

ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh aplikasi pupuk kandang kambing dan biochar sekam padi terhadap pertumbuhan tanaman kelapa sawit (*Elaeis guineensis* Jacq.) fase Tanaman Belum Menghasilkan (TBM). Penelitian dilaksanakan di Kebun Praktik Politeknik Negeri Lampung selama empat bulan. Penelitian menggunakan Rancangan Acak Kelompok (RAK) dengan empat perlakuan, yaitu P0 (kontrol), P1 (pupuk kandang kambing), P2 (biochar sekam padi), dan P3 (kombinasi pupuk kandang kambing dan biochar sekam padi), yang masing-masing diulang sebanyak empat kali sehingga diperoleh 16 satuan percobaan. Parameter yang diamati meliputi tinggi tanaman, diameter batang, jumlah pelepah, dan pH tanah. Data dianalisis menggunakan analisis ragam (ANOVA) pada taraf nyata 5%. Hasil penelitian menunjukkan bahwa pemberian pupuk kandang kambing, biochar sekam padi, maupun kombinasinya belum memberikan pengaruh yang nyata terhadap tinggi tanaman, diameter batang, jumlah pelepah, dan pH tanah. Meskipun demikian, kombinasi pupuk kandang kambing dan biochar sekam padi (P3) menunjukkan kecenderungan menghasilkan pertumbuhan vegetatif terbaik dengan tinggi tanaman mencapai 100,25 cm, diameter batang 45,36 mm, dan jumlah pelepah 13,125 helai pada akhir pengamatan. Sementara itu, perlakuan pupuk kandang kambing (P1) menghasilkan nilai pH tanah tertinggi, yaitu 5,79. Kombinasi pupuk kandang kambing dan biochar sekam padi diduga mampu memperbaiki kondisi tanah di sekitar zona perakaran melalui peningkatan ketersediaan unsur hara, kapasitas tukar kation, porositas, serta kemampuan tanah menahan air sehingga mendukung pertumbuhan tanaman. Namun, karena pupuk kandang memerlukan proses dekomposisi dan biochar bekerja secara bertahap sebagai pembenah tanah, pengaruh perlakuan belum terlihat nyata selama periode penelitian yang berlangsung selama empat bulan.

Kata kunci: biochar sekam padi, kelapa sawit, pupuk kandang kambing, pertumbuhan vegetatif, tanaman belum menghasilkan.

ABSTRACT

This study aimed to determine the effect of goat manure and rice husk biochar application on the growth of immature oil palm (*Elaeis guineensis* Jacq.). The research was conducted at the Experimental Field of the Lampung State Polytechnic for four months. The experiment employed a Randomized Complete Block Design (RCBD) consisting of four treatments: P0 (control), P1 (goat manure), P2 (rice husk biochar), and P3 (a combination of goat manure and rice husk biochar). Each treatment was replicated four times, resulting in a total of 16 experimental units. The observed parameters included plant height, stem diameter, number of fronds, and soil pH. The data were analyzed using Analysis of Variance (ANOVA) at a 5% significance level.

The results showed that the application of goat manure, rice husk biochar, and their combination did not significantly affect plant height, stem diameter, number of fronds, or soil pH. Nevertheless, the combination of goat manure and rice husk biochar (P3) tended to produce the best vegetative growth, with a plant height of 100.25 cm, a stem diameter of 45.36 mm, and 13.125 fronds at the end of the observation period. Meanwhile, the goat manure treatment (P1) resulted in the highest soil pH value of 5.79. The combination of goat manure and rice husk biochar was presumed to improve soil conditions around the root zone by increasing nutrient availability, cation exchange capacity, soil porosity, and water-holding capacity, thereby supporting plant growth. However, because goat manure requires decomposition before releasing nutrients and biochar functions gradually as a soil amendment, the effects of the treatments were not yet significant during the four-month experimental period.

Kata kunci: goat manure, immature oil palm, rice husk biochar, vegetative growth, *Elaeis guineensis* Jacq.