

**EVALUATION OF VEGETATIVE AND YIELD PERFORMANCE
OF CHILLI (*Capsicum annuum*) IN THE LOW COUNTRY DRY
ZONE OF SRI LANKA**



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ABSTRACT

Chilli (*Capsicum annuum*) is a widely cultivated crop in Sri Lanka, with significant economic and nutritional value. The study aimed to evaluate the vegetative growth, agronomic traits, and yield performance of eight Sri Lankan Chilli (*Capsicum annuum*) varieties under Low Country Dry Zone conditions, considering the influence of different environmental conditions and intercropping with a leguminous crop. The experiment was conducted at the Faculty of Technology, Eastern University, Sri Lanka (EUSL), using eight Chilli (*Capsicum annuum*) varieties: *MI Hot*, *MI 01*, *MI Waraniya 01*, *Galkiriyagama Selection*, *KA 02*, *MICH 03*, *MI 02* and *MICH HY 01* which were evaluated using a Complete Randomized Design (CRD) with ten replicates. The Chilli variety *MI Hot* and the Mung bean variety *MI 05* were selected for the intercropping study. The Intercropping experiment was laid out in a Randomized Complete Block Design (RCBD) with three replicates. Plant Height, Leaf Length, Leaf Width, Number of Leaves, Number of Knots, Number of Branches, Number of Flowers at vegetative stage and Number of Fruits varied from (15.840±0.62cm), (2.810±0.12cm), (2.350±0.09cm), (13.50±0.88), (19.10±0.93), (15.20±0.55), (4.70±2.51), (1.60±0.26) to (51.58±2.82cm), (5.580±0.105cm), (3.520±0.1cm), (98.00±1.87), (106.75±2.53), (25.30±0.51), (24.20±5.09), (6.75±0.47) respectively. The performance of the Chilli variety *MI Hot* intercropping with Mung bean demonstrated positive effect compared to the monocropping system. Additionally, the interaction between the agroecological zone and the cropping system had a positive impact on the morphological traits of *MI Hot*, with intercropping demonstrated the statistically significant improvement ($p < 0.05$). Based on PCA analysis, the effect of Temperature, Rainfall and Relative Humidity in this period affect the positive impact on plant morphological traits. The above results will be important in selecting suitable varieties to enhance their productivity on Low Country Dry Zone of Sri Lanka.

Keywords: *Capsicum annuum*, Environmental factors, Growth performance, Intercropping, Low Country Dry Zone

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