

## Oil palm physical and optical characteristics from two different planting materials.

### ABSTRACT

This study discovers the uniqueness of physical and optical characteristics of the oil palm Fresh Fruit Bunches (FFB) and is based on two different tenera planting materials namely PORIM SERIES 1 (PS 1) and PORIM SERIES 2 (PS 2). Three methods have been done to determine the characteristics which are as follows; 1) manual approach by measuring the weight, length, width and circumference of oil palm FFB, 2) machine vision technique for color information extraction and 3) multi-band portable, active optical sensor system to determine the chlorophyll and anthocyanin content. A total of thirty bunches were standardized into a ripe grade and have been used as samples in this study. The results showed that each planting material produces different physical and optical characteristics. The correlation between the weight and linear dimensions of oil palm FFB was found to be 80%. This study gives very important information in helping researchers on the development of future non-contact and non-destruction oil palm FFB grading equipment and system.

**Keyword:** Oil palm FFB; Optical sensor; Physical characteristics; RGB digital number; Tenera.