ABSTRAK

PENGARUH SISTEM OLAH TANAH DAN PEMUKAN N JANGKA PANJANG TERHADAP PH DAN C-ORGANIK TANAH PADA TANAMAN KACANG HIJAU (*Vigna radiata* L.) TAHUN KE-35 DI LAHAN POLITEKNIK NEGERI LAMPUNG

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Penelitian ini bertujuan untuk mengevaluasi pengaruh sistem olah tanah dan pemupukan nitrogen jangka panjang terhadap pH tanah, C-organik tanah, dan bobot kering biji kacang hijau (*Vigna radiata* L.) pada lahan Politeknik Negeri Lampung tahun ke-35. Penelitian menggunakan Rancangan Acak Kelompok (RAK) faktorial dengan dua faktor, yaitu pemupukan nitrogen dan sistem olah tanah. Perlakuan pemupukan nitrogen terdiri atas 0 kg N ha^{-1} dan 50 kg N ha^{-1}, sedangkan sistem olah tanah meliputi olah tanah intensif, olah tanah minimum, dan tanpa olah tanah. Hasil penelitian menunjukkan bahwa sistem olah tanah jangka panjang berpengaruh nyata terhadap pH tanah dan kandungan C-organik tanah pada fase sebelum olah tanah dan pasca panen. Pemupukan nitrogen jangka panjang juga memberikan pengaruh nyata terhadap pH tanah dan kandungan C-organik tanah pada seluruh fase pengamatan. Selain itu, interaksi antara sistem olah tanah dan pemupukan nitrogen berpengaruh terhadap dinamika pH dan C-organik tanah. Kandungan C-organik tertinggi pada fase pasca panen diperoleh pada perlakuan tanpa pupuk nitrogen dengan olah tanah minimum sebesar 1,51%, sedangkan nilai terendah terdapat pada perlakuan pemupukan nitrogen dengan tanpa olah tanah sebesar 1,37%. Namun demikian, sistem olah tanah maupun pemupukan nitrogen tidak memberikan pengaruh nyata terhadap bobot kering biji kacang hijau. Secara umum, kandungan C-organik pada seluruh perlakuan masih tergolong rendah karena karakteristik Ultisol di wilayah tropis.

Kata kunci: C-Organik, Kacang Hijau, pH Tanah, Pemupukan Nitrogen, Sistem Olah Tanah

ABSTRACT

*EFFECT OF LONG-TERM SOIL TILLAGE AND N FERTILIZATION SYSTEM ON SOIL PH AND C-ORGANIC IN MUNG BEAN PLANTS (**Vigna radiata** L.) THE 35TH YEAR ON THE LAND OF THE LAMPUNG STATE POLYTECHNIC*

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This study aimed to evaluate the effects of tillage systems and long-term nitrogen fertilization on soil pH, soil organic carbon, and the dry weight of mung bean (Vigna radiata L.) seeds on the grounds of the Lampung State Polytechnic in its 35th year. The study employed a factorial randomized block design (RBD) with two factors: nitrogen fertilization and tillage system. Nitrogen fertilization treatments consisted of 0 kg N ha^{-1} and 50 kg N ha^{-1}, while tillage systems included intensive tillage, minimum tillage, and no-tillage. The results showed that long-term tillage systems had a significant effect on soil pH and soil organic carbon content during the pre-tillage and post-harvest phases. Long-term nitrogen fertilization also had a significant effect on soil pH and soil organic carbon content across all observation phases. Additionally, the interaction between tillage systems and nitrogen fertilization influenced the dynamics of soil pH and organic carbon. The highest organic carbon content in the post-harvest phase was observed in the treatment with no nitrogen fertilizer and minimum tillage at 1.51%, while the lowest value was found in the treatment with nitrogen fertilization and no tillage at 1.37%. However, neither the tillage system nor nitrogen fertilization had a significant effect on the dry weight of mung bean seeds. In general, the organic carbon content in all treatments was still relatively low due to the characteristics of Ultisols in tropical regions.

Key words: *Organic Matter, Mung Beans, Soil pH, Nitrogen Fertilization, Tillage Systems*