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A STUDY ON PERCEPTION OF MICRO IRRIGATION SYSTEM AMONG THE FARMERS IN GUJARAT STATE

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ABSTRACT

Water is an essential input for the crop production. Micro irrigation is having high potential for creating second green revolution in India. Drip irrigation is today's need of the hour as water - nature's gift to mankind, is not limited and free forever. Major Micro irrigation methods are Drip irrigation, Mini sprinkler irrigation, Sprinkler irrigation and Rain gun irrigation system. The Government is implementing various crop oriented subsidy schemes from its own fund resources besides various Centre-State Shared Schemes, Centrally Sponsored Schemes, Externally Aided Projects for the upliftment of farming community. This study entitled "A study on perception of micro irrigation system among the farmers in Gujarat state" is a part of a project of Gujarat Green Revolution Company ltd. The study has covered four regions of Gujarat consisting of 8 districts and 32 villages. The basic objective of the study was to know the awareness and perception of the farmers regarding MIS and MI schemes in the study area. Both primary as well as secondary data were used to achieve the stipulated objectives of the study.

KEYWORDS: Agriculture, Irrigation, Gujarat, Water

INTRODUCTION:

Under description, drip irrigation is an irrigation technique. Over the last four decades, though, since the beginning of its worldwide diffusion in the early sixties, it has emerged not only as an irrigation technique, but as a holistic agro-technology that has transformed crop growing practices and broadened contemporary agricultural horizons. Drip irrigation facilitated increased water use efficiency in irrigation and triggered the introduction and development of fertilization-the integrated use of water and nutrients. It lifted the upper threshold of agricultural usage of brackish water and improved the harmonization of agricultural with other farming practices. Drip irrigation allowed the optimum "spoon-feeding" of water and nutrients to crops, adapted to the evolving demands during the growing season. Drip irrigation allowed the correct supply of water and nutrients with limited losses to the active root region. It encouraged the combination of the advantages of hydroponics with improved plant help through strong disconnected media in safe cropping. Drip irrigation has been encouraging the refinement of irrigation tracking, automation and regulation, as well as filtration system diversification. Drip irrigation has gained popularity over the past two decades. The worldwide area under drip irrigation is estimated at 3 million ha, out of 25-30 million ha total area. Irrigated utilizing the techniques of pressurized irrigation. The surface irrigation region is valued at about 270-280 million ha.

APPLICATIONS OF MICRO IRRIGATION:

Micro-irrigation is extended to the various crops, plants according to land styles and planting trends. It can be extended to various regions, such as:

Micro-irrigation is used extensively in irrigated agriculture for row crops, mulch crops, orchards, gardens, green houses and nurseries.

Micro irrigation is commonly utilized in urban environments as part of ornamental plantations.

Both of these forms of micro irrigation help to address water shortages, weak farm production, bad food quality and other problems.

PRINCIPLES OF DRIP IRRIGATION:

Drip irrigation, sprinkler irrigation, middle pivot and lateral-movement are listed as equipment for pressurized irrigation. In pressurized irrigation an external energy supply (or a elevated reservoir) provides the guiding power of water flow. The water is delivered through a system of closed pipes. This varies from surface drainage systems-river, boundary, furrow and small basin drainage-where the controlling force of water distribution is gravity, and the transmission and implementation mechanisms-canals, ditches, furrows, small ponds and basins-are exposed to the environment.

Drip irrigation is a segment of the micro-irrigation sector (localized irrigation) which also involves micro-sprayers and mini-sprinklers. Typically, the term trickle irrigation is used to define irrigation methods from which limited volumes of water are delivered directly to the soil at short intervals, from point source isolated emitters spread along thin tubing or sheets, line-path closely installed dripper outlets, or flip-hoses. Applied water from tiny sprayers, micro-sprinklers, and bubblers is transferred across the environment to the surface. Within the literature, the words stream, micro, drip, low capacity, and regional irrigation are often used interchangeably, whereas each has a somewhat different technological meaning.

The emitters distribute water through three separate styles of emitters with micro-irrigation: drippers, bubblers, and sprayers / micro-sprinklers. Water is used as discrete droplets or trickles through drippers. For bubblers, water at higher flow levels 'bubbles out' from the emitters, and the liquid behaves as a continuous current. Micro-sprinklers scatter vapor, stream or mist through the emitters into the atmosphere.

The peculiarity of the drip irrigation is the limited surface wetting. Most tiny emitters add water, between 5,000-300,000 per hectare. In on-surface installation, the adjacent surface area is moistened by each emitter. The proportion of the wetted surface area and the thickness of the soil depends on the soil resources, the original soil moisture amount, the quantity of water added, and the flow rate of emitters. The soil surface stays dry in underfloor construction.

LITERATURE REVIEW:

Considering the rapid progress made under the Central Sponsored Scheme on Micro irrigation over the years, GOI entrusted the task of conducting "Evaluation study of CSS-MI" to NABARD consultancy Services Pvt. Ltd. (Nabcons). The result so evaluated is helpful to access the impact of the scheme on productivity, irrigation water use efficiency, savings in input use and labour use, constraints in adoption of the scheme and feasibility study. The implementation of the scheme has boosted the Micro irrigation development in such states were MI scheme implemented by the Central and State Government already in operation like Karnataka, Andhra Pradesh. In other states the implementation process has gradually accelerated like Madhya Pradesh, Orissa, Gujarat and Punjab. (Anonymous 2009)

Primaflor farm, located in Almeria, produces different varieties of lettuces. To ensure that irrigation is undertaken in the most efficient manner, the farm has integral soil moisture meters within the growing crop to monitor soil moisture levels. These have sensors which monitor moisture levels over the time in order to adjust irrigation amounts from the pre-determined target levels. Any rise in moisture levels recorded shows that the crop has been over irrigated and the technician will reduce the subsequent applications of water to address this. It can be 25% more efficient than other methods of irrigation as it does not incur the losses through evaporation that topical applications of water are subject to. The farm has gone one step further with the introduction of a pressure compensated drip irrigation system, which is more expensive to purchase than the convention drippers but provides a higher degree of accuracy over the conventional system. (Anonymous, 2010)

Greece has the highest population dependent on agriculture in Europe. Between 33-40% of total agricultural area is under irrigation, mostly for crops (approximately 70%), vines (4%) and trees (25%). Water is often supplied through public networks. Within these networks, efficient irrigation technologies have not been widely adopted. While surface water irrigation accounts for 35-40% and irrigation with sprinklers amounts to 50-55%, drip irrigation remains at 10% only. There is significant scope, therefore, to improve water productivity at the farm level by switching to more water efficient techniques or by improving current systems. In Greece, for example, a significant proportion of cotton is grown using flood irrigation, which requires 20000 litres of flood water to produce a kilogram of harvested crop due to high levels of surface runoff and evaporation.

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Drip irrigation of cotton can require 7000 litres per kilogram of crop, although that is still seven times higher than the volume of water needed for the production of a kilogram of wheat. (Anonymous, 2010)

RESEARCH METHODOLOGY:

Sources of Data:
Primary data were collected from the respondents with the help of semi structured questionnaire.

Sampling Method:
The sampling method was Non probability sampling under which convenience sampling technique was used.

Sample Size : A sample of 1200 respondents consisting of small, medium and large farmers as per their proportion in the population was selected and interviewed.

Data Analysis:

1. Which kind of Micro irrigation systems you use?

Variable	Frequency	%
In-lane drip irrigation system	252	21%
Out-lane drip irrigation system	298	25%
Sprinkler irrigation	303	25%
Rain gun/Fogger irrigation	200	17%
Porous irrigation system	147	12%
Total	1200	100%

Interpretation:
From the above table it can be concluded that 21% of the farmers using "In-lane drip irrigation system", 25% of the farmers using "Out-lane drip irrigation system", 25% of the farmers using "Sprinkler irrigation", 17% of the farmers using "Rain gun/Fugger irrigation", 12% of the farmers using "Porous irrigation system".

2. Rate the following brands according to your preference

Brand	Most Likely	Likely	Neutral	Dislikely	Most Dislikely
Jain	1612	234	98	19	37
Netafim	1815	159	23	1	2
Nagarjuna	642	477	395	188	298
Paragon	984	432	317	176	91
Johndeere	259	418	376	564	383
EPC	183	375	394	678	370
Balson	667	573	292	317	151
Bhumi	754	569	253	290	134
Captain	382	354	193	332	739
Plastro	315	457	310	364	554
Parixit	237	518	352	391	502
Dolphin	373	270	146	383	828

Interpretation:
From the above table it can be concluded that farmers giving the same preference to brand which are prominent as per their perceptive. Netafim brand is highly preferred by the farmer followed by Jain, Paragon, Bhumi, Balson and Nagarjuna. Dolphin brand for drip irrigation are least preferred by the farmers followed by Captain, EPC, Johndeere and Plastro, Parixit.

3. Check the Perception level of following attributes of farmers

Variable	Highly Agree	Agree	Neutral	Disagree	Highly Disagree
Brand name	1423	492	55	27	3
Cost	18	97	293	384	1208
Durability	1314	387	192	96	11
Quality	8	114	387	667	824
Approvals	813	573	294	205	115
User friendly	1019	385	290	212	94
Maintenance	1308	396	184	93	19
Promotion	1107	497	196	89	108

Interpretation:
From the above table it can be concluded that farmers giving more weightage to brand name while going to buy drip irrigation system. Maintenance and durability stood at number second position for the farmers' preference list while considering or choosing any brand for drip irrigation system. Marketing will help company to promote their brand and create awareness amongst the farmers. User friendliness drip irrigation system highly considered by the farmers while installing drip irrigation system. Approvals and legal documentation process is also taken into consideration while choosing drip irrigation system. Quality and costing of the drip irrigation system is least considered by farmers as all drip irrigation system have same quality and cost

CONCLUSION:

It concluded that farmers giving more weightage to brand name while going to buy drip irrigation system. Maintenance and durability stood at number second position for the farmers' preference list while considering or choosing any brand for drip irrigation system. Marketing will help company to promote their brand and create awareness amongst the farmers. User friendliness drip irrigation system highly considered by the farmers while installing drip irrigation system. Approvals and legal documentation process is also taken into consideration while choosing drip irrigation system. Quality and costing of the drip irrigation system is least considered by farmers as all drip irrigation system have same quality and cost.

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