

Radika Samanthi Malawwathanthri 2014: Comparison of Hydroponic Solutions for Growing Lettuce in Nutrient Film Technique (NFT) System. Master of Science (Sustainable Agriculture), Major Field: Sustainable Agriculture, Faculty of Agriculture. Thesis Advisor: Assistant Professor Sudsaisin Kaewrueng, Ph.D. 79 pages.

This study aimed at comparing two hydroponic solutions one is commonly used in Sri Lanka (solution y) and the other one is vastly used in Thailand (solution x) for growing lettuce in Nutrient Film Technique (NFT) system. In experiment one, lettuce was grown in two solutions as treatments T1 and T2 with EC and pH being maintained 1.2 mS/cm to 1.8 mS/cm and 6.0 to 6.5 during cropping cycle, respectively. In experiment two, lettuce was grown in four solutions as treatment. Treatment T1 and T2 were the same as the first experiment, while treatments T3 and T4 using the same solution as treatment T2 but with adding N as in the same amount of treatment T1 in the case of treatment T3 and half of that amount in the case of treatment T4. In experiment two, EC was not maintained and pH level was maintained as in experiment 1. pH and EC level of the treatments, number of leaves per week, fresh yield, dry yield and N, P, K, Ca and Mg content in the upper ground biomass were observed in both experiments. In experiment one, it was found that nutrient content in the upper ground biomass and plant growth and development is better in treatment T2 than in treatment T1. K content in both treatments should be reduced and other four elements can be increased according to sufficiency nutrient level of lettuce to obtain better yield. In experiment two, plant growth and development is better in treatment T1 than in other three treatments and N content and K content in treatment T1 and K content in treatment T2 should be reduced up to suitable level which can be obtained N is 35 to 45 g/kg and K is about 55 to 62 g/kg. P content in both solutions should be increased up to suitable level that can be obtained P in upper ground biomass is 4 to 8 g/kg.

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Thesis Advisor's signature