

ABSTRACT

The agricultural sector has an important role in Indonesia's economy. For example to meet national food requirements. About agriculture, it is closely related to the weather, one of them is rainfall. Rainfall is one of important factor for farmers to meet the water needs of commodities. Each of commodity have different water's need. This water will make the plant be fertile and grow until the harvest is ready. However, the rainfall situation is often fickle and cannot be known with certainty. As a result farmers hard determine the right time to start planting. Therefore, we need a system of rainfall forecasting that can be used to make planting calendar so that the problems of farmers about water's need the commodity can be resolved.

One method of rainfall forecasting is Evolving Fuzzy. This method is an evolutionary system that combines Fuzzy System and Evolutionary Algorithm (EAs). The development of a system, membership functions and Fuzzy rule as Fuzzy's parameters is optimization using one of the algorithms in EAs, Genetic Algorithm. Fuzzy optimizations can be used to rainfall forecasting. Before development the system, data is processed by preprocessing using Local Regression Smoothing methods. The method is very good to handling data that have fluctuating values. So that data will be used as training data and testing data will be smooth.

At this research used Local Regression Smoothing methods and Evolving Fuzzy with input parameters is time series data, that is precipitation monthly taken from BMKG Bandung regency. Based on the accuracy of more than 80% so that the results of rainfall prediction next month can be used to make planting calendar of rice plants in the district of Bandung with 3 periods of growing season. with the proviso the control of the water requirement if excess rainfall, as well as the addition of water requirement if the lack of rainfall.

Keyword : planting calendar of rice plants, rainfall, forecasting, Local Regression Smoothing, Genetic Algorithm, Evolving Fuzzy.