

AN INTEGRATED SOIL MANAGEMENT APPROACH FOR ENHANCING GROWTH AND YIELD OF CHILLI (*Capsicum annum* L.) IN THE DRY ZONE OF SRI LANKA

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Cultivation of chilli (*Capsicum annum* L.) under poor soil nutrient and moisture conditions may mask the potential yield. Objectives of the present study were to investigate the growth, development and yield of chilli in different degree of ploughing, application of compost and mulch. Experiment was conducted during 2012 *Yala* season. A three factor factorial experiment namely, ploughing, application of compost and application of a mulch was conducted using a split-plot design during *Yala* season in 2012. Neither three-way nor two-way interactions have shown significant ($p < 0.05$) influences on pod yield, pod number and average pod weight. Only the impact of application of mulch was significant, while the rest remained positive but not significant. Pod yield and pod number were highest in deep ploughed conditions than under normal ploughing. Application of composts showed a higher pod yield, although pod number was not substantially increased compared to plots without compost. Application of a mulch showed a robust impact on yield as yield of mulched plots were 1.3 t ha⁻¹ compared to 0.9 t ha⁻¹ in non-mulched plots. Average pod weight of 2.3 g of mulched plots was substantially higher than 2.0 g in contrast. Significant influences of deep ploughing, application of compost, application of mulch and certain two-way interactions were observed for growth parameters before the first pick. Sub-optimal climatic conditions (*i.e.* rainfall and temperature) during the growing season showed negative impacts on growth and development of crop, thus the yields were far below than expected. This study showed a possibility of having substantial yield even under sub-optimal climatic condition with different degrees of crop management, emphasizing the necessity of upgraded agronomic measures for chilli cultivation in the dry zone of Sri Lanka.

Key words: Chilli, Compost, Deep ploughing, Mulch, Pod yield