

Thesis Title	Rice Yield Prediction Using Fuzzy Inference System and Support Vector Machine
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ABSTRACT

The rice model is the procedure to predict the rice grain weight. The objectives of the procedure are to find out whether the location is appropriate to grow rice, and reducing any risk in the investment of rice yield production. The main crop production in Thailand is rice. It is main food and an important product for export. Recently, rice departments used the rice model to assign a strategy for Thai farmer. The parameters and the coefficients of the rice model have to operate in a laboratory. Hence, it is difficult to use rice model. The cost of used model is high as well.

This research is aimed to develop rice yield prediction procedure using the Support Vector Machine (SVM) for making easy usability and reducing the cost in laboratory. The soil nitrogen weight, stem weight and grain weight has been predicted by the SVM. Moreover, this research proposes the Fuzzy Inference System (FIS) for evaluating the soil nitrogen with soil albedo, water balance and growth stage. When changing plant for rice RD23 with Suphanburi soil series.

The result shows that SVM produced the least mean absolute error (MAE) and mean absolute percentage error (MAPE) comparing with linear regression and nonlinear regression. The support vector machine method gives the least error. We used the correlation coefficient and root mean square error to measure performance between Nitrogen weight from fuzzy interference system and the experts. The performance of system is acceptable.