

Perancangan Sistem Prediksi Hasil Panen Padi dengan Metode Regresi

Linear Berganda di Kabupaten Jember

(Design of a Rice Harvest Prediction System Using the Multiple Linear Regression Method in Jember Regency)

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ABSTRACT

Accurate prediction of harvest yields is needed to assist production planning and decision making. This study aims to design a rice yield prediction system using the Multiple Linear Regression method and determine the accuracy level of the resulting model. The data used is historical rice data from Jember Regency for the period 2015–2024 with variables of Planted Area, Harvested Land Area, Productivity, Production and Rainfall. The research stages include data preprocessing, correlation analysis and feature selection, linearity testing, data sharing, model building, model evaluation, and implementation into a web-based system using the Laravel framework. From the results of feature selection, the variables used to build the model are Planted Area, Harvested Land Area and production. The model was built in stages, namely Model 1 to predict Harvested Land Area and Model 2 to predict Production. The evaluation results show that Model 1 obtained a MAPE value of 2.89% and R^2 of 0.8883, while Model 2 obtained a MAPE value of 4.23% and R^2 of 0.7976. These results demonstrate that the Multiple Linear Regression method is capable of producing highly accurate predictions, making the developed system suitable for use in estimating rice yields in Jember Regency.

Keywords: *Multiple Linear Regression, Harvest Yield Prediction, Rice, Jember Regency.*