

Analisis Perubahan Nilai Resistivitas Tanah akibat Pemberian Larutan Pupuk Organik dan Anorganik di Lahan Pertanian Kabupaten Bogor = Analysis of Changes in Soil Resistivity Value due to Application of Organic and Inorganic Fertilizer Solutions on Agricultural Land in Bogor Regency

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Abstrak

Pupuk berperan dalam penyediaan unsur hara bagi keperluan tanaman yang dibedakan menjadi dua jenis pupuk yaitu, pupuk organik dan anorganik. Pemberian pupuk (organik dan anorganik) secara berlebihan membuat kondisi lahan menjadi kekurangan unsur hara yang berpengaruh dalam kesuburan tanah, perubahan struktur tanah dan pencemaran lingkungan. Penelitian ini memanfaatkan metode resistivitas untuk mengamati perubahan nilai resistivitas akibat pemberian pupuk organik dan anorganik pada lahan pertanian di Kecamatan Caringin, Kabupaten Bogor. Pemilihan metode resistivitas geolistrik karena dapat memetakan karakteristik tanah dengan cepat dan murah. Data yang digunakan dalam penelitian ini terdiri dari data resistivitas lapangan dan sampel tanah. Pengukuran resistivitas lapangan dilakukan sebanyak 5 kali pengukuran (1 kali sebelum diberi pupuk dan 4 kali setelah diberi pupuk) pada setiap lintasan (lintasan Organik dan lintasan Anorganik). Konfigurasi yang digunakan merupakan konfigurasi dipole-dipole dengan panjang lintasan 6 meter dan elektroda sebanyak 16 batang. Sedangkan pengukuran sampel tanah dilakukan di laboratorium sedimentologi, FMIPA UI untuk mendapatkan klasifikasi tekstur tanah dan grafik resistivitas fungsi kadar air. Hasil yang didapat menunjukkan bahwa perubahan nilai resistivitas dalam rentang 27 jam setelah diberi pupuk (organik dan anorganik) cenderung mengalami penurunan yang disebabkan oleh kadar air dan reaksi larutan kimia pupuk dan penurunan resistivitas pemberian pupuk organik lebih tinggi dibandingkan larutan anorganik.

.....Fertilizers play a role in providing nutrients for plant needs and are categorized into two types of fertilizers, namely, organic and inorganic fertilizers. Excessive application of fertilizers (organic and inorganic) causes a lack of nutrients that affect soil fertility, changes in soil structure, and environmental pollution. This study uses the resistivity method to observe changes in resistivity values due to applying organic and inorganic fertilizers on agricultural land in Caringin District, Bogor Regency. The geoelectric resistivity method was chosen because it can map soil characteristics quickly and cheaply. The data used in this study consisted of field resistivity data and soil samples. Field resistivity measurements were carried out five times (1 time before being fertilized and four times after being fertilized) on each line (Organic line and Inorganic line). The configuration used is a dipole-dipole configuration with a line length of 6 meters and a total of 16 electrodes. Meanwhile, soil sample measurements were carried out at the sedimentology laboratory, FMIPA UI to obtain a soil texture classification and a resistivity graph of the water content function. The results showed that the change in resistivity values within 27 hours after being given fertilizer (organic and inorganic) tended to decrease due to the fertilizer solution's water content and chemical reaction. The decrease in resistivity of organic fertilizer application was higher than inorganic solutions.