

STUDI APLIKASI KOMPOS ECENG GONDOK (*Eichhornia crassipes* (Mart.) Solms) TERHADAP SIFAT FISIKA ULTISOL, PERTUMBUHAN DAN HASIL TANAMAN JAGUNG MANIS (*Zea mays saccharata* L.)

SKRIPSI

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ABSTRAK

Pupuk kompos dapat dijadikan salah satu upaya dalam memperbaiki sifat fisika Ultisol serta mendukung pertumbuhan dan hasil tanaman jagung manis (*Zea mays saccharata* L.). Penelitian ini bertujuan untuk mengkaji pengaruh pemberian kompos eceng gondok (*Eichhornia crassipes* (Mart.) Solms) terhadap sifat fisika Ultisol, pertumbuhan dan hasil tanaman jagung manis. Penelitian ini menggunakan rancangan acak lengkap (RAL), terdiri dari 6 perlakuan (0, 5, 10, 15, 20, 25 ton/ha) dan 3 ulangan. Parameter analisis yaitu C-organik, berat volume (BV), total ruang pori (TRP), permeabilitas, dan indeks plastisitas tanah setelah panen, dan tinggi tanaman, bobot tongkol segar, total berat kering untuk pengamatan tanaman. Hasil penelitian menunjukkan bahwa pemberian kompos eceng gondok berpengaruh terhadap sifat fisika Ultisol, pertumbuhan dan hasil tanaman jagung manis. Pemberian kompos eceng gondok berbeda sangat nyata dalam menurunkan indeks plastisitas tanah pada takaran 10 ton/ha, menurunkan BV tanah dan meningkatkan TRP tanah pada takaran 15 ton/ha, meningkatkan kandungan bahan organik dan permeabilitas tanah pada takaran 20 ton/ha. Pada takaran 5 ton/ha meningkatkan total berat kering tanaman, tinggi dan bobot buah segar pada takaran 10 ton/ha. Berdasarkan penelitian ini, disarankan menggunakan kompos eceng gondok dengan takaran 10 hingga 20 ton/ha untuk meningkatkan kandungan bahan organik, memperbaiki sifat fisika Ultisol serta mengoptimalkan pertumbuhan dan hasil tanaman jagung manis.

Kata kunci: *Eceng Gondok, Jagung Manis, Kompos, Sifat Fisika Tanah, Ultisol*

STUDY ON WATER HYACINTH (*Eichhornia crassipes* (Mart.) Solms) COMPOST APPLICATION ON THE PHYSICAL PROPERTIES OF ULTISOL, THE GROWTH AND YIELD OF SWEET CORN (*Zea mays saccharata* L.)

ABSTRACT

Compost can be one efforts to improve the physical properties of Ultisol and support the growth and yield of sweet corn (*Zea mays saccharata* L.). This research was aimed to study the effect of application water hyacinth compost (*Eichhornia crassipes* (Mart.) Solms) on the physical properties of Ultisol, as well as the growth and yield of sweet corn. This study used a completely randomized design (CRD), consisting of six treatments (0, 5, 10, 15, 20, and 25 tons/ha compost) with three replications. The parameters analyzed were soil organic carbon (OC), bulk density (BD), total pore space (TPS), permeability, and plasticity index (PI) after harvest, as well as crop height, fresh cob weight, and total dry weight for crop growth observations. The results showed that the application of water hyacinth compost had an effected on the physical properties of Ultisol, as well as on the growth and the yield of sweet corn crops. The application of water hyacinth compost at a rate of 10 tons/ha significantly reduced the soil plasticity index, decreased soil bulk density and increased soil porosity at a rate of 15 tons/ha, and increased soil organic matter content and soil permeability at a rate of 20 tons/ha. At a rate of 5 tons/ha, it increased the total dry weight of the crops, while at a rate of 10 tons/ha, it increased crops height and fresh cob weight. Based on this study, it is recommended to use water hyacinth compost at rates of 10 to 20 tons/ha to improve soil organic matter content, enhance the physical properties of Ultisol, and optimize the growth and yield of sweet corn.

Keywords: *Compost, Soil Physical Properties, Sweet Corn, Ultisol, Water Hyacinth*