DIGITAL SOIL ELECTRICAL CONDUCTIVITY MAPPING: A CASE STUDY AT OIL PALM IN UiTM SHARE FARM

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ABSTRACT

DIGITAL SOIL ELECTRICAL CONDUCTIVITY MAPPING: A CASE STUDY AT OIL PALM IN UiTM SHARE FARM

Soil EC mapping is a process to observe and identify the distribution of soil EC in a certain area. The electrical flow of EC can measure field productivity of soil such as water holding capacity (WHC), organic matter (OM), and cation exchange capacity (CEC) and also at the same times its measure soil properties. This study was conducted at share Farm UiTM Jasin, Melaka in Young Oil Palm area to measure the level of EC and soil properties. Getting soil information by using traditional soil sampling and laboratory analysis will be having the problem in terms of cost, time, and labor consuming. By using soil EC mapping, it can save time by identifying the soil properties in short of time. The aim of this paper was to collect EC data and mapping the collected data in ArcGIS software. The collected data of deep and shallow EC were then compared kriging technique and their correlation with soil EC was determined. Based on the mapping, the highest values for EC shallow mapping, is 68.05 (ms/m) while the lowest values are - 1.0506 (ms/m). For EC deep mapping, the highest values are 26.98 (ms/m) while the lowest is -0.267(ms/m). Moreover, the percentage of the highest values of EC shallow is only 2% while for EC deep is only 1%. Based on this study it showed that the EC sensor can determine soil spatial variability, where it can acquire the soil information quickly.

Keywords: Kriged Map, regression, correlation, Veris EC sensor.