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Pengaruh Residu Biochar Sekam Padi dan Pupuk Kandang Sapi terhadap Kandungan N Total dan Serapan N oleh Tanaman Jagung (*Zea mays* L.).

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh residu biochar sekam padi dan pupuk kandang sapi terhadap kandungan N total dan serapan N oleh tanaman jagung (*Zea mays* L.). Penelitian dilaksanakan dari bulan November 2020 sampai Maret 2021 di Kebun Hortikultura Socah, Kabupaten Bangkalan, Jawa Timur, yang terletak pada ketinggian ± 5 meter dpl. Percobaan disusun berdasarkan Rancangan Acak Kelompok (RAK) non faktorial, terdiri atas 6 taraf perlakuan, yaitu P0 (kontrol), P1 (10 ton/ha biochar), P2 (7,5 ton/ha biochar dan 2,5 ton/ha pupuk kandang), P3 (5 ton/ha biochar dan 5 ton/ha pupuk kandang), P4 (2,5 ton/ha biochar dan 7 ton/ha pupuk kandang), P5 (10 ton/ha pupuk kandang). Perlakuan tersebut telah diterapkan pada tahun 2019 (setahun sebelum penelitian ini dilakukan). Hasil penelitian menunjukkan terdapat pengaruh residu biochar sekam padi dan pupuk kandang sapi terhadap N total, kandungan N tanaman, dan serapan N. Perlakuan P4 (2,5 ton/ha biochar + 7,5 ton/ha pupuk kandang sapi) mampu meningkatkan N total sebesar 54,5%, kandungan N tanaman sebesar 78,5%, dan serapan N sebesar 111,9% dibandingkan kontrol. Residu biochar dan pupuk kadang kemungkinan meningkatkan N total secara langsung melalui jerapan NH_4^+ dan pengurangan kehilangan N dalam bentuk gas; dan secara tidak langsung melalui perbaikan sifat-sifat tanah.

Kata Kunci : Biochar, Pupuk Kandang, N total, Serapan N, Jagung.

RIKA DEVI RAHMAH NIM. 17.03.111.00039.

Effect of Biochar Residue of Rice Husk and Cow Manure on Total N Content and N Uptake by Corn (*Zea mays* L.) Plants.

Supervised by: **Ir. Slamet Supriyadi, M.Si.**

ABSTRACT

The objective of this study was to investigate the effects of soil conditioner of residue of rice husk biochar and cow manure, which had been applied one year before this research conducted, on total N content in the soil and N uptake by maize (*Zea mays* L.). The research was carried out at the Socah Horticultural Garden, Bangkalan Regency, East Java, located at 5-meter above sea level, from November 2020 to March 2021. The experiment was arranged on a completed randomized block design (CRBD), consisting of six treatments, namely P0 (control, without biochar or cow manure), P1 (10 ton biochar/ha), P2 (7.5 ton biochar/ha and 2.5 ton cow manure/ha), P3 (5 ton biochar/ha and 5 ton cow manure/ha), P4 (2.5 ton biochar/ha and 7.5 ton cow manure/ha), P5 (10 ton cow manure/ha). Urea and Phonska fertilizer were applied based on the applied rate from local farmer. The results showed that residual biochar rice husk and cow manure significantly increased N total in the soil, plant -N content, and -N uptake. Moreover, all treatments had low total and plant-N content. The treatment of P4 (2.5 ton biochar/ha + 7.5 ton cow manure/ha) increased N total in the soil, plant-N content, and -N uptake respectively by 54.5%, 78.5%, and 111.9% compared to those of Control. Residue biochar and cow manure possibly directly increased total N in the soil via increasing ammonium fixation and reducing nitrate leaching and N gas emission, and indirectly via the improvement of soil conditions.

Keywords: Biochar, Cow Manure, total N, N Uptake, Corn.