

COMPARISON OF DRIP IRRIGATION, SURFACE IRRIGATION AND
RAINFED SYSTEMS IN THE NORTH WESTERN
DRY ZONE OF SRI LANKA

By

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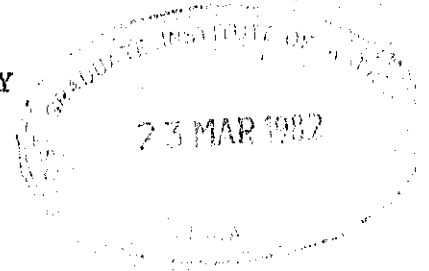
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Abstract

In an experiment carried out in the North Western dry zone of Sri Lanka to study the effect of irrigation method on the crop yield and water use efficiency of onion, chillies and banana, drip irrigation was compared with traditional hand watered basin irrigation and rainfed farming.

It was found that drip irrigation at 10% depletion of the available water increased the yield of banana, chillies and onion by 5.5, 0.5 and 8.0 t/ha respectively over hand watered basin irrigation at 40% depletion level and the rainfed conditions for all three crops considered in the experiment. The hand watered basin irrigation recorded higher yields over the rainfed conditions in all three crops. Drip irrigation recorded higher water use efficiencies, (yields per unit of water applied) of 1.5-2 times for all crops when compared to the basin irrigation at 40% depletion and rainfed conditions. These may be attributed to both the greater yields, smaller quantities of water applied, shorter crop duration and possibly reduction of water losses through percolation for crops under the drip system.

In addition, an investigation conducted to compare the actual evapotranspiration of chillies, onions and bananas measured by neutron probe with the crop evapotranspiration estimated by modified Penman and Pan evaporimeter method, revealed that the Penman method satisfactorily estimated the crop evapotranspiration during maha (wet) season while the Pan evaporimeter method tended to under estimate it. However during yala (dry) period both Penman and Pan methods over estimated the actual crop evapotranspiration.