

STUDY ON ROOT DISTRIBUTION PATTERN OF BLACK PEPPER (*Piper nigrum*) AT INITIAL STAGE UNDER DRIP IRRIGATION

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Pepper (*Piper nigrum*) is one of the earliest spices known to man and today it has the largest share in the international spice trade. In Sri Lanka, pepper is cultivated over an area of 32,824 ha, mostly in Matale, Kandy, Kegalle, Kurunegala, Nuwara Eliya, Gampaha, Rathnapura and Kaluthara districts. Water scarcity in dry zone and some parts of intermediate zone limits the expansion of the cultivated extent. Cultivation of pepper under irrigated conditions may be a possible solution to expand its production. Present study proposed to identify the root distribution pattern of Black Pepper under drip irrigation.

Root distribution pattern and growth parameters of black pepper were studied at initial stage under drip irrigation conditions at Central Research Station, Department of Export Agriculture, Matale. Twelve pepper plots were selected with twelve plants in each plot. The experimental design was RCBD with four treatments and three replicates. The four treatments were application of 16 l /day, 12 l /day, 08 l /day and 01 l /day irrigation water using a drip irrigation system. Total root length, maximum root depth, maximum root spread and number of main roots were measured as root distribution parameters while vine length, primary branches, number of laterals and number of leaves were measured as the growth parameters.

Root distribution pattern and growth parameters were different under irrigated and non-irrigated conditions. Though the growth parameters were different with the rate of water application, the root distribution pattern was not so. Application rate of 08 l /day was identified as the best rate of application under the drip irrigation for pepper cultivation.

*Key words:* Growth parameters, Root distribution, Drip irrigation, Black pepper