

ABSTRAK

PENGARUH OLAH TANAH DAN PEMUPUKAN N JANGKA PANJANG TERHADAP KANDUNGAN KARBON ORGANIK, NITROGEN TANAH DAN SERAPAN N SERTA PRODUKSI PADA PERTANAMAN JAGUNG DI TANAH ULTISOL TAHUN KE-34

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Ultisol merupakan salah satu jenis tanah di Indonesia yang mempunyai sebaran luas. Namun Ultisol merupakan salah satu jenis tanah di Indonesia dengan sebaran luas. Ultisol merupakan tanah yang memiliki tingkat kesuburan rendah sehingga perlu upaya perbaikan agar dapat dimanfaatkan secara optimal. Tujuan penelitian adalah mengetahui pengaruh olah tanah jangka panjang, pemupukan N, dan interaksi antara olah tanah jangka panjang, dan pemupukan N terhadap kadar C-organik tanah, N total tanah, serapan N, serta produksi tanaman jagung di Ultisol. Penelitian dilaksanakan pada 12 September 2021 – 30 Januari 2022 di Kebun Percobaan Polinela. Penelitian ini menggunakan RAK dengan 2 faktor, yaitu pemupukan nitrogen (N0 = tanpa pemupukan, N2 = pemupukan 200 kg N ha⁻¹), olah tanah (T1 = olah tanah intensif, T2 = olah tanah minimum, T3 = tanpa olah tanah). Data hasil penelitian sifat tanah analisis tanah awal dan akhir dilakukan untuk mengetahui kandungan N-total tanah, C-organik tanah, C/N, dan pH tanah. Analisis data tanah dilakukan secara kualitatif menggunakan kriteria penilaian hasil analisis tanah. Data Sampel tanaman berupa (produksi berat kering, basah serta serapan N tanaman) di uji dengan menggunakan anara dan dilanjutkan dengan uji BNT 5%. Tanpa olah tanah dan tanpa pemupukan N mampu meningkatkan C-organik tanah dan N-total tanah. Serapan N brangkasan jagung tertinggi yaitu pada perlakuan olah tanah minimum. Pemupukan N tidak mampu meningkatkan kandungan C-organik, tetapi dapat meningkatkan N-total tanah. Pemupukan N mampu meningkatkan produksi berat kering total dan berat basah total tanaman serta N terangkut total. Tidak terdapat interaksi antara pengaruh pemupukan N dan olah tanah terhadap serapan N dan produksi tanaman jagung.

Kata Kunci: C-organik, jangka panjang, N-total, Olah Tanah, Pemupukan, Produksi, Serapan N.

ABSTRACT

THE EFFECT OF LONG-TERM SOIL TREATMENT AND N FERTILIZATION ON ORGANIC CARBON CONTENT, SOIL NITROGEN AND N ABSORPTION AND PRODUCTION IN CORN CROPPING IN ULTISOL SOIL, YEAR 34

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Ultisol is a type of soil in Indonesia with a wide distribution. Ultisol is soil that has a low fertility level so it needs improvement efforts so that it can be used optimally. The aim of the research was to determine the effect of long-term tillage, N fertilization, and the interaction between long-term tillage and N fertilization on soil organic C levels, total soil N, N uptake, and corn crop production in Ultisol. The research was carried out on 12 September 2021 – 30 January 2022 at the Polinela Experimental Garden. This research uses RAK with 2 factors, namely nitrogen fertilization (N0 = no fertilization, N2 = 200 kg N ha⁻¹ fertilization), tillage (T1 = intensive tillage, T2 = minimum tillage, T3 = no tillage). Data from research on soil properties, initial and final soil analyzes were carried out to determine the soil total N content, soil organic C, C/N, and soil pH. Soil data analysis was carried out qualitatively using assessment criteria for soil analysis results. Plant sample data in the form of (dry, wet weight production and plant N uptake) was tested using an ara and continued with a 5% BNT test. Without tillage and without N fertilization can increase soil organic C and total soil N. The highest corn stover N uptake was in the minimum tillage treatment. N fertilization is not able to increase organic C content, but can increase total soil N. N fertilization can increase the production of total dry weight and total wet weight of plants as well as total N transport. There was no interaction between the effect of N fertilization and tillage on N uptake and corn production.

Keywords: C-organic, fertilization, long term, N-total, N uptake, production, tillage.