

ABSTRAK

PENGARUH RESIDU BIOCHAR DAN KOTORAN AYAM SETELAH 4 MUSIM TERHADAP NISBAH DISPERSI TANAH PADA PERTANAMAN JAGUNG MANIS (*Zea mays saccharata* Sturt)

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Penelitian ini bertujuan untuk mengkaji pengaruh residu biochar dan kotoran ayam setelah empat musim tanam terhadap nisbah dispersi tanah dan produktivitas jagung manis (*Zea mays saccharata* Sturt) di lahan kering. Penelitian ini dilaksanakan pada musim tanam kelima menggunakan Rancangan Acak Kelompok (RAK) dengan empat perlakuan: kontrol (B₀), residu biochar (B₁), residu kotoran ayam (B₂), dan kombinasi keduanya (B₃). Hasil penelitian menunjukkan bahwa semua perlakuan menghasilkan nilai nisbah dispersi dalam kategori terdispersi sedang, perlakuan residu biochar (B₁) dengan nilai 34,29% lebih baik dari perlakuan lainnya dan mengalami penurunan dibandingkan sebelum ditanami. Kandungan karbon organik tertinggi ditemukan pada perlakuan (B₃) kombinasi residu biochar dan kotoran ayam dengan nilai 2,11%, yang mengindikasikan bahwa biochar tetap memiliki dampak residu yang bertahan lama di dalam tanah. Namun, tidak ditemukan pengaruh signifikan perlakuan terhadap komponen hasil jagung manis, seperti panjang, diameter, dan berat tongkol. Hal ini menunjukkan bahwa efektivitas bahan organik cenderung menurun seiring waktu dan menekankan perlunya pengelolaan lahan yang berkelanjutan untuk mempertahankan produktivitas.

Kata kunci : biochar, jagung manis, kotoran ayam, lahan kering, nisbah dispersi.

ABSTRACT

THE EFFECT OF BIOCHAR AND CHICKEN MANURE RESIDUES AFTER FOUR PLANTING SEASONS ON SOIL DISPERSION RATIO IN SWEET CORN (*Zea mays saccharata* Sturt) CULTIVATION

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This study aimed to evaluate the residual effects of biochar and poultry manure after four cropping seasons on soil dispersion ratio and sweet corn (*Zea mays saccharata* Sturt) productivity in upland conditions. The experiment was conducted during the fifth growing season using a Randomized Complete Block Design (RCBD) with four treatments: control (B₀), biochar residue (B₁), poultry manure residue (B₂), and a combination of both (B₃). Results showed that all treatments produced soil dispersion ratios within the moderately dispersed category. The biochar residue treatment (B₁) exhibited the most favorable dispersion ratio at 34,29%, outperforming the other treatments, although it declined compared to pre-planting levels. The highest organic carbon content was observed in the combined treatment (B₃) with a value of 2,11%, indicating the persistent residual effect of biochar in the soil. However, no significant effects of the treatments were found on sweet corn yield components such as ear length, diameter, or weight. These findings suggest that the effectiveness of organic amendments tends to diminish over time, highlighting the need for sustainable land management practices to maintain crop productivity.

Keywords : biochar, chicken manure, dispersion ratio, sweet corn, upland.