

An Open Loop Distribution Module for Precise and Uniform Drip Fertigation in Soilless Culture

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Abstract : In soilless culture, the definition of efficient fertigation strategies is fundamental for the growth of crops. Flexible test-benches able to independently manage groups of crops are key for investigating efficient fertigation practices through experimentation. These test-benches must be able to provide nutrient solution (NS) in a precise, uniform and repeatable way in order to effectively implement and compare different fertigation strategies. This article describes a distribution module for investigating fertigation practices able to control the fertigation dose and frequency. The proposed solution is characterized in terms of precision, uniformity and repeatability since these parameters are fundamental in the implementation of effective experiments for the investigation of fertigation practices. After a calibration process, the implemented system reaches a precision of 1mL, a uniformity of 98.5% at a total cost of 735USD.

Keywords : recision horticulture, test-bench, fertigation strategy, automation, flexibility

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