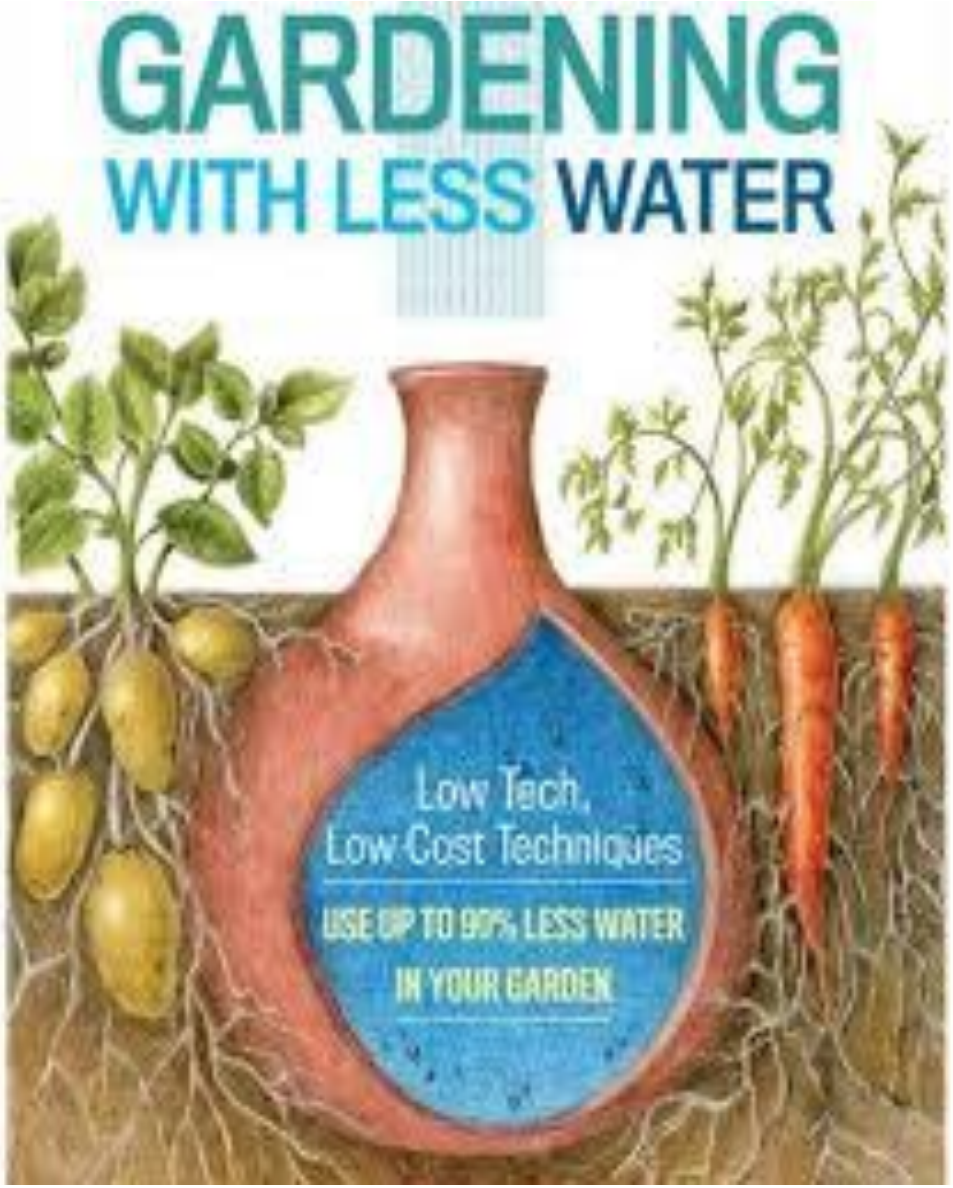
Pot Irrigation Technique



What is pot irrigation technique ?

This is one of the most efficient traditional systems of irrigation known and is well suited for small farmers in many areas of the world. Buried clay pot irrigation uses buried, unglazed, porous clay pots filled with water to provide controlled irrigation to plants. This is an adaption of an ancient method of irrigation that is thought to have originated in Africa 4000 years ago.

In this method water will slowly seep out through the clay wall of the pot, directly irrigating the soil around the pots the roots grow, they will wrap themselves around the pot. The plants takes up almost all the water, and because the water source is now in the ground, evaporation is almost nil.

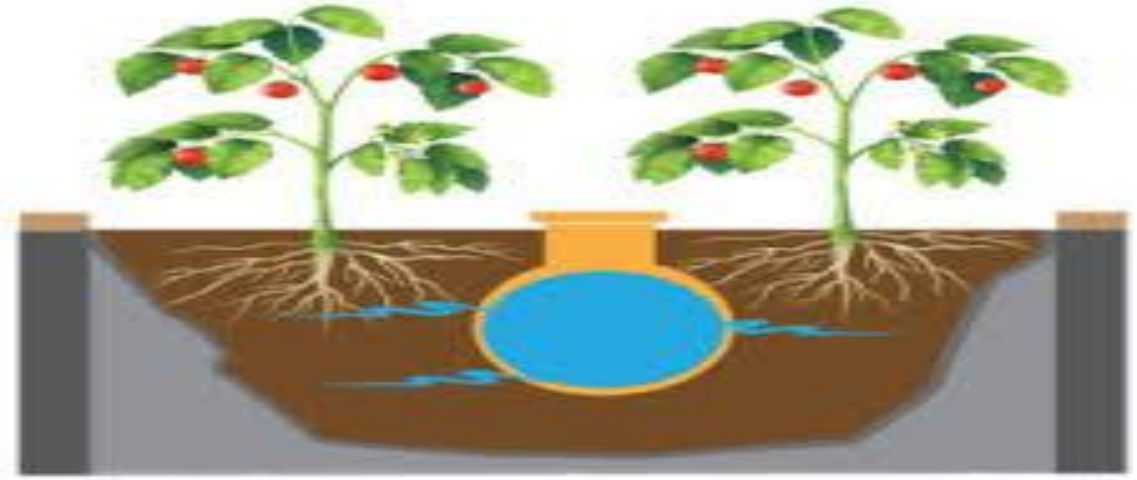
This techniques can save 50-70% of water without depriving the plants.

How to use pot for irrigation ?

To use the pot (ollas) in a garden or farm, one buries the pot in the soil leaving the top slightly protruding from the soil (ideally the neck is glazed to prevent evaporation or it should be reasonable to apply a surface mulch that covers the neck without spilling into the opening). The pot is filled with water and the opening is then capped (with a rock, clay plate or other available material to prevent mosquito breeding, soil intrusion and evaporation.

Depending on the factor such as the plant's water needs, soil type, time of the year and environment, the pot may need filling weekly or daily. Water usually takes between 24 and 72 hours to flow through the pot. Water should be added to an olla whenever the water level in the pot falls below 50% in order to avoid build up of salt residues along surfaces of the pot that may prevent desired seepage.

The pot having the microporous (unglazed) wall do not allow water to flow freely from the pot, but guides water seepage from it in the direction where suction develops. After burying the pot and crops planted adjacent to it, the pot effects sub-surface irrigation as water oozes out of it due to the suction force which attracts water molecules to the plant roots. The suction force is created by the soil moisture tension and/or plant roots themselves. The plant roots grows around the pots and only pull moisture when needed, never wasting a single drop. This method virtually eliminate the runoff and evaporation common in modern irrigation system, allowing the plant to absorb nearly 100 percent of water.



Advantages of pot irrigation technique

- In this method, only the areas near the pot gets irrigated and not the whole areas.
- Evaporation of water is minimum in this method.
- Water seepage below the ground is also in minimum quantity.
- It is the best method in horticulture crops and vegetables.
- It needs minimum technical knowledge

Disadvantages of pot irrigation technique

- Irrigation in this method is possible in a limited area.
- This method requires clean water because unclean water would cause blockage of minor holes, which would not be able to provide moisture any longer.
- It is costly to draw out pitchers again and again and refix them.
- It is not suitable for every crop

Trench Irrigation Technique

What is trench irrigation technique?

Trenches irrigation is a popular method of irrigation under wet land system of cultivation where in the water is allowed to stand in the trenches opened between every rows of plants and the same is used for draining out the excess water during the rainy days. Here the farmers flow water down the furrows (often using only gravity) and it seeps vertically and horizontally to wet the area between trenches. Flow to each furrow is individually controlled.

Such irrigation method is suitable for row crops, tree crops and because water does not directly contact the plants, crops that would be damaged by direct inundation by water such as tomatoes, vegetables, potatoes and beans. It is one of the oldest system of irrigation. It is economical and low-tech.

Advantages of trench irrigation technique

- Large areas can be irrigated at a time
- It saves labour since once the furrow is filled, it is not necessary to give water for the second time
- It is reasonably cheaper method
- plants get quantity of water by this method

Trench for installation of pipes for irrigation

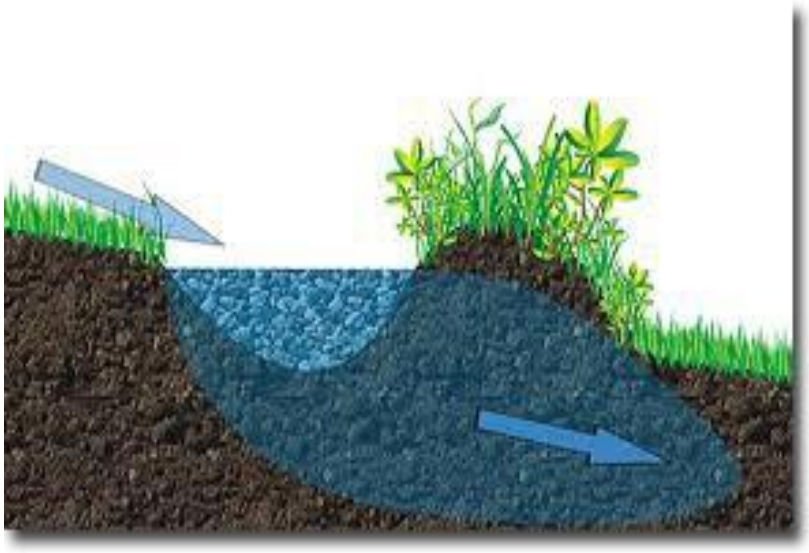
SwalesTechnique

What is a swales ?

Swales are an excellent technique in rain water harvesting. A swale is also a shallow trench dug along the land's contour, with a berm on the downhill side They capture run off and send it deep into the aquifer, both nourishing trees and reducing erosion.

Steps for construction of swales

- Observe water on your site
- Identify the ideal site
- Mark the contour line
- Dig a trench along the marked contour line
- Mound the soil from the trench on the downhill side to create a berm.
- Test and adjust the swale
- Plant the berm



Aesthetics

Swales can be aesthetically pleasing, if necessary, for the residential yard. Fill the trench with gravel or wood chips and you have a walkable pathway. Give the berm a rock border, and you have a raised bed.

If your swale does not need to be walkable, consider seeding clover in the trench or adding a layer of straw to reduce evaporation.


Water Flow Down Slope
On-contour Swale Basin
Video courtesy of David Spicer
www.docspicepermaculture.com