

# PRACTICES OF IRRIGATION SYSTEMS IN SANGLI DISTRICT

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## **ABSTRACT**

*The paper deals with the practices of irrigation systems in Sangli district. 75% agriculture land is irrigated by Surface and Natural irrigation system, 20% agriculture land is irrigated by Drip and 5%land is irrigated by sprinkler system.*

**Keywords:** Irrigation, Drip, Natural, Soil, Sprinkler, Surface.

## **INTRODUCTION OF SANGLI DISTRICT**

Sangli is a District place in the state of Maharashtra of India. Sangli is famously known as the Turmeric city. Sangli district is situated in the river basins of the Warna and Krishna rivers. The valley of the River Krishna and its tributaries is one of the greenest areas of the country. Other small rivers, such as the Warana and the Panchganga, flow into the River Krishna. Land in the region is best suitable for agriculture. The physical settings of Sangli District shows a contrast of immense dimensions and reveals a variety of landscapes influenced by relief, climate and vegetation. The climate ranges from the rainiest in the Chandoli (Shirala) region, which has an average annual rainfall of over 4000 mm, to the driest in Atpadi and Jath tehsils where the average annual rainfall is about 300 mm in a year. Agriculture is the chief source of income of the district. Groundnut, Jowar, sugarcane, Soyabean and turmeric are the major food crops produced in Sangli.

## **OBJECTIVES**

- Study of Sangli District related to Agriculture
- Study of irrigation systems.
- Study of irrigation Practices in Sangli District

## **Soil**

Soil is different in different parts of the district. In western part comprising Shirala Tahsil soil cover is reddish & yellow-reddish. It is 7.37% of the total area of the district. Central part i.e. Entire Walwa tahsil and western part of Miraj and Tasgaon tahsils i.e. Warna, Krishna and Yerala river basins have deep black soils which makes up 26.18% of the total area of the district. In the remaining part of the district i.e. eastern part, the soil is faint gray accounting for 66.45% of the total are of the district.

### **Climate and Rainfall**

- Sangli district can be broadly divided into three agro-climatic zones as under :
  - Western part of Shirala tahsil
  - Tahsils of Shirala (East), Walwa, Miraj (West)
  - Tahsils of Khanapur, Atpadi, Kavathe Mahankal, Jath, Miraj(East) and Tasgaon (East)
- The climate gets hotter and drier towards the east and humidity goes on increasing towards the west. The maximum temperature ranges between 31.5°C and 38.2° C, while the minimum temperature ranges from 12.9 °C to 22.7 °C.
- The climate in the district is fairly tolerable throughout the year. The winter is pleasant from December to February. The summer season starts from mid February to May. June to September are the months of normal rainy season. July and August are the months of heavy rainfall.
- Due to this lowest rainfall, the tahsils of Atpadi, Jath, Kavathe Mahankal, Miraj (East), Tasgaon (East) and Khanapur (East) are drought prone areas.

### **Agriculture and Cropping Pattern in the District**

- Net cultivated area is 594623 hectares, while double crops area is 59743 hectares. Thus gross cropped area is 654366 Hectares. Net cropped area is 82% as compared to the total cultivable area.
- Major crops include Paddy, Jowar, Bajra, Groundnut, Wheat, Gram, sugarcane, Soybean, Grapes, Pomegranate, and Bor.
- Out of the net cultivable area, 46% is under Jowar and 16% under Bajra. Jowar (Kharif) is sown in Walwa, Miraj, Tasgaon, tahsils while Jowar (Rabi) is taken in Miraj (east), Khanapur, Atpadi, Jath and Kavathe Mahankal tahsils. Bajra is grown in Jath, Atpadi and Kavathe Mahankal tahsils.
- Paddy is taken in Shirala and Walwa tahsils. Sugarcane is taken in all the tahsils where there is assured source of water.
- Grapes are taken in Tasgaon, Khanapur and Kavathe Mahankal tahsils. Tasgaon grapes are famous in India and the Middle East.
- Pomegranates and Bor are taken in Jath and Atpadi tahsils while Soyabean is cultivated in Walwa, Miraj, Tasgaon and Khanapur Tahsils. These tahsils also have groundnut crop.

### **The irrigation**

Practices of Irrigation in Sangli district are Natural irrigation, surface irrigation, Drip irrigation and sprinkler irrigation.

### **Natural irrigation**

The irrigation is based on rain fall. Pomegranates and Bor, Soyabean, groundnuts are the major crops based on Natural irrigation. No External irrigation source is present such as well, river. The crops totally depend on Rain fall. Yearly only one crop is taken by using this method. No proper arrangement is done in the field. Rain water Harvesting is also not done.



### **Irrigation**

Now days the Irrigation is the artificial application of water to the land or soil. It is used to assist in the growing of agricultural crops, maintenance of landscapes.

### **Irrigation Types**

Various types of irrigation techniques differ in how the water obtained from the source is distributed within the field.



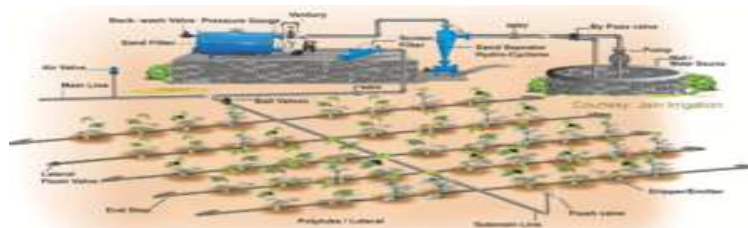
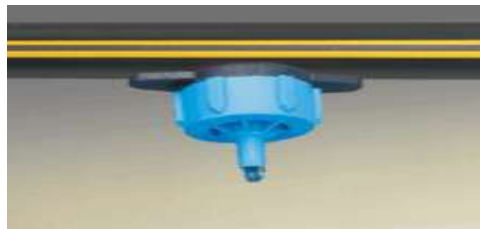


**Fig. 1.**Surface Irrigation

### **Surface Irrigation**

In surface irrigation systems, water moves over and across the land by simple gravity flow in order to wet it and to infiltrate into the soil. Historically, this has been the most common method of irrigating agricultural land. Surface Irrigation by flooding the whole land is most conventional method usually by making small canals alongside the field & distributing water by making various channels along with it while pumping water from source mainly from a well , river or ground water.

### **Drip Irrigation**



**Fig.2** Drip irrigation

This method can be the most water-efficient method of irrigation, if managed properly, since evaporation and runoff are minimized. The process is known as fertigation. Lower water pressures are usually needed than for most other types of systems, with the exception of low energy center pivot systems and surface irrigation systems, and the system can be designed for uniformity throughout a field or for precise water delivery to individual plants in a landscape containing a mix of plant species. The benefit of the drip irrigation is that the usage of fertilizers is optimum, as they will not be washed away by water can be used for even sugarcane & government is providing subsidies to support it on a large scale.

## **Types of Drip Irrigation Systems**

### **Time-based system**

In this system, time is the basis for operation. The basic objective is to prepare a schedule based on crop water requirements. The operation sequence will be set by user as desired.

### **Volume-based system**

In this type, every section will receive the preset volume of water. This is possible with the help of following two methods:

### **Sprinkler Irrigation**



**Fig. 3** Sprinkler irrigation

In sprinkler irrigation, water is piped to one or more central locations within the field and distributed by overhead high-pressure sprinklers or guns. A system utilizing sprinklers, sprays, or guns mounted overhead on permanently installed risers is often referred to as a *solid-set* irrigation system. Higher pressure sprinklers that rotate are called *rotors* and are driven by a ball drive, gear drive, or impact mechanism. Sprinkler systems are classified into two major types based on the arrangement of spraying irrigation water.

### **Types of Sprinkler Irrigation Systems**

#### **1. Rotating head or revolving sprinkler system**

- Central Pivot
- Rotating Boom type
- Side roll lateral

#### **2. Rotating head or revolving sprinkler system**

Based on the portability, sprinkler systems are classified into the following types:

- Portable system
- Semi portable system
- Semi permanent system
- Permanent system

### **RECOMMENDATIONS**

In Sangli District 75% agriculture land is irrigated by Surface and Natural irrigation system, 20% agriculture land is irrigated by Drip and 5%land is irrigated by sprinkler system. The most efficient method used is Drip irrigation System. In all above practices of irrigation systems the soil moisture is not taken into consideration. By considering the soil moisture with Drip Irrigation will be best irrigation system in future.

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