

ABSTRACT

Prices of agricultural commodities that are sometimes unstable make people fret, especially the farmers, because it is feared the price dropped drastically, causing farmers to experience losses and crop failures. One of the factors that affect the agricultural sector is the weather, so it takes information about the weather for the future so that farmers can get the maximum profit, it is expected that the planning, when the planting targets are adjusted with the price, so that the price prediction is needed for the future.

In this research will build a system for forecasting agricultural commodity prices using Artificial Neural Network (ANN) which is optimized by Particle Swarm Optimization (PSO). This study uses weather data and historical data of commodity price of the monthly onion for the last 3 years from 2014 to 2016. This data is obtained from the Department of Trade and Industry of Bandung Regency. This data will be through preprocessing process in advance with Principal Component Analysis (PCA), Weighted Moving Average (WMA) and Normalization. System performance is calculated using Mean Absolute Percentage Error (MAPE).

After forecasting of agricultural commodities using ANN-PSO obtained the best MAPE of 7.14% for observation parameter of particle number 50 and learning rate of 0.5 compared to ANN-BP with best MAPE 9.03% for observation parameter of learning rate 0.1 and hidden layer 2.

Keywords: *Agricultural commodities, ANN, PSO, Multilayer Perceptron, normalization, PCA, WMA, MAPE*