

ABSTRAK

PENGARUH SISTEM OLAH TANAH DAN PEMUPUKAN NITROGEN TERHADAP pH, KTK DAN C ORGANIK TANAH PADA LAHAN PERTANAMAN JAGUNG (*Zea mays* L.) TAHUN KE-34 DI KEBUN PERCOBAAN POLITEKNIK NEGERI LAMPUNG

Oleh

RAFIDAHAZIZ AZZAHRA

Sistem olah tanah dan pemupukan menjadi faktor penting dalam produksi. Pengolahan tanah bertujuan untuk memperbaiki sifat fisik, kimia, dan biologi tanah, sedangkan pemupukan juga dapat dilakukan karena dapat membantu ketersediaan unsur hara di dalam tanah, sehingga tanah dapat menyediakan dan menyokong unsur hara yang dibutuhkan terutama pada pertumbuhan tanaman jagung. Penelitian ini bertujuan untuk mengetahui pengaruh olah tanah terhadap pH, KTK, dan C-organik, mengetahui pengaruh pemberian pupuk N terhadap pH, KTK, dan C-organik, dan mengetahui interaksi perlakuan olah tanah dan pemberian pupuk N terhadap pH, KTK, dan C-organik tanah pada lahan pertanaman jagung. Penelitian dilakukan di kebun percobaan Politeknik Negeri Lampung. Analisis tanah dan tanaman dilakukan di Laboratorium Ilmu Tanah Gedung D Ilmu Tanah Fakultas Pertanian Universitas Lampung. Penelitian ini menggunakan rancangan acak kelompok (RAK) yang disusun secara faktorial 2 yang disusun secara faktorial 2 faktor yang terdiri dari 6 (enam) kombinasi perlakuan, yaitu N0T1 (Tanpa pupuk + olah tanah intensif), N0T2 (Tanpa pupuk + olah tanah minimum), N0T3 (Tanpa pupuk + tanpa olah tanah), N2T1 (Urea 200 kg N ha⁻¹ + olah tanah intensif), N2T2 (Urea 200 kg N ha⁻¹ + olah tanah minimum), N2T3 (Urea 200 kg N ha⁻¹ + tanpa olah tanah) dan 4 (empat) ulangan. Data dianalisis dengan menggunakan analisis ragam dan uji lanjut pada taraf 5%. Hasil penelitian menunjukkan bahwa perlakuan sistem olah tanah berpengaruh nyata KTK dan C-organik tanah, pemberian pupuk N berpengaruh nyata terhadap KTK, dan terdapat interaksi sistem olah tanah dan pemberian pupuk N berpengaruh nyata terhadap C-organik.

Kata kunci : Sistem olah tanah, pupuk nitrogen, pH, KTK, C-organik

ABSTRACT

THE EFFECT OF TILLAGE SYSTEM AND NITROGEN FERTILIZATION ON SOIL pH, CATION EXCHANGE CAPACITY (CEC), AND ORGANIC C IN THE 34th YEAR OF MAIZE (*Zea mays* L.) CULTIVATION AT THE POLYTECHNIC STATE OF LAMPUNG EXPERIMENTAL FARM

By

RAFIDAHAZIZ AZZAHRA

Tillage System and Fertilization are Crucial Factors in Agricultural Production. Tillage aims to improve the physical, chemical, and biological properties of the soil, while fertilization is essential for enhancing nutrient availability in the soil. This allows the soil to provide and support the nutrients needed, especially for the growth of maize plants. This study aims to determine the effect of tillage on soil pH, cation exchange capacity (CEC), and organic C, the effect of nitrogen (N) fertilization on pH, CEC, and organic C, and the interaction between tillage and N fertilization on pH, CEC, and organic C in maize fields. The research was conducted at the Experimental Farm of Politeknik Negeri Lampung. Soil and plant analyses were performed at the Soil Science Laboratory, Building D, Department of Soil Science, Faculty of Agriculture, University of Lampung. This study employed a randomized block design (RBD) with a factorial arrangement consisting of two factors and six treatment combinations: N0T1 (No fertilizer + intensive tillage), N0T2 (No fertilizer + minimum tillage), N0T3 (No fertilizer + no tillage), N2T1 (200 kg N ha⁻¹ urea + intensive tillage), N2T2 (200 kg N ha⁻¹ urea + minimum tillage), and N2T3 (200 kg N ha⁻¹ urea + no tillage), with four replications. Data were analyzed using analysis of variance (ANOVA) and further tested at the 5% significance level. The results showed that the tillage system had a significant effect on soil CEC and organic C. Nitrogen fertilization significantly affected soil CEC, and there was a significant interaction between the tillage system and nitrogen fertilization on organic C.

Keywords: Tillage system, nitrogen fertilizer, pH, CEC, organic C