

Thesis Title	Development of a Mathematical Model of Changing Temperature and Relative Humidity in the Poultry House
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Abstract

The objective of thesis was to develop a mathematical model of changing temperature and relative humidity in the poultry house. The configuration of the house are 3 m width, 6 m length and 3.5 m high and 30 degree incline roof angle, the house's wall and ceiling are covered with PVC. The house is installed the water spray evaporative cooling system at the south wall, this system uses a nylonnet to trap spray water and the exhausted fan is located at the north wall.

By comparing the results of mathematical model with experimental, we found that error are negligible. So the model can be used to predict the temperature and relative humidity inside the poultry house. According to the research by using the mathematical model, the higher efficiency of evaporative cooling system may be not suitable for poultry house because the temperature decreases but moisture increasing very much. Amount of poultry should be optimized, it effect on temperature and moisture inside the house. Cooling load of poultry house will be increased by the house size increasing, should be selected the capacity of cooling system to suitable with the load. Water temperature in cooling system, temperature and moisture of ambient will effect the efficiency of cooling system. By comparing the temperature before and after using evaporative cooling system, it is found that the cooling system is able to reduce the temperature inside the poultry house at 4.6 °C.

Keywords : Poultry house / Evaporative cooling system / Mathematical model