

## ROLE OF KRISHI VIGYAN KENDRA FOR ADOPTION OF DRIP IRRIGATION TECHNOLOGY AT RATLAM DISTRICT OF MADHYA PRADESH

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### ABSTRACT

Drip irrigation system is versatile management tool that can increase productivity per unit volume of water and also save up to 50 per cent of water in addition to other saving in farm input cost. However, its initial capital cost is high and as such without Governments active financial support and incentives, it is unlikely to become popularly acceptable. Micro irrigation system is not merely a technology. It is an integrated management tool in the hands of the farmers (Drip Trickle, Micro Spray etc). It is a method of irrigation, in which water is applied to the root zone of the crop/plants at slow speed, under low pressure and measured rate. Drip irrigation is an effective technology and efficient method of providing irrigation water directly into the soil at root zone of plant and it limits water requirement to the consumptive use of the plants. Thus, drip irrigation minimizes such conventional losses as deep percolation, run-off and soil evaporation in India.

**Key Words :** Krishi Vigyan Kendra, DIS and Adoption.

### INTRODUCTION:

Krishi Vigyan Kendra, Jaora (Kalukheda) was started from January 1996. The KVK is 50 km away from district head quarter Ratlam. The Kendra has been providing Vocational Training Programme to different categorized farmers. Kendra has provided MIS technology to the farmers at Ratlam district through conducting training programme and exposure visits and linkage with Govt. department. Drip irrigation system was introduced in the India in Late Early 80's at research institutes and Progressive farmers' field. The growth of drip irrigation gained some momentum from 1985 onwards but not to the expected level keeping in view its advantage. From a 1500 ha. in 1985 the area under drip irrigation reached to 75000 ha in 1995 and then to 285000 ha by 2000-01 in India. These developments have taken place mainly in area of water scarcity and only in commercial and horticultural crops - Banana, grapes, guava, citrus, mango, etc. Drip irrigation can be used with advantage where the locations are undulate, hilly and problematic. Thereby it reduces the cost of leveling and striping. Similarly drip irrigation system can be extended to arid and semi arid, nearly 50 per cent of cultivable land is irrigated and of which 80 per cent area is under the drip irrigation combined with fustigation in Israel. Indian farmers should learn some lesson from Israel about saving technology.

### METHODOLOGY :

The study was conducted in Ratlam district of Madhya Pradesh. Ratlam district has 6 community development blocks and out of these, only one Piploda Blocks selected purposively From the block, five villages having maximum number of installed drip irrigation

system at (i) Kalukheda (ii) Panchava (iii) Riyawan (iv) Sukheda (v) Barkhedi were selected and six adopters were selected randomly from each village. Thus, making a total sample of 30 respondents for the present study. The data were collected with help of structured interview schedule from the respondents by holding personal interview at their farm or at home.

### RESULTS AND DISCUSSION :

Data presented in table 1 show that in the year 1996-97, total 16.8 ha. area was under fruit crops. After the intervention of drip irrigation system, the area under fruit crops increased to 79 ha. (54.2 ha area increased)

**Table 1. Area increased under fruits crops after intervention of DIS technology**

S. N.	Name of village	No. of selected farmers	Area under fruits crops year 1996-97	Area under fruits crops year 2004	Area increase under fruit crop
1	Barkhedi	6	5 ha	18ha	260 percent+significant
2	Sukheda	6	3 ha	15 ha	400 percent+significant
3	Riyawan	6	2.5 ha	14 ha	460 percent+significant
4	Pancheva	6	2.3 ha	12 ha	421 percent+significant
5	Kalukheda	6	4ha	20ha	400 percent+significant
<b>Total</b>		<b>30</b>	<b>16.8 ha</b>	<b>79 ha</b>	

The criteria used in developing drip irrigation system were the minimum moisture stress, which could be maintained on a substantial part of the root zone. The drip irrigation system may be installed on ground surface or under the surface, this system consists of main lateral, drippers and other accessories. The lateral and drippers are installed below the soil surface and water is applied slowly through drippers in sub surface. Drip irrigation method is well suited to tree of small spread. Pomegranate and Aonla are the most surviving plant in Ratlam district.

**Table 2. Water uses (cm) under conventional and drip irrigation**

Name of fruit crops	Water uses (cm)		Saving of water (%)
	Conventional	Drip irrigation	
Aonla	150	70	46.60
Pomegranate	146	79	54.10
Guava	166	64	38.55
Sapota	169	71	42.01
Orange	170	73	42.94
Grapes	105	52	49.52

The table 2 shows water use (cm) under conventional and drip irrigation system. Adopting the drip irrigation system can save Upto 50% water. This Malwa area farming is mostly dependent on rainy water, so after the rainy season there is crisis of irrigation water. So at this situation drip irrigation system is most usefull technique particularly in rainfed area.

The table 3 shows that area under fruit crops at Ratlam district was 335 ha year in 1996-97 and in year 2003-04 fruit crop area was 1131 ha. So total fruit crops area has increased to 796 ha in Ratlam district. Total production of fruit crops in the year of 1996-97 was 5806 mt. and in the year of 2003-04, total production of fruit

crops was 22875 m.t. the total fruit production was increased to 16669 mt. at Ratlam district.

**Table 3. Increase area and production under fruit crop of Ratlam district**

S.N	Fruit crops	1996-97		2003-04		Increase	
		Area (ha)	Production (m.t.)	Area (ha)	Production (m.t.)	Area	Production
1	Orange	-	-	68	1020	68	1020
2	Mango	27	243	50	500	23	257
3	Guava	60	1200	180	4500	120	3300
4	Papaya	16	448	125	3500	109	3052
5	Lemon	94	1410	274	5880	180	4470
6	Grapes	51	765	150	3750	99	2985
7	Other	87	1740	284	3725	197	1985
	<b>Total</b>	<b>335</b>	<b>5806</b>	<b>1131</b>	<b>22875</b>	<b>796</b>	<b>16669</b>

**CONCLUSION :**

The findings of the study concluded that drip irrigation is best suited in water scarcity area. Labour is expensive and the crop value is high. Agriculture growth and development can become sustainable only if there is judicious use of limited water and soil resources with help of modern science and technology.

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