

The linear regression vs. additive forecast techniques in predicting palm oil estate monthly delivery quantity

Abstract

The quantity of palm oil fruits supplied from palm oil estates often affects the number of workers required and the area to be harvested. Thus, the ultimate objective of this research is to develop a system to forecast monthly delivery quantities such that the company's profit will increase through proper balance between supply and demand. This research is limited to 10 years of monthly deliveries from a palm oil estates deliver to only one palm oil mill as the case study. Two forecast techniques were chosen; the linear regression and additive forecast methods. Based on theories and formulations of the selected forecast techniques, forecast software was developed. For this software, user only needs to specify the year to be forecasted and choose one forecast technique to be used. Then, the forecasted values and errors were calculated and the results were displayed on the GUI. The performance of each technique was compared based on the mean absolute percentage error (MAPE). The generated results showed that the additive method produced lower MAPE compared to the linear regression method. This proved that the additive method is a better technique to predict the monthly delivery quantities of the palm fruits by the estate.