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# An ingenious irrigation technique for small holdings

It is low cost, farmer friendly, easy to install and requires no maintenance

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**A** depleting water table and rise in salinity because of indiscriminate use of chemical fertilizers and pesticides have made water conservation imperative for farmers.

Over the years, several water harvesting and conservation methods have been adopted in agriculture to recharge and conserve ground water. Some of the methods practised and still in use by local farmers are cost effective and proven.

For example, in the coastal areas of Kerala, farmers have been using a simple indigenous technique called pitcher irrigation which greatly reduces the demand for water.

## Cost effective

Pitcher irrigation is cost effective, farmer-friendly, and easy to install. Unlike present day sprinkler and drip irrigation, pitcher irrigation involves no high tech gadgets and does not require any maintenance, according to Dr. V.S. Devadas, Professor, Agricultural Research Station (ARS), Kerala Agricultural University (KAU), Chalakudy, Thrissur.

It is ideal for small holdings (1-2 acres) and suitable for growing vegetables, coconuts, and arecanuts. It consists of a clay pot with a cotton wick fixed at the bottom of the pot, and buried in the soil (upto to its neck) and filled with water.

## Water supply

The natural pores in the pot allow the water to spread into the soil, creating moisture for crop growth. The water can be filled as and when required, thus maintaining a continuous supply of water to the plants.



**TRADITIONAL METHOD:** The pot with the cotton wick fixed at the bottom being buried near a coconut palm. - PHOTO: KAU

While burying the pitcher in the soil, farmers should take care to see that the neck region of the pot is positioned in such a manner that rainwater runoff does not enter into the pitcher, as otherwise small sand particles will block the pores of the pitcher.

## Water penetration

"The main advantage of the wick which is attached at the bottom of the pot is to increase the water penetration into the soil and to deliver the water directly to the plant roots. Water seepage from the pitcher depends on the soil, plant type, and climate.

"The number of pitchers required per acre depends on the crop variety grown. For irrigated vegetables such as bitter melon about 2,500 pots will be required for a hectare of land (1000 pots per acre)," explained Prof. K.V. Peter, Professor of Horticulture and Former Vice-Chancellor, KAU.

For coconut seedlings about 170 pots per hectare (that is 70 pots per acre), and for arecanut about 1100 pots (440 pots per acre) will be required.

The approximate cost will be Rs.10-12 per pot when purchased in bulk. The total cost may come to about Rs.10000 to Rs. 12,000 per acre for vegetables and Rs.700 to Rs.840 for coconut and Rs.4,400-Rs. 5,500 for arecanut seedlings. (Pitcher irrigation is usually practised for 2 to 3 years during the seedling stage of coconut and arecanut)

## Irrigation area

"A farmer can easily irrigate 2-3 acres using this simple technology and save 90 per cent of water as compared to flood irrigation. Fertilizers can also be mixed along with the water and poured into the pot. Weed growth has been found to be very minimal because water delivery is limited to the roots," said Dr.

Peter. Today, when many farmers have turned to drip irrigation, how will they accept this traditional technology?

## Operating skill

Drip and sprinkler irrigation are mainly for large areas. Big farmers can easily afford to install them. But you cannot expect a small farmer having 1-2 acres to invest Rs. 25,000 to Rs.75,000 for such systems. Also some of the latest irrigation technologies need a certain degree of skill to operate them, and are not farmer-friendly, according to Dr. Peter. In a number of instances the after sales service and periodical meetings with the farmer to check the efficiency of the irrigation systems is rarely done.

## Minimal requirement

It is the poor farmer who has to make umpteen telephone calls and travel to the company to register his complaint. Whereas simple technologies such as the pitcher do not need any such requirements, according to Dr. K.S. Purushan, Dean (fisheries), College of Fisheries, Panangad, Kochi.

The Agriculture Research Station, Chalakudy under the Kerala Agricultural University has demonstrated the usefulness of this traditional practice to farmers.

Many farmers in the coastal districts are following this method to manage irrigation for higher productivity and freedom from infestations such as wilt and damping off in their vegetable fields.

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