

INTISARI

Psamment Samas memiliki potensi sebagai lahan pertanian dengan lahan luas, datar, jarang banjir, sinar matahari melimpah, dan permukaan air dangkal tetapi memiliki kekurangan kandungan BO rendah, KPK rendah, permeabilitas tanah tinggi, kemampuan menyimpan air rendah, dan unsur hara rendah. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian pupuk kandang sapi, biochar tempurung kelapa, *Trichoderma* sp., dan Urea-ZA terhadap sifat kimia tanah, pertumbuhan dan serapan hara N, S, dan produksi tanaman bawang merah. Penelitian dilakukan di Rumah Kaca Kuningan dan pengujian laboratorium dilakukan di Laboratorium Departemen Tanah, Fakultas Pertanian, Universitas Gadjah Mada. Rancangan percobaan yang digunakan ialah Rancangan Acak Lengkap (RAL) Non Faktorial dengan 13 perlakuan dan 3 ulangan. Perlakuan menggunakan K0 = kontrol negatif, K1 = kontrol positif, S = pupuk kandang sapi (30 ton/ha), B = biochar tempurung kelapa (20 ton/ha), T = *Trichoderma* sp. (20 gr/polybag), dan N = Urea (225 kg/ha)-ZA (260 kg/ha). Data dianalisis dengan Anova dan uji HSD Tukey taraf 5%. Hasil penelitian menunjukkan bahwa beberapa perlakuan secara nyata meningkatkan parameter pH, DHL, KPK, C-Organik, P-Tersedia, K-Tersedia, N-Total, Ammonium, Nitrat, dan S-Total tanah awal. Perlakuan SB = pupuk kandang sapi + biochar tempurung kelapa memberikan hasil tertinggi pada produksi tanaman meliputi berat segar dan berat kering trubus, umbi+akar, dan total tanaman. Beberapa perlakuan secara signifikan memperbaiki parameter agronomi seperti tinggi tanaman dan jumlah daun. Perlakuan berpengaruh secara signifikan terhadap kadar N dan serapan N baik pada bagian trubus, umbi+akar. Selain itu berpengaruh pada serapan S bagian umbi+akar bawang merah. Perlakuan SB = pupuk kandang sapi + biochar tempurung kelapa menghasilkan serapan N dan S total paling tinggi.

Kata kunci : bawang merah, biochar, nitrogen, pupuk kandang, sulfur, *Trichoderma* sp.

ABSTRACT

*Psamment Samas has potential as agricultural land with wide, flat land, rarely flooded, abundant sunlight, and shallow water surface but has the disadvantages of low BO content, low KPK, high soil permeability, low water storage capacity, and low nutrient elements. This research aims to determine the effect of applying cow manure, coconut shell biochar, *Trichoderma* sp., and Urea-ZA on soil chemical properties, growth and nutrient uptake of N, S, and shallot plant production. The research was carried out in the Kuningan Greenhouse and laboratory testing was carried out at the Soil Department Laboratory, Faculty of Agriculture, Gadjah Mada University. The experimental design used was a non-factorial completely randomized design (CRD) with 13 treatments and 3 replications. Treatments used K0 = negative control, K1 = positive control, S = cow manure (30 tons/ha), B = coconut shell biochar (20 tons/ha), T = *Trichoderma* sp. (20 gr/polybag), and N = Urea (225 kg/ha)-ZA (260 kg/ha). Data were analyzed using Anova and Tukey's HSD test at 5% level. The results showed that several treatments significantly increased the parameters of pH, DHL, KPK, C-Organic, P-Available, K-Available, N-Total, Ammonium, Nitrate, and S-Total in the initial soil. SB treatment = cow manure + coconut shell biochar gave the highest results in plant production including fresh weight and dry weight of shoots, tubers + roots, and total plants. Some treatments significantly improved agronomic parameters such as plant height and leaf number. The treatment had a significant effect on N levels and N uptake in both the shoots, tubers and roots. Apart from that, it affects the S uptake of the onion tubers and roots. SB treatment = cow manure + coconut shell biochar produced the highest total N and S uptake.*

*Key words: shallots, biochar, nitrogen, manure, sulfur, *Trichoderma* sp.*