

ABSTRAK

PENGARUH SISTEM OLAH TANAH DAN PEMUPUKAN TERHADAP RESPIRASI TANAH PADA PERTANAMAN KACANG HIJAU (*Vigna radiata* L.) DI GEDONG MENENG PADA MUSIM TANAM KE-ENAM

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Respirasi tanah merupakan reaksi oksidasi-reduksi antara O_2 dan CO_2 oleh mikroorganisme tanah yang terjadi di dalam tanah. Respirasi tanah dapat dipengaruhi oleh sistem olah tanah dan pemupukan. Penelitian ini bertujuan untuk mempelajari pengaruh sistem olah tanah, pemupukan (pupuk majemuk (NPK) dan pupuk kotoran ayam), serta interaksi antara keduanya terhadap respirasi tanah. Penelitian ini dilakukan di Laboratorium Lapang Terpadu Fakultas Pertanian, Universitas Lampung dari bulan September-Desember 2020 serta analisis tanah dilakukan di Laboratorium Biologi Tanah, Fakultas Pertanian, Universitas Lampung. Penelitian ini menggunakan Rancangan Acak Kelompok (RAK) yang disusun secara faktorial 2×2 dengan 4 ulangan. Faktor pertama yaitu sistem olah tanah (T) yang terdiri dari T_1 = Olah tanah minimum dan T_2 = Olah tanah intensif. Faktor kedua yaitu pemupukan (P) yang terdiri dari P_0 = Tanpa pupuk dan P_1 = dipupuk (pupuk majemuk (NPK) 200 kg ha^{-1} dan pupuk kotoran ayam 1 Mg ha^{-1}). Data dianalisis statistik menggunakan analisis ragam yang sebelumnya telah dianalisis uji homogenitasnya dengan uji Bartlett dan additivitasnya dengan uji Tukey serta Uji BNT pada taraf 5% untuk melihat perbedaan nilai tengah perlakuan. Hubungan antara respirasi tanah dengan kadar air tanah, C – Organik tanah, pH tanah dan suhu tanah dilakukan uji korelasi. Hasil penelitian menunjukkan bahwa sistem olah tanah berpengaruh nyata terhadap respirasi tanah pada pengamatan 3 HST. Perlakuan pemupukan tidak berpengaruh nyata terhadap respirasi tanah. Tidak terdapat interaksi antara sistem olah tanah dan pemupukan terhadap respirasi tanah. Tidak terdapat korelasi yang nyata antara respirasi tanah dengan kadar air tanah, C-Organik tanah, pH tanah dan suhu tanah.

Kata kunci: Olah tanah intensif, olah tanah minimum, pemupukan, dan respirasi tanah

ABSTRACT

THE EFFECT OF TILLAGE AND FERTILIZATION ON SOIL RESPIRATION OF GREEN BEAN (*Vigna radiata* L.) AT GEDUNG MENENG IN THE 6th SEASON

By

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Soil respiration is an oxidation-reduction reaction between O₂ and CO₂ by soil microorganisms that occur in the soil. Soil respiration can be affected by tillage systems and fertilization. This study aimed to study the effect of tillage systems, fertilization (compound fertilizer (NPK) and chicken manure), and interaction between both on soil respiration. This research was conducted at the Integrated Field Laboratory, Faculty of Agriculture, University of Lampung from September to December 2020 and soil analysis was carried out at the Soil Biology Laboratory, Faculty of Agriculture, University of Lampung. This study was designed using a Randomized Block Design (RBD) arranged in a factorial 2 x 2 with 4 replications. The first factor is tillage system (T) consisting of T₁ = minimum tillage and T₂ = intensive tillage. The second factor is fertilization (P), consisting of P₀ = without fertilizer and P₁ = fertilized (compound fertilizer (NPK) 200 kg ha⁻¹ and chicken manure 1 Mg ha⁻¹). The data were statistically analyzed using analysis of variance which had previously been tested for homogeneity of variance with Bartlett's test and additivity with Tukey's test and LSD test at 5% significance levels. The relationship between soil respiration with soil moisture content, soil organic matter, soil pH, and soil temperature is tested by correlation test. The results showed that tillage systems have a significant effect on soil respiration in observations 3 HST. Fertilization treatment has no significant effect on soil respiration. There is no interaction between the tillage system and fertilization on soil respiration. There is no correlation between soil moisture content, soil organic matter, soil pH, and soil temperature with soil respiration.

Key words: Intensive tillage, minimum tillage, fertilization, and soil respiration.