

Thesis Title	Feasibility of Evaporative Cooling Application in Flower's Greenhouse
Thesis Credits	6
Candidate	Mr. Jumpol Prasomsub
Supervisors	Asst. Prof. Dr. Sirichai Thepa Mr. Roongrojana Songprakob
Degree of Study	Master of Science
Department	Energy Technology
Academic Year	1998

Abstract

This thesis is to study the feasibility of evaporative cooling application in Flower's Greenhouse. The greenhouse with a flat roof of 16.5 m width, 4 m high and 11 degree incline roof angle is covered with Polyethylene. The evaporative cooling system nylon lining staggered arrangement, has the water flowing through. Such arrangement has wet surfaces which allows the air to pass through. In addition, wet nylon is attached to the south wall and the exhaust fan is located in the north wall.

According to the research using Mathematics model, the orientation of the greenhouse on north to south or on east to west has no effect on temperature and moisture inside the greenhouse. The temperature decreases and moisture increases when there are more flowers inside the greenhouse. The test alignment of the nylon 15, 20 and 25 line, and ventilation rate at 3, 4, 5 and 6 air change are conducted for cooling system study. The optimal alignment of the nylon 20 lines and ventilation rate at 5 air change. Furthermore, the highest moisture is at 85% and the lowest is at 70% while the highest temperature is 29.48 C. Decreasing light 30%, 50% and 70% has no significant effect on the reduction of the temperature in the greenhouse. Comparing the temperature before and after using the cooling system, it is found that the evaporative cooling system is able to reduce the temperature inside the greenhouse at 4.14 C.

Keywords : Flower's Greenhouse / Evaporative cooling / Mathematical model