

PROCEEDINGS OF



NATIONAL CONFERENCE ON MICRO IRRIGATION (NCMI-2025)

Micro irrigation for Modern Agriculture

27th & 28th March, 2025

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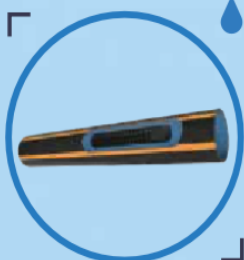
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Editors

**Dr. N. Asoka Raja, Professor & Associate Dean, SRMCAS
Dr. S. Ramadass, Assistant Professor and Head (Agronomy)
Dr. M. Saravana Kumar, Assistant Professor (Agronomy)
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IMPACT OF COIR PITH ON SOIL MOISTURE AND ROOT GROWTH IN AEROBIC RICE UNDER DRIP IRRIGATION

Anbarasu Mariyappillai

ABSTRACT

A field experiment was conducted during the summer of 2019 and 2020 at the AICRP Water Management field, Agricultural College and Research Institute, Madurai, Tamil Nadu Agricultural University, Tamil Nadu, India. To study the effect of coir pith application on soil moisture distribution and root development with different irrigation regimes viz., I1 - Drip irrigation of 120 % Pan Evaporation (PE), 100 % PE, and 80 % PE. Separately, maintained the surface irrigation of IW/CPE 1.20. The making of soil moisture slope is basic to investigate the gainful impacts through the use of coir substance and it very well may be conceivable to water holding capacity and spreading area of water distribution from the emitter of drip irrigation system. Raised beds were formed with 90 cm top bed width and 30 cm furrow width. The well-composed coir pith @ 375 kg/ha was spread over the raised beds and levelled well with surface soil. The lateral (12 mm) was laid out in the centre of each bed and paddy seeds (var CO-51) were dibbled manually at 20 × 10 cm spacing. Soil samples were collected in vertical and horizontal directions and soil moisture was determined by gravimetric method. Soil moisture appropriation and root development were plotted graphically as contour maps with surfer software. The results revealed that drip irrigation at 120 % PE with coir pith application improved the root development and yield attributes of aerobic rice compared to surface irrigation at 5 cm depth (IW/CPE 1.20). This was attributed to coir pith has favourable hydrological and physical properties to hold and spread the water in the raised bed area and the 50 percent available soil moisture is maintained by aerobic rice cultivation under a drip irrigation system and the root growth and development. The effect of coir pith on soil moisture retention was maintained throughout the growing season.

Keywords: Coir pith, Aerobic rice, Root growth, Drip irrigation, Soil Physical properties.