

## ④ Irrigation Systems & Methods

① There are two systems of irrigation

a) Flow irrigation (canal)

b) Lift irrigation (Tube well)

\* 2. Duty of water of flow system is very low but duty of lift irrigation is very high

3) Flow irrigation carries manure which is good for crop but lift irrigation water is almost pure without manure which is not so suitable for crops

\* 4) If water is supplied in ditches about 30m apart and allowed to seep into the ground to provide capillary fringe such method of irrigation is called sub-surface irrigation

\* 5 In Border Method of irrigation the flow of water is like open channel, unsteady, spatially varied with decreasing discharge.

6 If the land is divided into a number of small size units with bunds and water is filled on the land surface, then such method of irrigation is known as \* check basin which is most applicable for \* growing paddy.

7) In the check basin method land is wasted by ridges and bunds, It is not suitable for growing crops which are sensitive to wet soil (gram, mustard, maize)



**\*\***  
8 In the Drip Irrigation Method (Trickle)

- a) Deep percolation and runoff losses are eliminated
- b) Water application efficiency is very high
- c) Evapotranspiration is not completely eliminated.
- d) Fertilizer can be applied along with the water

**\*\***  
9 In Sprinkler Irrigation:

- a) No excess cost of land preparation
- i) Applicable for slopy land
- b) Excessive top soil erosion is not involved
- c) Fertilizer can be applied with water
- d) Evapotranspiration losses are maximum
- e) The maximum application rate is governed by the infiltration capacity
- f) It is particularly suitable in hilly terrain

**\*\***  
10) Furrow Method

- a) Most suitable for potato crop
- b) Is essentially suited for soils with \* low infiltration rate like (clay)
- c) Can be used in land having wide range of natural slope
- d) Has considerably less wastage of land compared to check basin



e) Has less evaporation loss compared to check basin.

11) 40 sprinklers are arranged along 2 lines 20m apart and they are spaced 12m on each line. If the water supply rate is 1.5 cm/hr determine discharge required by the system in lps.

$$Q = n \times Q_1$$

$$= n \times \frac{\text{Volume}}{\text{Time}}$$

$$= n \times \frac{\text{Area} \times \text{depth}}{\text{Time}}$$

$$= \frac{40 \times (20 \times 12) \times \frac{1.5}{100} \times 1000}{60 \times 60}$$

$$= 40 \text{ litres/seconds}$$