

ABSTRACT

Indonesia's population are mostly engaged in the agricultural sector, so that the character of a climate and weather such as rainfall, humidity, temperature, solar radiation, wind velocity, and evaporation influence on earnings. Weather in Indonesia is currently experiencing extreme changes that have an impact on reducing agricultural productivity even causing crop failure. Therefore prediction or forecasting productivity of agricultural commodities is very important to know in order to benefit and minimize the losses of farmers.

This research will establish a system for forecasting productivity of agricultural commodities. Using Functional Link Neural Network (FLNN) with Artificial Bee Colony (ABC) algorithms to optimize weight on FLNN. The research is using chili productivity and weather historical data for 7 years. This data will first going through preprocessing with Principal Component Analysis (PCA), Weighted Moving Average (WMA), dan Normalization. System performance will be measured by the method of Mean Absolute Percentage Error (MAPE).

After a study of forecasting productivity of agricultural commodities using FLNN-ABC obtained the best MAPE performance result with using data chili productivity and weather real scenario of 11,89%.

Keywords: *agricultural commodities, Functional Link Neural Network, Artificial Bee Colony, normalization, PCA, WMA, MAPE*