EFFECT OF VARIETIES AND HYDROPONIC SYSTEMS ON THE GROWTH, YIELD AND QUALITY OF LETTUCE (*Lactuca sativa* L.)

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Summary

The experiment was conducted at greenhouse for vegetable research, Research and Agricultural Practical Farm, College of Agriculture and Applied Biology, Can Tho University from August 2017 to February 2018 to determine the suitable lettuce varieties and hydroponic systems to reach high yield under greenhouse condition. There were 2 experiments, including: Experiment 1: Evaluation of ten lettuce varieties for the growth, yield, and quality. The experiment was conducted under randomize complete design, 10 treatments were 10 lettuce varieties (including Xoan AG, Bup AG, Minetlo AG, Dum AG, Bup GN 63, TN 599, TN 139, TN 115, TN 207, TN 117). The result shows that Bup GN63 was the best variety, yield at 1,35 kg/m^2, average weight of 16.65 g/plant, brix level at 3.42% and vitamin C level at 1.87 mg/100g fresh lettuce. Experiment 2: Effect of hydroponic system on growth and yield of lettuce. The experiment was designed randomize complete design with 2 factors. The first factor consisted of 5 types of hydroponic systems: hydroponic pipe, hydroponic pipe + ultraviolet lamps, hydroponics floating raft non-circulation system, hydroponic floating raft circulation system, and hydroponic floating raft circulation system + ultraviolet lamps. The second factor included 3 types of substrate: hydroponic foam, coconut fiber, and coconut fiber + clay pebbles. The result showed that the floating hydroponic non-circulation system and the coconut fiber + clay pebbles, hydroponic pipe + ultraviolet lamps (into nutrient solution before reuse) and coconut fiber were the best, yield at 2.29-2.41 kg/m^2. It is recommended to apply a hydroponic non-circulation and the coconut fiber + clay pebbles system because of more advantages.

Keywords: *Hydroponic systems, lettuce, substrates, varieties.*