

INTISARI

Penelitian bertujuan mengetahui keragaan anatomis, pertumbuhan, dan hasil tanaman kedelai yang dipupuk NPK berperekat lempung murni 5% + SBE % dan NPK berperekat lempung murni 5% + DBE 5% pada skala polibag serta menentukan tipe manakah diantara SBE 5% dan DBE 5% yang lebih optimal untuk mensubstitusi sebagian komponen lempung murni pada pupuk NPK dengan dampak negatif minimal setara dengan pupuk NPK berperekat lempung murni. Penelitian disusun menggunakan Rancangan Acak Kelompok (RAKL) faktor tunggal dengan 3 blok sebagai ulangan. Perlakuan yang diuji adalah pupuk NPK (15:15:15) dengan perekat 10% lempung murni, pupuk NPK (15:15:15) + 5% lempung murni + 5% SBE, dan pupuk NPK (15:15:15) + 5% lempung murni + 5% DBE. Variabel yang diamati berupa karakter iklim mikro di lokasi penelitian, karakter kimia tanah sebelum dan setelah diberi perlakuan, akumulasi hara dan logam berat di dalam jaringan tanaman, keragaan anatomi akar dan daun, serta pertumbuhan dan hasil tanaman kedelai. Data yang diperoleh dianalisis varians (ANOVA) dengan tingkat kepercayaan 95%, dan dilanjutkan uji Tukey. Hasil penelitian memberikan informasi bahwa pemupukan NPK berperekat 5% lempung murni + 5% SBE dan NPK berperekat 5% lempung murni + 5% DBE tidak menimbulkan abnormalitas pada karakter anatomi akar dan daun, hambatan pertumbuhan, serta penurunan hasil kedelai. Pupuk NPK berperekat 5% lempung murni + 5% SBE lebih disarankan untuk digunakan pada budidaya tanaman kedelai jika dibandingkan dengan pupuk NPK berperekat 5% lempung murni + 5% DBE karena tidak ada tambahan biaya untuk merubah SBE menjadi DBE.

Kata kunci : kedelai, SBE, DBE, anatomi, pertumbuhan, dan hasil

ABSTRACT

The aims of study were to 1) determine the anatomical performance, growth, and yield of soybeans which were fertilized by NPK with 5% of pure clay + 5% of SBE (spent bleaching earth) and NPK with 5% of pure clay + 5% of DBE (deoiled bleaching earth) on polybag scale and 2) determine which types of SBE 5% and DBE 5% were more optimal to substitute some portion of pure clay components on NPK fertilizer with negative impact equivalent to NPK fertilizer with 10% of pure clay. The study was arranged using a single factor of randomized complete block design (RCBD) with three blocks as replications. The treatments were NPK fertilizer (15:15:15) with 10% of pure clay, NPK fertilizer (15:15:15) + 5% of pure clay + 5% of SBE, and NPK fertilizer (15:15:15) + 5% of pure clay + 5% of DBE. Observations were done on several variables of microclimates, soil chemical characteristics, nutrient accumulation and heavy metals in soybean tissues, root and leaf anatomical performance, and growth and yield of soybeans. The data were analyzed with analysis of variance (ANOVA) with confidence levels of 95%, and continued by the Tukey test. The results showed that NPK fertilizer with 5% of pure clay + 5% of SBE and NPK fertilizer with 5% of pure clay + 5% of DBE did not caused abnormalities in the anatomical characteristics of roots and leaves, growth, and yield of soybeans. The NPK fertilizer with 5% of pure clay + 5% of SBE was recommended to be used in soybean cultivation when compared to NPK fertilizer with 5% of pure clay + 5% of DBE because there was no additional cost to convert SBE to DBE.

Keywords: soybean, SBE, DBE, anatomy, growth, and yield