

PERMANENT REFERENCE

**DEVELOPMENT AND EVALUATION OF A  
FABRICATED, LOCALLY DESIGNED AND  
LOW-COST DRIP IRRIGATION SYSTEM**

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## ABSTRACT

The dry zone agriculture of Sri Lanka faces a major water scarcity problem and rapid water losses from the root zone. Therefore, it is essential to fabricate a low initial cost and low head drip irrigation system to overcome these limitations.

Hence, an experiment was carried out in the Division of Agricultural Engineering, Faculty of Agriculture, Eastern University, Sri Lanka, to fabricate a low-cost drip irrigation kit with the locally made cheap material and to evaluate the suitability in field with chilli cultivation under sandy regosol condition. The field experiment was conducted at the Eastern University Agronomy farm during May to September 2002.

Three different pressures of 2.0m, 1.5m & 1.0m and three different emitter sizes of 1.6mm, 2.4mm & 3.2mm combination were made for the evaluation of this kit. Highest combination (2.0m X 3.2mm) produced highest in emitting rate (990.38 ml/h), uniformity of irrigation (95.01%) and wetted radius (16.32 cm). The 1.5 m X 3.2mm combination showed 2<sup>nd</sup> rank on these parameters.

However, these two combinations and 2.0m X 2.4mm did not show any significant difference on the yield of chilli cultivation. The water use efficiency was higher in (1.5m X 3.2mm) than the highest combination (2.0m X 3.2mm). Moisture content of fresh yield (66.52%) was highest in (2.0m X 3.2mm) combination.

The overall performances are concerned; the combinations of 2.0m or 1.5m with 3.2mm emitter size drip kits were suitable and feasible. However, the economical

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