

ABSTRACT

Along with technological developments and increasing population, land for agriculture in Indonesia is also decreasing. With the increase in population, the demand for food has also increased. This situation encourages people to survive by utilizing narrow land as an effort to develop agricultural products. Hydroponics is the cultivation of plants by utilizing water which contains a mixture of nutrients as a substitute for soil to meet the nutritional needs of plants. Nutrients or commonly called hydroponic nutrients are one of the important factors for success in the cultivation of hydroponic system plants. If the nutrients needed are fulfilled, then the plants will still be able to grow well. However, even using this hydroponic system, there are still plants that lack or have excess nutrients.

However, even using this hydroponic system, there are still plants that lack or have excess nutrients. Therefore, in the process of cultivating plants with a hydroponic system, it is necessary to periodically check the levels of nutrients in the water media. In this study, an indoor hydroponic system was created that can automate nutrient ratios in lettuce plants based on the EC and TDS value parameters which can be monitored via the website. The test method for this tool will compare 3 indoor hydroponic systems with a ratio of nutrients A: nutrients B: water.

The test results show that plants produced in system 1 with a nutrient ratio of 5:5:1000 combined with UV LED can get the best lettuce growth results compared to system 2 using a nutrient ratio of 2:2:1000 combined with grow light and 3 using a ratio of 5: 5:1000 combined with grow light. This research succeeded in creating a monitoring and control system for EC nutrient levels in hydroponic plants with the aim of facilitating farmers in maintaining the quality of hydroponic cultivation.

Keywords: Agriculture, Hydroponic, Nutrition, Sensors.