

**QUBBATUS SALAM.** 160311100054. Pengaruh Biochar Sekam Padi dan Pupuk Kotoran Sapi Terhadap Sifat Fisik Tanah, Pertumbuhan, dan Hasil Kacang Bambara (*Vigna subterranea* (L.) Verdcourt). Dibimbing Oleh: Drs. H. Kaswan Badami, M. Si

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## ABSTRAK

Kacang bambara (*Vigna subterranea* (L.) Verdcourt) adalah salah satu jenis tanaman kacang-kacangan yang mampu tumbuh baik di tanah lahan kering. Aplikasi bahan organik seperti biochar sekam padi dan pupuk kotoran sapi dapat menambah tersedianya unsur hara serta dapat memperbaiki sifat fisik tanah. Tujuan penelitian ini untuk mengetahui pengaruh campuran biochar sekam padi dan pupuk kotoran terhadap sifat fisik tanah, pertumbuhan, dan hasil tanaman kacang bambara (*Vigna subterranea* (L.) Verdcourt) di vertisol. Penelitian ini dilakukan di Dusun Candi, Desa Telang, Kecamatan Kamal, Kabupaten Bangkalan, Jawa Timur. Dari Desember 2019 sampai April 2020. Perlakuan pemberian biochar dan pupuk kotoran sapi disusun dalam Rancangan Acak Kelompok (RAK) dengan ulangan 3 kali. Perlakuan tersebut meliputi : tanpa biochar dan pupuk kotoran sapi (P0), Biochar 0 ton/Ha + Pupuk kotoran sapi 5 ton/Ha (P1), Biochar 10 ton/Ha + Pupuk Kotoran sapi 1 ton/Ha (P2), Biochar 10 ton/Ha + Pupuk kotoran sapi 3 ton/Ha (P3), Biochar 10 ton/Ha + Pupuk kotoran sapi 5 ton/Ha (P4), Biochar 20 ton/Ha + Pupuk kotoran sapi 1 ton/Ha (P5), Biochar 20 ton/Ha + Pupuk kotoran sapi 3 ton/Ha (P6), Biochar 20 ton/Ha + Pupuk kotoran sapi 5 ton/Ha (P7), Biochar 30 ton/Ha + Pupuk kotoran sapi 0 ton/Ha (P8), Biochar 30 ton/Ha + Pupuk kotoran sapi 1 ton/Ha (P9), Biochar 30 ton/Ha + Pupuk kotoran sapi 3 ton/Ha (P10), Biochar 30 ton/Ha + Pupuk kotoran sapi 5 ton/Ha (P11). Hasil penelitian menunjukkan bahwa pemberian campuran biochar sekam padi dan pupuk kotoran sapi tidak berpengaruh nyata terhadap semua sifat fisik tanah (Kapasitas Pegang Air, Porositas dan Kerapatan Isi), pertumbuhan dan hasil kacang bambara, namun berpengaruh nyata pada parameter biomas.

**Kata kunci:** kacang bambara, sifat fisik tanah, biochar sekam padi, pupuk kotoran sapi

### ABSTRACT

Bambara groundnut (*Vigna subterranea* (L.) Verdcourt) is a legume plant that grows well on dry land soils. The application of rice husk biochar and cow manure may increase nutrient availability and improve physical properties of soil. The objective of this study was to investigate the effect of the mixture of rice husk biochar and manure on soil physical properties, growth, and yield of bambara groundnut (*Vigna subterranea* (L.) Verdcourt). The research was carried out on vertisol (clay soil) located at Candi Sub-village, Telang Village, Kamal District, Bangkalan Regency, East Java Province. From December 2019 to April 2020. Treatments were arranged on a randomized block design (RBD), consisting of 12 levels and each treatment was replicated 3 times. The treatments were: without biochar and cow manure (P0), Biochar 0 t/ha + Cow manure 5 t/ha (P1), Biochar 10 t/ha + Cow manure 1 t/ha (P2), Biochar 10 t/ha + Cow manure 3 t/ha (P3), Biochar 10 t/ha + Cow manure 5 t/ha (P4), Biochar 20 t/ha + Cow manure 1 t/ha (P5), Biochar 20 t/ha + Cow manure 3 t/ha (P6), Biochar 20 t/ha + Cow manure 5 t/ha (P7), Biochar 30 t/ha + Cow manure 0 t/ha (P8), Biochar 30 t/ha + Cow manure 1 t/ha (P9), Biochar 30 t/ha + Cow manure 3 t/ha (P10), Biochar 30 t/ha + Cow manure 5 t/ha (P11). The results showed that treatments did not significantly affect all physical properties of the soil (water holding capacity, porosity and soil bulk density), growth and yield of Bambara but had a significant effect on biomass parameters.

**Keywords:** Bambara beans, soil physical properties, rice husk biochar, cow manure

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