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Adoption of Micro Irrigation System (MIS) among farmers in Jodhpur and Barmer districts of Rajasthan

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Abstract

Irrigation technology is changing fast from conventional methods to modern methods like MIS. Effective transfer of the scientific knowledge to the farmers is necessary. Compared to other forms of irrigation, micro irrigation plays an important role in the management of crops to obtain the maximum yield from lesser quantities of water, chemicals and fertilizer. The agricultural sector in India as the largest user of water faces the difficult challenge of increasing the efficiency of use of water to increase or maintain crop yield while at the same time allowing re-allocation of water from agriculture for rapidly growing urban, domestic and industrial uses. One of the technical methods available to improve the efficiency of water usage is the adoption of micro irrigation (MI) technologies to reduce losses during distribution and on-farm water management. The Present study was an attempt to precisely assess the sources of information, constraints, suggestions and perception attributed to the adoption of MIS.

Keywords: MIS, water use efficiency, drip irrigation, sprinkler irrigation

Introduction

India has a population that has crossed over 1 billion. Feeding this number of individuals would require a proportional increase in the agricultural productivity. Agriculture mainly depends on water, which is a limited resource. Major part of cultivated area in the country is irrigated through conventional surface methods such as border, furrow and check basin with application efficiency below 50 per cent.

In India, for instance, about 69 million hectare meter of surface and 43.3 million hectare meter of groundwater is available for use. Out of which currently, the country, uses approximately 82.8 per cent of all water for agricultural purposes, 9.2 per cent for industry, energy, and other sectors, and 8 per cent for domestic use. The higher the level of development, the more the water required for domestic and industrial purpose and so the less available for agriculture. The increased competition for the available water requirement in agriculture, industry, domestic and environment has already been manifested in inter and intra-sector conflicts. These will escalate further an India's annual per capita water availability goes below water scarce threshold level of 1,700 cubic meter within the next two decades. In six out of the twenty major river basins of the country (with less than 1,000 cubic meter of annual per capita availability) water resources are under stress and are rapidly depleting.

Geographically the largest state of India, Rajasthan accounts for almost 10 per cent share of the total landmass of our country and 5 per cent of the total Indian population. In contrast the state has only 1 per cent of the total surface water resources available in the country. More importantly around 70 per cent of irrigation area in Rajasthan is under ground water sources (Tube wells and wells), the level of which is depleting very fast. Moreover, consecutive occurrence of drought also making the condition serious. About 15 districts had been identified with pockets where ground water fall was more than 4 meter. Also more than two third of the state is characterized by the presence of light soils. The ground water is highly scarce in the Rajasthan state and is depleting fast. The state is mostly covered by the arid (57.31 per cent of the total geographical area) and semi-arid (31.35 per cent) regions and it receives 570 mm. rainfalls annually and that is too erratic. The groundwater draft in the state is more than its recharge, particularly in the arid and semi-arid regions and has caused deepening of groundwater level by 1 to 3 meters every year.

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Objectives

1. To create the profile of the area regarding micro irrigation.
2. To know perception of farmers & dealers about micro irrigation system.
3. To find out market share of existing players of MIS.

Methodology

Sampling frame work

Judgmental sampling has been used for selecting the farmers.

Selection of study area

For the proposed study, Jodhpur & Barmer districts of Rajasthan will be selected because of researcher’s familiarity with the area and convenience in data collection.

Data collection

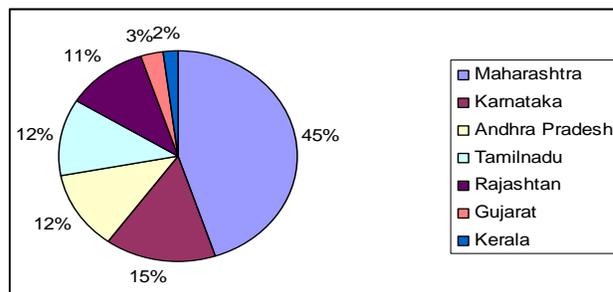
Both primary and secondary data will be collected to fulfill the objectives of the proposed study.

Data will be collected with the help of pre –structured and pre-tested schedule. Primary data will be collected by interviewing the farmers personally.

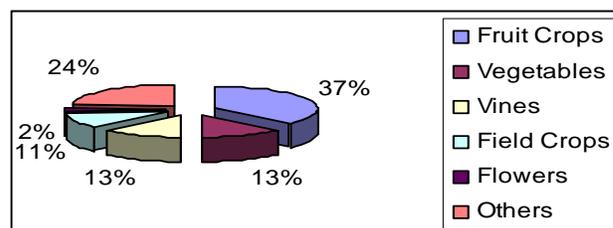
Secondary data will be collected wherever necessary for strengthening the data base of the study. These data will be collected from the office of the Additional Director, Agricultural Extension, Barmer & Jodhpur Directorate of Economics and Statistics, Rajasthan, Jaipur and also from various publications and records of Directorate of Agriculture, Rajasthan, Jaipur and from internet.

Analysis

Distribution of area under micro irrigation (ha) in upcoming states (in 2013)



Crop wise Coverage of Micro irrigation in India (in 2013)

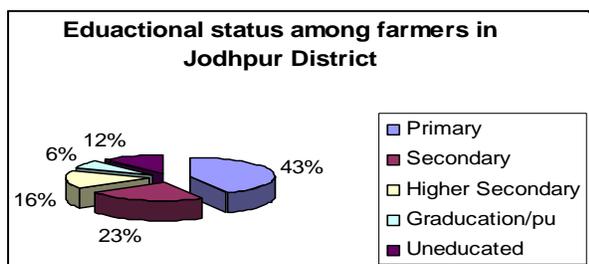
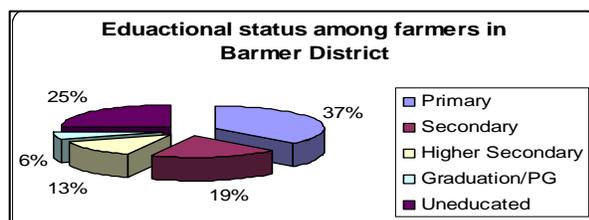


Micro irrigation over traditional method

Items	M Micro irrigation	Traditional
Water saving	High, B/w40 to100%	Less
Transportation	Negligible	High seepage & Leakage
Irrigation efficiency	80-90%	30-50%
Input Cost	Less	Comparatively high
Suitable water	Even saline water can be used	Only Normal water can be use
Diseases & Pest	Relatively less	High
Water logging	Nil	About 8.5 million in India
cost-benefit ratio	1.3-13.3	Between 1.8 -3.9
Yield	20-100%,higher	Less compared to Micro irrigation

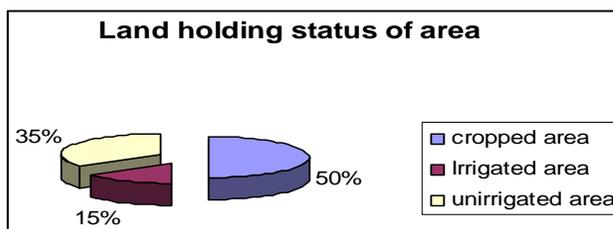
Education level among farmers

Out of total 300 sample size, 12 farmers are educated to primary level, 6 farmers are uneducated, and 6 farmers were till secondary level. All over 80% farmers are literate and rest are illiterate. Most of the farmers are using MIS at their field and are also using good agricultural practices.



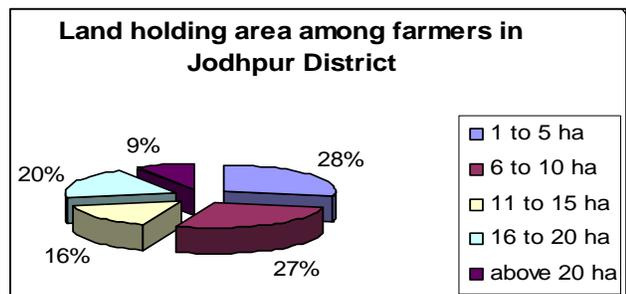
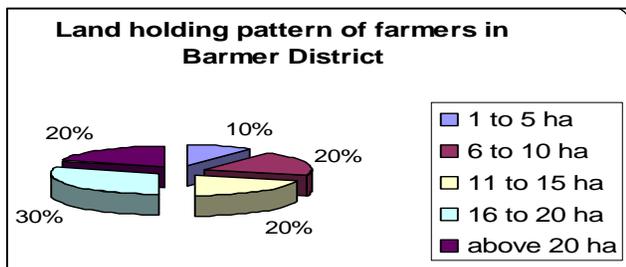
Land holding status of area.

Both the villages have a total land 1323 ha. Out of total land of both villages 602 ha. Area is cropped and cultivated area rest land is as fellow land and having some forestry trees and wild vegetation. Out of total cropped area 202 ha. Area is irrigated the source of irrigation is ground water and all the irrigation is being done through micro irrigation method.



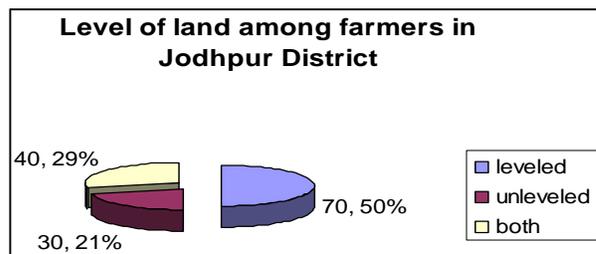
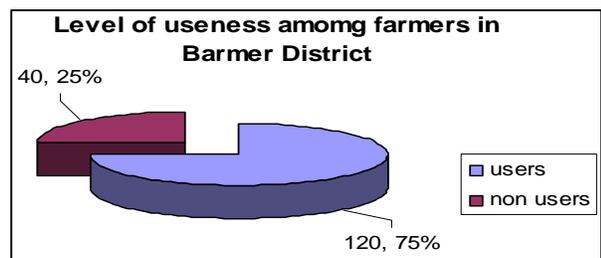
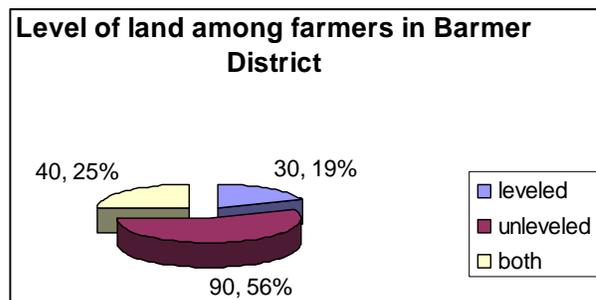
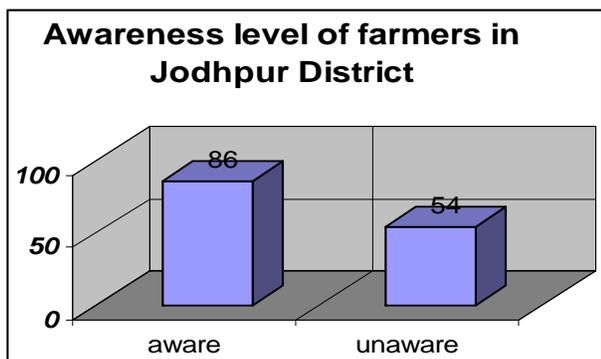
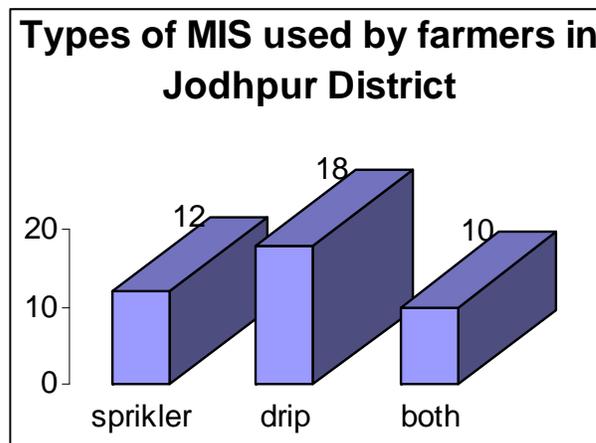
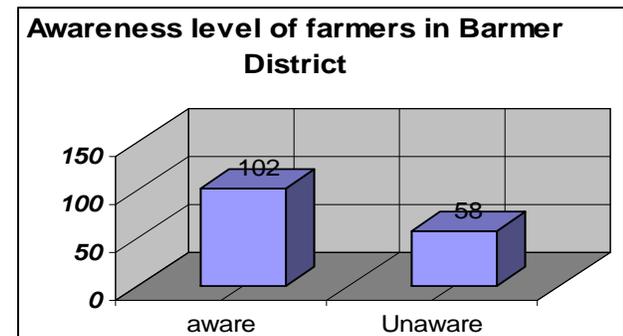
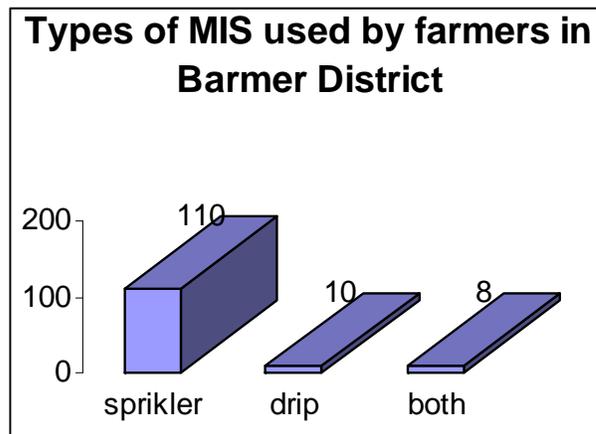
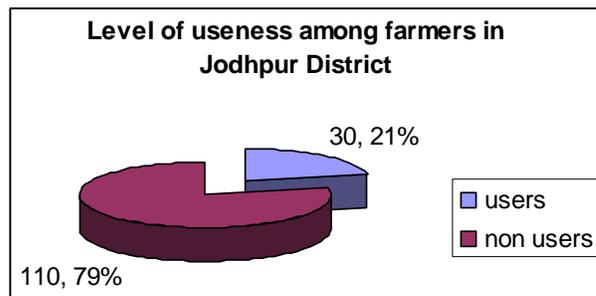
All the studied farmer were mostly among marginal farmers. Most the farmer has a large field. But the unavailability irrigation water is the main problem of farmers. And cost of installation of tube well is so high that every farmer cannot afford it. 8 farmer has a land holding of between 1to 5 ha., 10 farmers among studied farmer has a land holding size of between 6 to 10 ha, 7 farmers has a land holding size of 11 to 15 ha., rest of the 5 farmers has a land holding size of

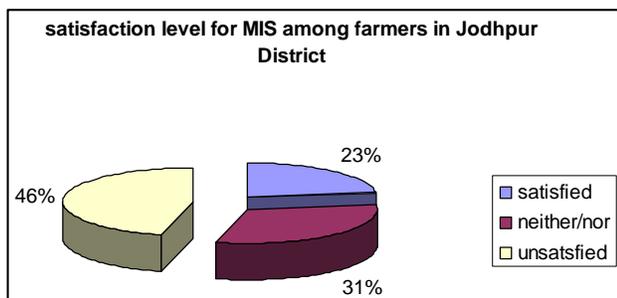
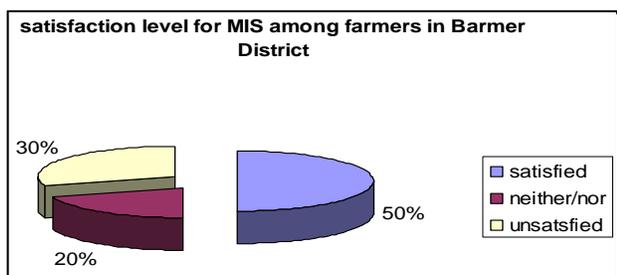
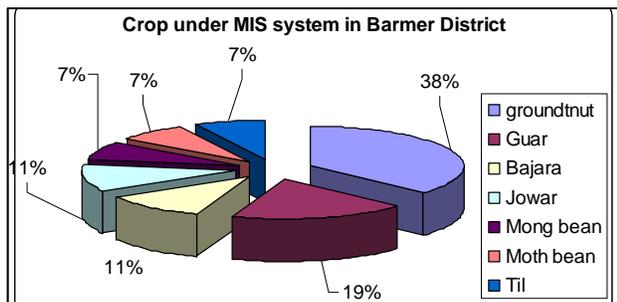
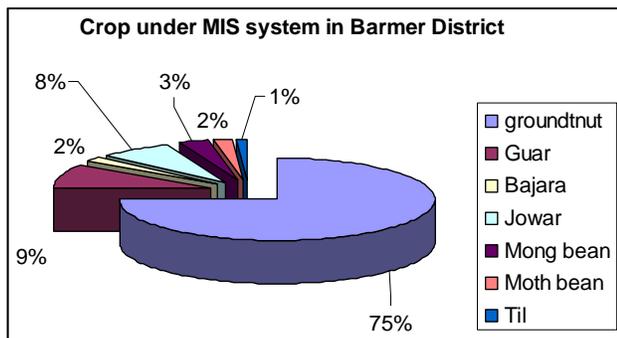
between 16 to 20 ha. So we can say that land holding size among farmers is sufficient to grow various crops.



Awareness level among farmers

Most of the studied farmers are aware about micro irrigation system. Only 20% farmers are unaware about micro irrigation system.





Conclusion

From the study, it can be concluded that farmers are benefitted more by using micro irrigation compared to the traditional method. In the study area there is only 30 per cent of land is irrigated to there is a lot of scope for the use of micro irrigation so that the water is used efficiently.

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