ABSTRACT

THE EFFECT OF BIOCHAR RESIDUE AND CHICKEN MANURE AFTER FOUR PLANTING SEASONS APPLICATION ON EARTHWOEMS POPULATION AND BIOMASS IN SWEET CORN (*Zea mays saccharata* Strurt.) CROPS IN ULTISOL SOIL

By

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The effect of biochar residue and chicken manure is the effect of single or combined application after several planting seasons without new applications. Evaluation of the effect of biochar residue and chicken manure on earthworms is very important because it plays a role in the soil fertility process. This study aims to evaluate the effect of biochar and chicken manure application residue on the population and biomass of earthworms. This study was designed in a non-factorial Randomized Block Design (RBD) with 4 groups and 4 treatments, B_0 = control, B_1 = biochar residue 5 tons ha^{-1}, B_2 = chicken manure residue 5 tons ha^{-1}, B_3 = biochar residue 5 tons ha^{-1} + chicken manure residue 5 tons ha^{-1}. Data were analyzed by analysis of variance at the 5% level, which was previously carried out by the Barlett Test and Tukey Test. The data were further tested with the LSD test at the 5% level, and a correlation test between the population and biomass of earthworms with supporting variables. The results of this study indicate that the earthworm population in treatment (B_1) is higher than the other treatments. Observations 14 days after planting (DAP) showed that earthworm biomass in treatment (B_2) was higher than in the other treatments. There was a negative correlation between earthworm population and soil pH, as well as between earthworm biomass and soil pH. The earthworms found belonged to the Megascolicidae family, with the genus Pheretima.

Keywords: biochar, chicken manure, earthworms, residue, sweet corn

ABSTRAK

PENGARUH RESIDU BIOCHAR DAN KOTORAN AYAM SETELAH APLIKASI EMPAT MUSIM TANAM TERHADAP POPULASI DAN BIOMASSA CACING TANAH PADA PERTANAMAN JAGUNG MANIS (*Zea mays saccharata* Sturt.) DI TANAH ULTISOL

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Pengaruh residu biochar dan kotoran ayam adalah pengaruh aplikasi tunggal atau kombinasi setelah beberapa musim tanam tanpa dilakukan aplikasi baru. Evaluasi pengaruh residu biochar dan kotoran ayam terhadap cacing tanah sangat penting karena berperan dalam proses kesuburan tanah. Penelitian ini bertujuan untuk mengevaluasi pengaruh residu aplikasi biochar dan kotoran ayam terhadap populasi dan biomassa cacing tanah. Penelitian ini dirancang dalam Rancangan Acak Kelompok (RAK) non-faktorial dengan 4 kelompok dan 4 perlakuan, B_0 = kontrol, B_1 = residu biochar 5 ton ha^{-1}, B_2 = residu kotoran ayam 5 ton ha^{-1}, B_3 = residu biochar 5 ton ha^{-1} + residu kotoran ayam 5 ton ha^{-1}. Data dianalisis dengan analisis ragam pada taraf 5%, yang sebelumnya dilakukan Uji Barlett dan Uji Tukey. Data diuji lanjut dengan uji BNT taraf 5%, dan uji korelasi antara populasi dan biomassa cacing tanah dengan variabel pendukung. Hasil penelitian ini menunjukkan bahwa populasi cacing tanah pada perlakuan B_1 lebih tinggi dari perlakuan lainnya. Pada pengamatan 14 HST, biomassa cacing tanah pada perlakuan B_2 lebih tinggi dibandingkan perlakuan lainnya. Terdapat korelasi negatif antara populasi cacing tanah dan pH tanah serta biomassa cacing tanah dan pH tanah. Cacing tanah yang ditemukan termasuk ke dalam Megascolicidae dengan genus Pheretima.

Kata Kunci : biochar, cacing tanah, jagung manis, kotoran ayam, residu