Design and Evaluation of Aquaponics System

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Abstract

Aquaponics is a food production method that combines hydroponic and aquaculture to form a system. A fish tank for the aquaponics system and non-aquaponics system was constructed, the start up and running the system was monitored for 4 months. The fish grown in the fish tank and the plants grown in the pot with pebbles and supplied with local water. Electric energy use for water pumps was measured to reach close to 5.76 KW-HR per month per container.

The fish growth was monitored and found that the fish in aquaponics system gained more weight than the fish in non-aquaponics system. The plants growth was monitored also and found that the plants gained more weight in aquaponics system than in non-aquaponics system as well as the water temperature monitored and found that the water temperature in aquaponics system is less than the non-aquaponics system.

From the results in this study, Aquaponics system seem to be higher in fish growth in weight, higher in plants growth in weight and less in water temperature. Continued studies would do well to investigate plant growth using soil as well as physical properties of water for fish growth.

Keywords: Aquaponics System, non-aquaponics system, growth, fish growth, plant growth.

