

ABSTRACT

Cucumber kyuri (*Cucumis sativus* L.) is one type of cucumber with high economic value. Cucumber kyuri grows at an ideal temperature of 21°C-27°C with the provision of 1 liter of water with a frequency of watering 2 times a day. However, kyuri cucumber is a subtropical plant that is less resistant to temperatures that are too hot and also rainfall that is too high as in Indonesia. This is because it will cause the growth of kyuri cucumber to be less than optimal. Therefore, a greenhouse building was made that serves to create the desired environmental conditions using the Mamdani fuzzy logic method as the final decision maker which is useful for regulating the temperature and watering conditions needed for kyuri cucumbers. The actuator used is a water cooler as a temperature regulator and a DC water pump as an automatic watering. Based on the test results, the success rate of the temperature control system obtained is 99.05% with a temperature error of 5.64°C. Meanwhile, the success rate of the plant watering system is 98.57% with a soil moisture error of 2.23%. The last observation condition shows that the applied control system can increase the plant growth rate by 59.36%. In addition, 100% of the plant subjects in the greenhouse have succeeded in bearing fruit.

Keyword: Air Cooler, Fuzzy Logic Mamdani, Greenhouse, Kyuri Cucumber, Control System