Buried clay pot irrigation

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The buried clay pot or pitcher method of irrigation is one of the most efficient systems known and is ideal for gardeners and small farmers. Buried clay pot irrigation uses a buried, unglazed clay pot filled with water to provide controlled irrigation to plants as the water seeps out through the clay wall at a rate that is influenced by the plant's water use. It has been used for thousands of years. This auto-regulation leads to very high efficiency—considerably better than drip irrigation and many times better than conventional surface irrigation.

In India, for example, the yield of buried clay pot irrigated melon was 25 tons per hectare using only 2 centimeters of water/ha, this compares with yields of 33 tons/ha using 26 cm of water with flood irrigation. A detailed study of cucumber production showed that 1.9 cm/ha with buried clay pots provided yields comparable to 7.3 cm/ha by hand irrigation. And trials in Zimbabwe found the yield of beans was 17 kg/cm water used with buried clay pots, compared to only 13 kg/cm for drip, 12 kg/cm for subsurface, and only 10 kg/cm for conventional basin irrigation.

Buried clay pot irrigation allows soil amendments to be placed only where they will benefit the crops not the weeds. This is very important as studies of traditional farming systems have found that as much as 30% of the labor is for weeding—labor that could be put to more productive use. A study in India found that the dry weight of weeds was only 62 kg/ha using buried clay pots compared to 465 kg/ha with basin irrigation.

Buried clay pot irrigation should be considered wherever water conservation is important. It will probably continue to prove most valuable for producing high value crops in dry lands. Buried clay pot irrigation is also valuable for food production and revegetating areas affected by salinity or where only saline water is available for irrigation.

Buried clay pot irrigation is also valuable for gardening, landscaping, and growing plants in containers.

Buried clay pot irrigation has been successfully used for a wide range of annual and perennial plants including: melons, tomatoes, corn, and many other annual crops in China, Pakistan, India, Mexico, and Brazil; pistachio trees in Iran, mesquite, acacia, and eucalyptus in Pakistan, fruit trees in Mexico, India, and Brazil, and palo verde in the California desert. In our test gardens in California, Arizona, and New Mexico and research we have found that most plants are very compatible with clay pot irrigation.

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Make 530 pits per hectare (210 pits per acre), each pit 70 cm (24 inches) across and 12 cm (5 inches) deep. To each pit add 18 kilograms (38 lbs.) of manure. Mix the manure well with an equal amount of earth. Bury an earthen jar of 6 liters (1.5 gallons) capacity in the center of the pit. Let its mouth be level with the ground. Fill the jar with water. Plant 4 melon seeds around the jar. Cover the jar with a tile. Fill the jar to the brink when the water level falls.

Fan Sheng-chih Shu [2050 Before Present]
The first step is obtaining or making suitable clay pots. The size of buried clay pot will depend on the type of crop, the density of planting, and the time desired between refills. Two to ten liter (2 qt-2.5 gallon) sizes are convenient. Larger pots may be more suitable for trees or for long refill intervals. A few companies are now selling clay pots (ollas) specifically for irrigation.

Most standard red clay pots used by nurseries work well if the drain hole is plugged. Use caulk, epoxy or a stopper. Porosity of pots can be adjusted by using more or less grog in the mix, fire to 1000°C. A tile, plate, metal, stone or wood lid will keep insects out. A drain hole in the lid to catch rain helps.

The seeds or plants should be placed within 1-2.5 cm [1/2-1 inch] of the edge of the buried clay pot in sandy soils but can be further away in loam and clay soils. Look to see how far the soil is moistened by the clay pot.

It is helpful to leave a space between plants on one side of the buried clay pot to make it easier to lift the lid and refill the pot as the plants grow larger.

The spacing of the clay pots depends on the crop and size of the pot. In general they will be 6-3 m [9 feet] apart for vine crops and 1-1.5 m [3-5 feet] apart for corn and other plants that grow up more than out.

A double clay pot can be set up specifically for propagating cuttings. A sealed pot is set inside a larger pot with open drain. The space between is filled with sandy potting mix. The cuttings are kept moist – but still get oxygen. Ideal for many species, this works very well with willows and cottonwood.

FURTHER READING


El espacioamiento de las vasijas de arcilla depende de la cosecha y el tamaño del bote. En general, será de 3 m [9 pies] Aparte de los cultivos de vid y de 1-1.5 m [pies] de distancia de 3-5 para el maíz y otras plantas que crecen más de fuera. Una olla de barro doble se puede configurar específicamente para la propagación de esquejes.

De riego enterrado olla de barro se debe considerar siempre que la conservación del agua es importante. También es muy eficaz cuando el agua salina debe ser utilizada.

Irrigación pote enterrado argila permite alterações do solo para ser colocado somente onde irão beneficiar as culturas não as ervas daninhas - trabalho de mão de obra para a libertação de um espaço que está influenciada por o uso do cultivo, a densidade de semente, e o tipo de cultivo, a escala de plantação, e a necessidade de manejar as plantas. A panela de barro dupla pode ser criada para a propagação de estacas.

La olla de barro enterrada o método jarra de riego es uno de los sistemas más eficientes conocidos, y es ideal para jardinería y pequeños agricultores. Se ha utilizado hace mil años y siglos. La panela de barro enterrados o método labrador de pote es un sistema ideal para jardinería y pequeños agricultores. Ha sido utilizado.

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