

ABSTRACT

The price of agricultural commodities is a problem for all walks of society in Indonesia. One of them is the farmers in agricultural commodity itself. The prices of agricultural commodities are very fluctuating which raises doubts for farmers to start planting the seeds because they worry about the drastic decline in prices at harvest time that will cause losses. Therefore, we need a way to predict the price of agricultural commodities, where the latter price forecasts can be used as a recommendation for farmers in making the decision to start planting seeds or not.

Previous research has been conducted to predict the price of agricultural commodities by Artificial Neural Network (ANN) with Time-Delay architecture. Similarly, this research will build prediction system of agricultural commodity prices, which are the red chilis and red onions for 10 weeks ahead by using the architecture of Radial Basis Function Neural Network (RBFNN). In building the RBFNN system there are constraints in designing the optimal architecture, so that this study using trial and error to determine the input neurons. This system also makes the center value and weight as learning outputs. Center value was obtained using the K-means algorithm, while the weight was obtained using the least square method. The learning outputs are used to calculate the predicted results of the system where then will be performed the classification process for planting recommendations. While the performancy system is calculated using the Mean Absolute Percentage Error (MAPE).

The forecasting results of agricultural commodities by using optimal RBFNN provide accuracy performance value more than 75% for red onion commodities, while the red chili commodities is given less than 75% of accuracy performance value. During the process of classification planting recommendation and farmer's prices for red onion commodities obtain less than 75% of accuracy, while the red chili commodities obtain more than 75% of accuracy.

Keywords: agricultural commodities, forecasting, time series, ANN, RBF, MAPE