

EFFECT OF NUTRIENT MANAGEMENT SYSTEM AND FOLIAR APPLICATIONS ON GROWTH AND YIELD OF HYBRID CHILI UNDER POLYTUNNEL CONDITIONS

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Efficient nutrient management is crucial for maximizing hybrid chili yield in polytunnel conditions. This study aimed to investigate the effects of soil nutrient management systems and foliar applications on the growth and yield of the hybrid chili variety MICHHY 1 under polytunnel conditions. The experiment was arranged as a two-factor factorial experiment with a completely randomized design. The recommended dosage of inorganic fertilizers (RDIF), recommended by the Department of Agriculture, and integrated nutrient management (INM) (50% RDIF + 50% compost) were used as levels of soil nutrient management systems. At each soil nutrient management level, three foliar applications were tested: control (no application), 1% Albert's solution, and 3% *panchagavya*, with each treatment replicated three times. Growth and yield-related parameters were measured and statistically analyzed. The analyses revealed no significant difference in cumulative yield ($p>0.05$) between RDIF and INM, with mean yields recorded at 242.76 ± 44.16 g plant⁻¹ for RDIF and 262.52 ± 29.54 g plant⁻¹ for INM. Among the foliar applications, the control group achieved the highest yield (274.37 ± 25.84 g plant⁻¹), followed by 3% *panchagavya* (249.12 ± 28.41 g plant⁻¹) and 1% Albert's solution (234.44 ± 49.14 g plant⁻¹), suggesting that foliar applications reduce yield under the growing conditions. No significant differences ($p>0.05$) were observed in growth parameters such as secondary branch number, plant height, cumulative pod number, SPAD reading, and pod diameter. The interaction effect between the soil nutrient management system and foliar application did not show significant changes ($p>0.05$) in any of the parameters. In conclusion, INM alone will be a viable option in improving hybrid chili yield in polytunnels but additional foliar applications will not enhance productivity.

Keywords: Compost, Controlled environment, Cumulative yield, Sustainable agriculture