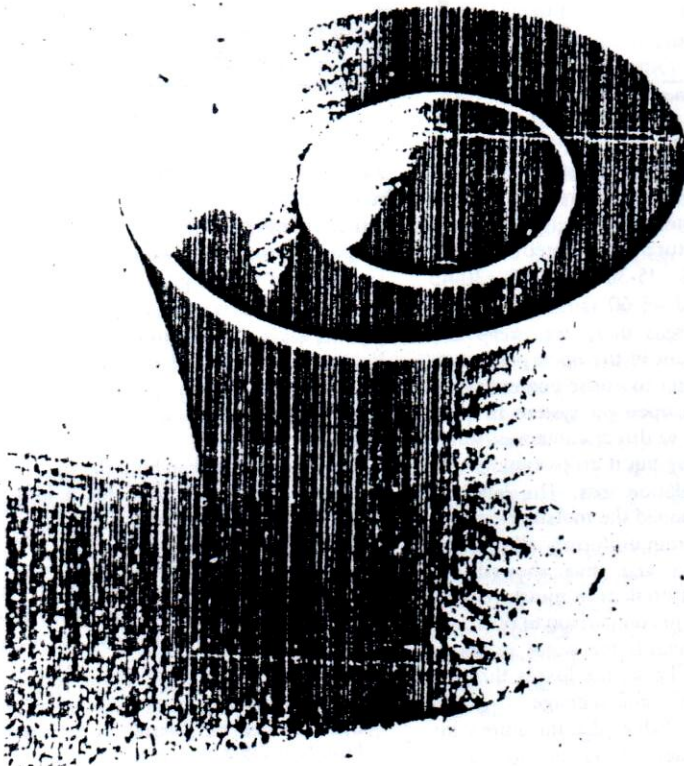


A novel device consisting of a double walled earthen pot, called a 'jaltrapti' has been developed for the establishment of trees in arid regions which experience extremes of temperature, scanty and erratic rainfall and have sandy soils, poor in moisture retention and storage characteristics. This device is inexpensive, simple to operate and does not require energy but at the same time utilises every drop of water beneficially thus preventing almost all the losses of water. It could be a boon for small and medium farmers of arid and semi-arid regions which occupy about one-third of the world.

I. C. Gupta, P. M. Singh, N. D. Yadava and B. D. Sharma

Double walled pots: —a moisture-efficient technique for establishing trees in arid regions

2



SCARCITY OF WATER has been felt almost all over the world and serious efforts are being made to conserve it. Conservation of water needs special attention where raising of plants is concerned, particularly to reclaim deserts and improve their environment.

Tree establishment in arid regions where rainfall is unpredictable, erratic and scanty has always been a challenging task for foresters and horticulturists.¹

Any region having a moisture index of less than -40 is known as arid region. The moisture index of western Rajasthan is between -40 to -53.¹ In western Rajasthan the problems imposed by low rainfall (366 mm) are accentuated by its frequent erratic distribution from season to season, a high solar incidence of 450-500 calories/cm²/day and a wind velocity of 10-20 km/hr resulting in high Potential Evapo Transpiration, 6 mm per day.² PET increases up to 10 mm in summers. The problem is further complicated because of the sandy nature of soils (sand content < 75%) and moisture content at one-third and 15 bars being only 5.1 and 2.1% respectively.

Irrigation water is scarce and of poor quality.

Dependence of trees on the moisture status of upper soil layers during the early stages of growth calls for more study on their water relations in the context of growth and establishment.³

Drip irrigation has proved useful for these conditions but high costs, the need for a source of energy and operational difficulties have restricted its wide spread use.

There was a pressing need for a simple technique which apart from being moisture efficient would be inexpensive so that it could be adopted by the farmers of third world countries.

A novel device consisting of a double

1. A double walled Jaltrapti