

Abstract

This research describes experimental results related to air temperature and soil moisture in the context of organic composting. Air temperature and soil moisture measurement data were analyzed using the Regression Tree method and presented in the form of histograms, point diagrams and line graphs. Experimental results show that the air temperature during the composting process is most often in the range of 25-26 degrees Celsius, with a few incidents at temperatures of 28-29 and 32-33 degrees Celsius. In contrast, the highest soil moisture recorded was approximately 62.5%, occurring less frequently at 50% and 72.5%. Analysis of the accuracy of air temperature predictions shows high consistency in predictions until the temperature reaches 26 degrees Celsius, with an R2 value of 96.3873%. However, small differences are visible at some time points in the line chart, showing variations between the actual and predicted results. Meanwhile, analysis of the accuracy of soil moisture predictions shows significant misalignment, with a very low R2 value, namely 0.23575%. These experimental results provide valuable insight into the characteristics of air temperature and soil moisture during the composting process. In addition, the performance of the prediction model using the Regression Tree method is very dependent on the predicted variables. This research can provide an important basis for further developments in the field of organic compost management and environmental monitoring.

Keywords—air temperature, soil moisture, organic composting, regression tree, prediction accuracy, R2.
