

ABSTRAK

APLIKASI BAHAN PEMBENAH TANAH DAN PEMUPUKAN NPK TERHADAP KETERSEDIAAN DAN SERAPAN HARA FOSFOR PADA TANAMAN JAGUNG (*Zea mays* L.) DI TANAH ULTISOL

Oleh

BAYU HENDARTO

Ketersediaan hara Fosfor (P) pada lahan tanam menjadi salah satu masalah produktivitas jagung di Indonesia. Pembena tanah seperti Biochar dan Pupuk Kandang merupakan solusi dalam meningkatkan ketersediaan dan serapan hara P, selain itu pemupukan NPK dapat meningkatkan produksi jagung. Tujuan dari penelitian ini untuk mengetahui pengaruh aplikasi bahan pembena tanah dan pemupukan NPK terhadap ketersediaan serta serapan hara fosfor pada tanaman jagung. Penelitian dilaksanakan dari bulan Desember 2022 sampai September 2023, di LTPD Unila dan Laboratorium Kimia Tanah FP Unila. Penelitian ini menggunakan Rancangan Acak Kelompok (RAK) faktorial dua faktor, faktor pertama yaitu kombinasi pembena tanah: B0 = Tanpa Pembena Tanah; B1 = Biochar Sekam + Pupuk Kandang 10 Mg ha⁻¹; B2 = Biochar Tongkol Jagung + Pupuk Kandang 10 Mg ha⁻¹; B3 = Biochar Batang Singkong + Pupuk Kandang 10 Mg ha⁻¹; faktor kedua yaitu dosis pemupukan dengan 3 perlakuan : P0 = Tanpa NPK; P1 = ½ Dosis NPK; P2 = 1 Dosis NPK, diulang sebanyak tiga kali sehingga diperoleh 36 satuan percobaan. Homogenitas ragam diuji dengan uji Bartlett dan aditivitas data diuji dengan uji Tukey. Jika asumsi terpenuhi maka dilakukan uji lanjut Polinomial Ortogonal Kontras. Hasil penelitian menunjukkan seluruh perlakuan pembena tanah nyata meningkatkan P-tersedia tanah serta Serapan P dibandingkan Kontrol. Sedangkan dosis pemupukan NPK tidak berpengaruh terhadap P-tersedia tanah namun meningkatkan serapan P.

Kata kunci : *Biochar*, Jagung, NPK, Pupuk Kandang

ABSTRACT

APPLICATION OF SOIL AMANDEMENTS AND NPK FERTILIZATION ON THE AVAILABILITY AND UP TAKE OF PHOSPHORUS NUTRIENTS IN CORN (*Zea mays L.*) PLANT IN ULTISOL SOIL

By

BAYU HENDARTO

Availability of phosphorus (P) in Indonesian cropping lands is one of the problems for maize productivity in Indonesia. Soil improvers such as Biochar and Manure are solutions in increasing the availability and uptake of P nutrients, besides that NPK fertilization can increase corn production. The purpose of this study was to determine the effect of soil conditioner application and NPK fertilization on the availability and uptake of phosphorus nutrients in corn plants. The research was conducted from December 2022 to August 2023, at LTPD Unila and Soil Chemistry Laboratory FP Unila. This study used a factorial Randomized Group Design (RAK) two factors, the first factor is a combination of soil improvers: B0 = No Soil Improver; B1 = Husk Biochar + 10 Mg ha⁻¹ Manure; B2 = Corn Cob Biochar + 10 Mg ha⁻¹ Manure; B3 = Cassava Stem Biochar + 10 Mg ha⁻¹ Manure; the second factor is fertilization dose with 3 treatments: P0 = No NPK; P1 = ½ Dose of NPK; P2 = 1 Dose of NPK, repeated three times to obtain 36 experimental units. Homogeneity of variance was tested with Bartlett's test and data additivity was tested with Tukey's test. If the assumptions are fulfilled, the further test is the Contrast Orthogonal Polynomial Test. The results showed that all soil amendment treatments significantly increased soil P availability and P uptake compared to the control. While the dose of NPK fertiliser had no effect on soil P availability but increased P uptake.

Keyword : *Biochar*, Corn, Manure, NPK