Enhancing Agro-management Practices with Precision Point Mapping*

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The density of palm stands is usually derived by dividing the total number of palms planted by the field area. Inaccurate counting and wrong statement of area are therefore the two major sources of error that can have a significant impact on the cost of operation in an oil palm estate. Fortunately the field area is constant and can now be readily verified using GPS receivers. However the number of palms may reduce gradually with time, resulting in the need for estates to recount the number of palm stands periodically. Palm census has therefore been an important task, but rarely has it been satisfactorily performed in the estate due to various constraints. Attempts have been made by some plantations to use high-resolution satellite images for palm counting but the success has been hindered by cloud coverage. This paper introduces the use of Real-time Kinematic (RTK) GPS receivers for the production of "Precision Point Map" that can be used to possibly enhance our abilities to maintain accurate records of palm density, assess the quality of planting pattern, perform terrain analysis and define the boundary of fields and harvesting tasks. Every single stand of oil palm is manually planted by workers in the field and occupies a considerably large area of between 67 and 78 m^2 depending on the planting distance. Taking into consideration the potential use of the precision point map and current high yielding materials that are capable of producing more than 250 kg of fresh fruit bunches that are worth over RM 75 per palm per year, the cost of investment in precision point mapping should not be a serious constraint. Obstruction from palm canopies that will confine the use of RTK GPS receivers to immature fields is one of the major drawbacks.

Keywords: GPS, precision point map, oil palm.