The Effect of Water Depth on Lactuca sativa in an Aquaponics System

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Aquaponics is a form of agriculture that involves plant and marine life. In an aquaponics system, the fish provide essential nutrients to the plants and in return the plants clean the water for the fish. Many aquaponics owners have various opinions on the preferred water depth for plants in an aquaponics system. The aim of this research was to determine if there is a preferred water depth for lettuce in an aquaponics system. In this experiment, two aquaponics systems were built with a 32 cm, 24 cm, 16 cm, and 8 cm water depth, respectively. Plant height was recorded daily and fish were fed twice a day. After five weeks of observing plant growth, a one-way ANOVA test was performed and resulted in a p-value of 0.732. The p-value shows that the data is not statistically significant at the $p < 0.05$ significance level. This research found that there is not one superior water depth for lettuce in an aquaponics system. However, aquaponics owners, especially in rural areas, can still benefit from this research. This study shows that a smaller water depth than traditionally thought to be used in aquaponics systems can still result in a bountiful harvest while also conserving water.

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