Selection of suitable subsurface irrigators for a subsurface pot irrigation system and their performance assessment to irrigate Lycopersicum esculentas (Tomato)

Round, conical and drum shaped clay pots of 2.5 L capacity were compared each other to select the suitable surface irrigator for a subsurface pot irrigation system for vegetable crop production in home gardens at Mapalana. Two experiments, *viz*: one in sandbox and the other in field conditions were carried out to evaluate the lateral and downward movement of water from different shapes of pots.

In "Yala" 1995, a field experiment was conducted to assess the water need of tomato (*Lycopersicum esculentas*) under the selected subsurface irrigation system, against the hand irrigation and no irrigation.

It was found that wetted area under round shaped pots was high (56.7 cm) and water loss from the post was low (12 cm in sand and 13.8 cm in field conditions) compare to the pots of other two shapes. Therefore, the round shaped pots has been selected as most suitable sub surface irrigator to design an appropriate low cost subsurface irrigation system, Easiness of preparation and availability low cost subsurface irrigation system, Easiness of preparation and availability in the market are added advantages to select round shaped pots. Irrigation system was constructed by interconnecting clay pots with PVC tubing.

It was revealed that the seasonal requirement of water under subsurface pot irrigation system for tomato was 142 mm. the average water consumption for the crop was 1.7 mm/ day. The total amount of water consumed by the plants was 556 mm when cumulative irrigation requirement along with 75% of total rainfall received during the cropping season is considered.

The yield differences between subsurface pot irrigation and control were statistically significant. Analogically, the yield under subsurface pot irrigation was about 20% and 39% high compared to hand control.