

Prediction model for estimating optimum harvesting time of oil palm fresh fruit bunches.

Abstract

This study introduced the image based measurement for modelling the oil palm fresh fruit bunches (FFB) maturity prediction which enables the determination of the correct time for harvesting. The experimental procedure starts from collection of the fruitlets of FFB during unripe (black colour surface) until overripe (orange colour surface) stages of Tenera (*Elaeis guineensis*) oil palm planting material. The calculations to determine the mesocarp oil content was developed based on ratio of oil to dry mesocarp. The images were analysed for optical properties of colour, namely hue, using the analysis software that was developed at our research laboratory. Regression analysis of polynomial 2ndorder equation method showed that the optical property of oil palm fruit was significant in determining the oil from the fruit mesocarp, with respect to the degree of maturity. A high correlation was found for relationship of mesocarp oil content versus day of harvesting with equation of $Y=-1.1405X+73.719$ and R^2 of 0.81 was acceptable. The model will then can be used to develop an equation for the software to enable the oil palm planters to determine the time of harvesting the matured oil palm fruit bunches.

Keyword: Oil palm; Estimation days harvesting; Prediction model; Hue optical property; Camera vision.