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Center for Smart Agriculture Applied Hi-Tech Horticulture



Module 2: Innovative Technologies in Hi-Tech Horticulture

Session 17: Drip irrigation in different horticultural crops



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Introduction

- ✓ It also known as trickle irrigation and micro irrigation.
- ✓ Proper supply of water and nutrients to plants is essential to ensure timely maturity, desired yield and acceptable fruit quality.





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Advantages

- Water saving
- Labour saving
- Use of hilly terrain
- Suppressed weed growth
- Ease in orchard operation
- Use of low quality water
- Ease in operation
- Suitability for light soil
- Ease in fertilizer application
- Less incidence of diseases



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Water conservation by drip irrigation

- ❖ Drip irrigation application uniformity is very high, usually over 90%.
- ❖ Water loss is less by air flow from wind.
- ❖ Spoon feed to plant how much required in daily basis.
- ❖ Leaching loss is less.
- ❖ Low application rates are less likely to run off from heavier soils or sloping terrain



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Components of drip irrigation

1. Water Source
2. Pumping system
3. Distribution system
4. Drip tape (drip tube)
5. Injectors
6. Filtration system





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1. Water Source

Quality water taken from

- ❖ Surface water
- ❖ Ground water
- ❖ and
- ❖ Potable water





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2. Pumping system

- ❖ Pump system is used for move water from the water source to the field through the distribution system
- ❖ Pumping systems may be classified as electric powered systems, gas/diesel powered systems, and gravity systems.





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3. Distribution system

- ❖ Role of distribution system is taken water is from source to field.
- ❖ PVC pipe are mostly used.





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4. Drip tape (drip tube)

The pipe are used for deliver water through a black colour thin pipe with maintain of different spaced small holes.

- In the field, drip-irrigation tape should be installed with emitters upward (looking up) to prevent clogging





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5. Injectors

Most common injectors used with small drip-irrigation systems are the Venturi injector and the Dosatron





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Lateral pipe



Filter



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6. Filtration system

- ❖ The filtration system removes "large" solid particles in suspension in the water.
- ❖ For river water two filter are used.
- ❖ Rapid clogging may occur when no filter is used because clogged drip- tape emitters which was losses of crop.





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Application of drip irrigation in different fruit, vegetable and ornamental crops

- ❖ Drip irrigation is used in fruit orchard, commercial vegetables and flowers growing in polyhouse and residential green houses
- ❖ Used in kitchen garden
- ❖ Used in roof top garden



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Application of drip irrigation in different crops



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Drip irrigation in Tomato and papaya



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Area under drip irrigation

At present, around 3.51akh ha area is under drip irrigation (Government of India, 2019).

Maharashtra (94,000 ha)

Karnataka (66,000 ha)

Tamil Nadu (55,000 ha)





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THANK YOU