

DRIP IRRIGATION SYSTEM**The Scientific Agriculture**
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Page No. 06-08**Drip Irrigation System****Dr. Pinkoo Singh and Dr. R.P. Singh**Faculty of Agriculture Sciences,
Bhagwant University, Ajmer, Rajasthan, India**Email:** pinkoosingh@gmail.com**What is drip irrigation system?**

The drip irrigation system is the method in which water is provided in the form of a blunt droplet by a small diameter plastic pipe in the root zone of crops.

This irrigation method was first invented in Israel, which is being used in many countries of the world today. In this method, water is used in an economical way, so that the loss of water from surface evaporation and ground leakage is minimized.

This method of irrigation is very suitable for arid and semi-arid areas where it is used for irrigation of fruit orchards. Drip irrigation has made it possible to successfully grow fruit orchards on saline lands. Fertilizers are also provided as slurry in this irrigation method. Drip irrigation is very suitable for those areas where there is scarcity

of water, the cultivated land is uneven and the irrigation process is expensive.

Drip irrigation in India

Over the last 15 to 20 years, drip irrigation method has gained popularity in various states of India. Today 3.51 lakh hectare area of the country comes under drip irrigation which was only 40 hectares in 1960. The main states with the largest area under drip irrigation in India are Maharashtra (94 thousand hectares), Karnataka (66 thousand hectares) and Tamil Nadu (55 thousand hectares).

Drip irrigation system

An ideal drip irrigation system is made up of a pump unit, control head, head and sub head tube, side and drain. Pump unit creates the proper pressure to release water from the water source to the pipe system. The control head has a valve which controls the discharge and pressure of water in the pipe system. There is also

a filter to clean the water. Some control heads also contain fertilizer or nutrient cisterns. It releases a small amount of fertilizer into the water during irrigation. This is a major benefit of drip irrigation compared to other irrigation methods.

The head tube, the sub-head tube and the lateral ones, control the supply of water from the head in the field. The head tube, sub-head tube and the side are usually made of polythene, so they are pressed into the ground to prevent them from being destroyed by direct solar energy. The lateral ventricles usually have a diameter of 13–32 millimeters. Exhaust is the device used to control water from laterals to the plants.



Benefits of drip irrigation

There are several advantages of drip irrigation as compared to traditional irrigation, which are as follows:

1. Water use efficiency is up to 95 percent whereas water use efficiency in traditional irrigation system is only about 50 percent.
2. This irrigation method can prevent unnecessary wastage of water as well as fertilizers.
3. The method leads to rapid growth of irrigated crop, and consequently the crop matures quickly.
4. Weed control is very helpful because weeds grow less due to limited surface moisture.
5. The drip irrigation method provides ideal soil moisture level for good crop growth.
6. Pesticides and fungicides are less likely to be washed in this irrigation method.
7. Saline water can be used for irrigation with this irrigation method.
8. In this irrigation method, crop yield increases up to 150 percent.
9. In comparison to traditional irrigation, up to 70 percent water can be saved in drip irrigation.
10. Through this irrigation method, saline, sandy and hilly lands can also be successfully used in farming.
11. In drip irrigation, soil erosion is unlikely, which promotes soil conservation.
12. In comparison to traditional irrigation, up to 70 percent water can be saved in drip irrigation.

13. In drip irrigation, wages are lower than other irrigation methods.
14. Saline, sandstone and hilly lands can also be successfully used in farming through this irrigation method.
15. Soil erosion in drip irrigation is unlikely to result in Soil Erosion, which promotes soil conservation.
16. The water distribution in drip irrigation is same.
17. In drip irrigation, the leaves of crops are moist, which reduces the chances of plant disease.

Losses of drip irrigation

There are some disadvantages in drip irrigation along with the following:

1. Initial installation of drip irrigation system is expensive.
2. Pipes used in drip irrigation are at risk of damage by mice.
3. Turbid water cannot be used in this irrigation method as it is prone to drainage.
4. In this irrigation method, there is a risk of accumulation of salts near the plants.

Crops suitable for drip irrigation:

Drip irrigation is very suitable for row crops (fruit and vegetable), trees and vineyards where one or more drains are transported to each plant. Drip irrigation is usually adopted for high value crops because the

installation cost of this irrigation method is high. Drip irrigation is commonly used in farms, commercial green houses and residential gardens.

It is suitable for long-distance crops. Fruits crops such as apple, grape, orange, lemon, banana, guava, mulberry, dates, pomegranate, coconut, plum, mango etc. can be irrigated by drip irrigation method.

Apart from these, irrigation of vegetable crops like tomato, brinjal, cucumber, gourd, pumpkin, cauliflower, cabbage, okra, potato, onion etc. can also be done by drip irrigation method.

Other crops like cotton, sugarcane, maize, groundnut, rose and tuberose can also be grown successfully through this irrigation method.

Finally, the conclusion can be reached that in drip irrigation technique water is used for irrigation of plants in an economical way. This irrigation technique not only ensures water and soil conservation but also increases crop yield. Therefore, drip irrigation is the need of the hour today to achieve the goal of sustainable development.