Evaluasi Dampak Sinergi Amandemen Kohe Ayam dan Irigasi Mikro pada Sifat Fisik Tanah Pasiran Pantai
Samas, Bantul, Yogyakarta
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EVALUASI DAMPAK SINERGI AMANDEMEN KOHE AYAM DAN IRIGASI MIKRO PADA SIFAT FISIK TANAH PASIRAN PANTAI SAMAS, BANTUL, YOGYAKARTA

INTISARI

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Lahan pasiran pantai memiliki keterbatasan berupa rendahnya kandungan bahan organik, kemampuan menyimpan air, serta tingginya laju infiltrasi sehingga memerlukan pengelolaan melalui pemberian amandemen organik dan penerapan sistem irigasi mikro. Penelitian ini bertujuan mengevaluasi pengaruh amandemen kohe ayam dan sistem irigasi mikro terhadap sifat fisik tanah pasiran Pantai Samas, Bantul, Daerah Istimewa Yogyakarta. Penelitian menggunakan Rancangan Acak Kelompok (RAK) dua faktor, yaitu sistem irigasi (kabut dan curah) serta dosis amandemen kohe ayam (0, 2, 4, dan 6 kg per bedengan) dengan empat ulangan. Parameter yang diamati meliputi suhu tanah, kadar lengas, berat volume, berat jenis, porositas, dan kadar air tanah. Data dianalisis menggunakan Two-Way ANOVA pada taraf nyata 5% dan dilanjutkan uji Tukey HSD apabila terdapat pengaruh nyata. Hasil penelitian menunjukkan bahwa pemberian amandemen kohe ayam meningkatkan kadar lengas dan kadar air tanah serta menurunkan berat volume, terutama setelah dua periode tanam. Sebaliknya, berat jenis dan porositas belum menunjukkan perubahan yang konsisten. Sistem irigasi mikro memengaruhi dinamika suhu tanah dan kadar lengas, tetapi tidak berpengaruh nyata terhadap sebagian besar sifat fisik tanah. Secara keseluruhan, amandemen kohe ayam memberikan pengaruh lebih besar terhadap perbaikan sifat fisik tanah dibandingkan sistem irigasi mikro, dengan dosis 6 kg per bedengan menunjukkan kecenderungan menghasilkan kondisi fisik tanah yang lebih baik.

Kata kunci: amandemen kotoran hewan ayam, irigasi mikro, lahan pasiran pantai, sifat fisik tanah.

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EVALUATION OF THE IMPACT OF CHICKEN MANURE AMENDMENT AND MICRO IRRIGATION SYNERGY ON THE PHYSICAL PROPERTIES OF SANDY SOIL IN SAMAS BEACH, BANTUL, YOGYAKARTA

ABSTRACT

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Coastal sandy soils are characterized by low organic matter content, limited water-holding capacity, and high infiltration rates, making appropriate soil management through the application of organic amendments and micro-irrigation systems essential. This study aimed to evaluate the effects of chicken manure amendment and micro-irrigation systems on the physical properties of coastal sandy soil at Samas Beach, Bantul, Special Region of Yogyakarta. The experiment employed a two-factor Randomized Complete Block Design (RCBD), consisting of two irrigation systems (mist and sprinkler irrigation) and four rates of chicken manure amendment (0, 2, 4, and 6 kg per plot), with four replications. The observed parameters included soil temperature, soil moisture, bulk density, particle density, soil porosity, and gravimetric soil water content. Data were analyzed using two-way analysis of variance (ANOVA) at a 5% significance level, followed by Tukey's HSD test when significant differences were detected. The results showed that the application of chicken manure amendment increased soil moisture and gravimetric soil water content while reducing bulk density, particularly after two planting periods. In contrast, particle density and soil porosity did not show consistent changes across treatments. The micro-irrigation systems influenced soil temperature and soil moisture dynamics but did not significantly affect most soil physical properties. Overall, chicken manure amendment contributed more to improving the physical properties of the coastal sandy soil than the micro-irrigation systems, with the application rate of 6 kg per plot showing the greatest potential for improving soil physical conditions.

Keywords: *chicken manure amendment, micro-irrigation, coastal sandy soil, soil physical properties*