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A SIMPLE AUTOMATED MICRO-IRRIGATION PACKAGE FOR HOME LEVEL CULTIVATION OF EGGPLANT

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Water is a limited resource worldwide. Agriculture consumes significant amount of water to get crop yield. However, a considerable portion of applied water is wasted due to improper practices. Excessive application of water to agricultural lands applied with artificial fertilizers pollutes water resources critically. Hence, was made to develop an automated drip irrigation package for growing eggplants the at home level with precious application of water and fertilizer. An experiment was set with three treatments T1 (fully saturated soil with recommended dossage of fertilizer and water), T2 (10% reduction of water and fertilizer) and T¬3 (20% reduction of water and fertilizer). The entire irrigation system was automated by Arduino programming. Crop parameters, stem diameter, height of plant, number of leaves, leaf area, number of flowers, shoot to root dry mass ratio and number of pods were measured along with soil moisture dynamics. Resulted with this study revealed that the 10% reduction in feterlizer and water application did not affect crop yield and soil moisture compared to standard level application of water and fertilizer. Hence, this innovative outcome suggests that the reduction in water and fertilizer application minimizes the cost of production and environmental pollution. As the world turns into organic agriculture due to health issues caused by excessive application of agro-chemicals, outcomes of this comprehensive study facilitate home level eggplant cultivation in an eco-friendly and healthy manner.

Keywords: Automation; Eggplant; Fertilizer; Home garden; Micro-irrigation