B-93 Comparative study of an appropriate subsurface pot irrigation and drip irrigation system for vegetable production in home gardens

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Subsurface pot irrigation system and a drip irrigation system were designed and constructed to test the applicability of the systems for home garden irrigation. One of the objective of the experiment was to meaningfully utilize the rainwater collected from roofs for irrigation while reducing the runoff losses and erosion hazards.

Clay pots and conical clay emitters interconnected with PVC and rubber tubing served as irrigators in subsurface pot and drip irrigation systems. Clay emitters ($20cm^3$ volume) were constructed out of clay and burnt in a pottery kiln. Water from the emitters entered the soil through porous walls as in the clay pots.

Applicability of the systems was tested in a field experiment where curry chillies *(Capsicum grossum,* variety: Hungarian Yellow Wax) was grown in 'Maha' 1996, under 2 irrigation systems; adaptability of the methods was checked with the conventional hand irrigation method.

It was revealed that irrigation requirement of the chillies in 'Maha' for pot and drip irrigation were 80 mm and 50 mm respepctively. Assuming 75% of total rainfall consumed by the crop, the total water requirement of chillies for the entire season was 620 mm under subsurface pot irrigation and 590 mm under drip irrigation.

Per day water consumption for chillies in avcrage was measured as 1.26 and 0.8 mm/day for pot and drip irrigation respectively. The yield increment due to irrigation appeared to be 5% under pot irrigation and 32% under drip irrigation, compared to the control.

In respect to the yield as well as the water economy, drip irrigation system with porous emitters appeared to be superior to the pot irrigation system and the hand irrigation method.