of agriculture with limited irrigation water availability. Recognizing the importance of drip irrigation system in farm economy and their contribution to protect from wastage of water, it is necessary to motivate the respondents to adopt drip irrigation system as well as maximum possibilities.

Due to economic and safety point of view, the great emphasis is being paid by both the scientists and extension workers to boost up agriculture production with the use of irrigation particularly with the use of drip irrigation system because

water and nutrients by sugarcane crop by avoiding weed compaction.

Nearly 70.00 per cent of the respondents perceived that there was reduction in weed growth compared to conventional irrigation methods and followed by 65.83 percent respondents reported less losses of water through evaporation^[5].

there is scarcity of irrigation water. The gain from drip irrigation system is possible only when the respondents adopt this technology as recommended as such. The adoption level of drip irrigation system by selected respondents is presented in table 3 The data presented in table 3 indicates that most of the respondents 51.67 percent had medium level of adoption regarding drip irrigation system followed by 40.83 percent had high level of adoption and 07.50 percent had low level respectively.

Thus, it may be concluded that higher number of the respondents had medium adoption level of drip irrigation system in study area followed by high and low^[1,4,5].

Table 2 Distribution of respondents according to their level of adoption of drip irrigation due to kvk’s intervention-

S.N.	Category	No. of respondents	Percentage
1.	Low level of adoption	09	07.50
2.	Medium level of adoption	62	51.67
3.	High level of adoption	49	40.83
Total		120	100.00

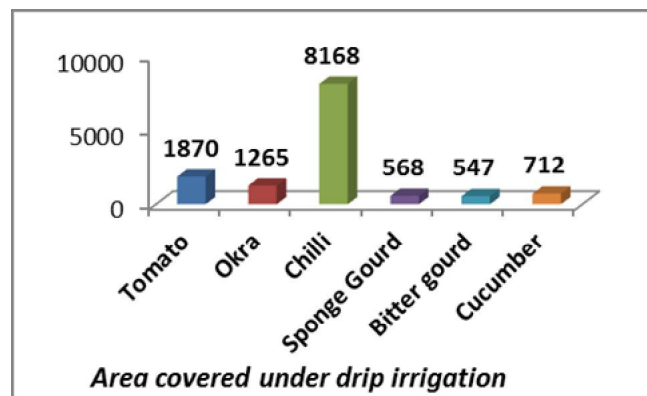
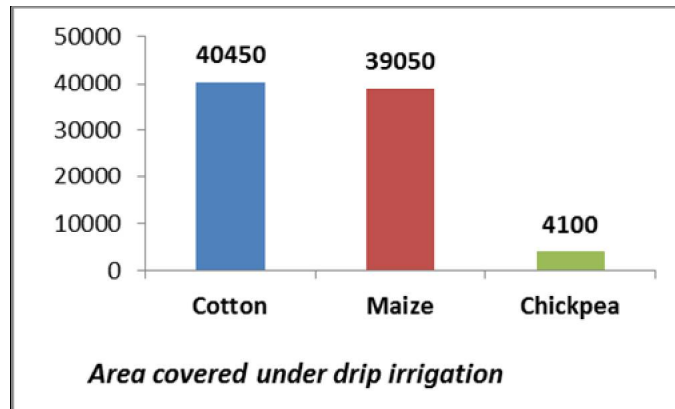
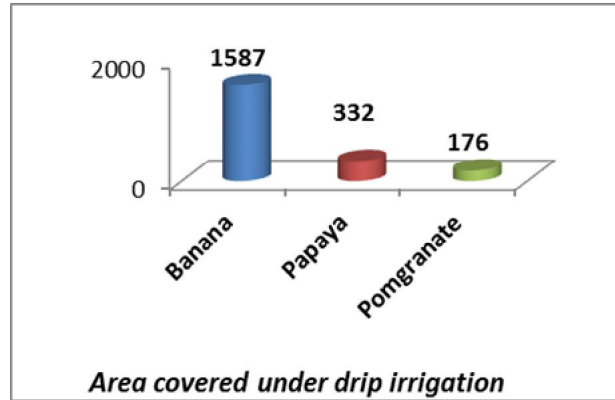
3. Impact of KVK intervention about micro irrigation-

After Intervention of KVK, area of major crop is increasing with micro irrigation in Barwani district. Krishi

Vigyan Kendra and other Govt. institute are playing major role for promoting the micro irrigation technology through

Training programme, Exhibition, Kisan Mela, Sangosthi and other programme. At present Banana, papaya and pomegranate are taken in 1597 ha, 399.5 ha and 435 ha. respectively under drip irrigation. Vegetables like okra, tomato, chilli,

sponge guard, bottle guard and bitter guard are cultivated with drip irrigation. More than 50-60 percent area of major crop like cotton, maize and chickpea are also covered with drip irrigation.



4. Relationship between personal characteristics of farmers with adoption of drip irrigation-

It is evident from the Table-3 that out of nine independent attributes of trained farmers i.e. education, social participation, size of land holding, maintenance of system, Attitude towards

DIS, and knowledge about drip irrigation were found significant relationship with adoption of drip irrigation at 1% level of significance while annual income, irrigation potential, source of information,

effect of DIS on production and information seeking behavior were found significant relation with adoption of drip irrigation technology at 5% level of significance and only one attributes found non significant i.e. age.

It is revealed that in case of trained farmers, out of nine independent attributes,

only age and cosmopolitaness were found no significant relationship with adoption of drip irrigation technology and rest of the attributes were found in significant relationship with adoption of drip irrigation in different crop production.

Table 3 Relationships between attributes of with their level of adoption of drip irrigation

S. N.	Attributes	Correlation coefficient 'r'
1	Age	0.040 ^{NS}
2	Education	0.521**
3	Social participation	0.362**
4	Size of land holding	0.399**
5	Annual income	0.239*
6	Irrigation potential	0.264*
7	Source of information	0.294*
8	Maintenance of the system	0.347**
9	Attitude towards DIS	0.388**
10	Effect of DIS on production	0.251*
11	Information seeking behavior	0.272*
12	Knowledge about drip irrigation	0.589**

** Significant at 1% level of probability

* Significant at 5 % level of probability

5. Limitation experienced by the farmers

Multiple responses were taken to ascertain the constraints faced by farmers. Various constraints are presented in Table-5 Maximum number of respondents were reported that high cost of inputs, 78.33 per

cent. In the next order, non availability of labor was accounted by 73.33 per cent farmers. High wages of labor was also serious constraint which was faced by 71.67 per cent growers.

Table 4 Constraints faced by the farmers

SN	Particulars	Frequency	Percentage	Rank
1	Timely unavailability of inputs	37	30.83	VI
2	High cost of inputs	94	78.33	I
3	non availability of labor	88	73.33	II
4	high wages of labor	86	71.67	III
5	Abnormal weather conditions	60	50.00	IV
6	High weed infestation	35	29.16	VII
7	Low price of produce	52	43.33	V

In the next order, abnormal weather condition was one of the major problems which were articulated by 50.00

per cent farmers. Another constraint was low price for grain was expressed by 43.33 per cent farmers they need minimum

support price for output. Another constraint was high weed infestation which was expressed by 29.16 per cent and 30.83

per cent farmers were facing constraint of timely unavailability of inputs^[2,3].

Conclusion

KVK is playing most important role in dissemination of technology. Main advantages perceived the respondents, were water and labor saving in guiding irrigation. Out of the total 120 untrained farmers, Majority 51.67 per cent respondents had medium adoption of drip irrigation technology followed by 40.83 percent of the farmers had high adoption of drip irrigation. Education and

knowledge was found very important factor and it had highly significant with adoption of drip irrigation. High cost of inputs was the major constraints reported by 78.33 per cent farmers. As evinced in this study, drip irrigation is an important viable technology for water conservation, labor saving and to overcome water stress during drought situations.

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