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Production of Butterhead Lettuce and Cherry Tomato by Hydroponic System

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Hydroponic commonly incorporates crops farming with less usage of chemical fertilisers and soil utilisation. The existing hydroponic systems can only show essential parameters such as humidity, water level, nutrients and light intensity. Nutrient Film Technique (NFT) system with portable monitoring device, S shaped UPVC pipe, wood, net protection, pH meter, electrical conductivity (EC) meter, growing media for growing cherry tomato and butterhead lettuce in a netting system environment was developed which includes determination of pipe size, flowrate, angle of pipe degree and pump size. The experiment was laid out in a randomised complete block design (RCBD) with three treatments of growing media (perlite, clay pebbles and coco fibre) and ten replications for each treatment. Plant lengths, total count of harvested cherry tomato, yield (g), pH and EC values were recorded during the study. The results showed that flowrate (Q) was 117.9 (L/h) through a 7.62 cm UPVC pipe diameter and a 90-degree elbow joint with pump power of 0.193 watts. Mean comparison of plant lengths between treatments for butterhead lettuce planting shows coco fibre produces highest leaf lengths while cherry tomato planting shows clay pebbles produces highest stem lengths. In terms of plant yield (g) and total count of harvested cherry tomato and butterhead lettuce, clay pebbles media recorded the highest values for both crops and showed significant differences to other growing media.

Keywords: Nutrient film technique, pH meter, EC meter, yield, planting media, stem height and leaf lengths.

