# **IMPACT OF LOCALLY AVAILABLE MULCHING** MATERIALS ON MOISTURE EVAPORATION AND

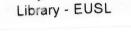
**RETENTION IN SOIL** 



BY

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#### ABSTRACT

Mulching is a common practice used to conserve soil moisture in dry areas of Sri Lanka, because it reduces soil evaporation by breaking. Mulching is the practice of covering the soil or ground with a layer of material to improve growing conditions for plants, facilitate their development, and increase crop yield. Particularly in dry areas in Sri Lanka face higher soil evaporation loss which causes a decline in yield production. This present study aimed to investigate the effect of mulched materials on soil evaporation and water retention. Coir dust, banana leaf residue and Gliricidia leaves were used in two different ways as treatments. T1(control), T2 (surface coir dust mulch), T3 (incorporated coir dust mulch), T4 (surface banana leaf residue mulch), T5 (incorporated *Gliricidia* leaves mulch), and T7 ( incorporated *Gliricidia* leaves mulch).

Evaporation loss and moisture retention experiments were analyzed at continuous 25 days in both laboratory and field conditions. Physico – chemical parameters such as bulk density, moisture content, porosity, pH, and EC were analyzed on the final day of the experiment. According to the evaporation and water retention analysis, T7 which involved incorporated mulched Gliricidia leaves performed the best in both laboratory and field conditions. This treatment significantly reduced soil water loss and increased water retention compared to the T1 control.

Analysis of physicochemical parameters such as bulk density, moisture content, porosity, pH, and EC shown that all the values were significantly varied with treatments. T7 and T4 had the best performance. T1 and T4 had the least performance. According to the moisture evaporation, water retention, and physicochemical analysis, it could be concluded that the T7 which involved incorporated Gliricidia leaves mulch

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on the soil surface was performed best and it can be used as mulch material for mulching to eradicate the soil evaporation and improve the water retention thereby to promote their use amongst cultivators.

According to the moisture evaporation and water retention analysis, incorporated mulched with Gliricidia leaves performed best compared with surface mulched treatments.

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