Plants nutrient variability of oil palm and its correlation to fresh fruit bunch yield.

ABSTRACT

In recent times, among of the major problems in oil palm plantations is the lack of proper interpretation of yield maps for site-specific management. The ability to determine and diagnose leaf factors that influencing yield variability of oil palm will benefits in managing the plantation for better yield. A study on spatial variability of N, P, K, Mg and Ca in oil palm leaf was carried out at the Dusun Durian Estate of Golden Hope Plantations Berhad in Selangor, Malaysia. The aim of this study is to obtain accurate and timely information on the spatial distribution and status of N, P, K, Mg and Ca in leaf using semivariogram analysis and geographical information system (GIS), and its correlation to oil palm fresh fruit bunch (FFB) yield. The collection of leaf tissue data was conducted using systematic sampling. A GPS device (AgGPS Trimble) was used to precisely determine samples locations. Geostatistics software and classical statistics were used for data analysis. Correlation analysis was used to determine the strength of the relationship between nutrient content in leaf tissue and FFB yield. From kriged map, results indicate that about 32.2% of the area is low in yield, 51.6% is moderate and 16.2% is high in yield, respectively. Correlation analyses shown the total of N and available of P in the leaf have strong positive relationship ($r2 = 0.84$ and 0.83) with FFB yields. Thus, result implies that N and P in leaf tissue can be used to determine the FFB yields for oil palm production.

Keyword: Plants nutrients status; Geostatistics; Correlation analysis; Oil palm yield.