

RINGKASAN

Produksi padi sebagian besar berasal dari padi sawah. Namun, saat ini areal persawahan semakin berkurang karena adanya alih fungsi lahan sawah menjadi lahan bukan pertanian. Ekstensifikasi melalui penanaman padi gogo di ultisol dapat menjadi salah satu solusi untuk mengatasi permasalahan tersebut. Akan tetapi, terdapat beberapa permasalahan pada tanah ultisol yang sering dijumpai seperti reaksi tanah yang masam, Ca-dd, Mg-dd, dan KTK rendah, C-organik, N-total, P-tersedia, dan K-dd sedang, serta kejenuhan Al yang tergolong sangat tinggi. Oleh karena itu, diperlukan upaya untuk mengatasi permasalahan tersebut yaitu dengan melakukan penambahan bahan organik dan pemupukan nitrogen. Tujuan dari penelitian ini yaitu: (1) Mengetahui respon agronomi dan hasil padi gogo pada pemberian bahan organik di tanah ultisol. (2) Mengetahui respon agronomi dan hasil padi gogo pada pemberian pupuk nitrogen di tanah ultisol. (3) Mengetahui interaksi antara jenis bahan organik dan dosis pupuk nitrogen pada ultisol terhadap respon agronomi dan hasil tanaman padi gogo.

Penelitian ini dilaksanakan di lahan percobaan Universitas Jenderal Soedirman Desa Kedungrandu Kecamatan Patikraja, Laboratorium Ilmu Tanah, dan Laboratorium Agronomi dan Hortikultura Fakultas Pertanian Universitas Jenderal Soedirman, pada bulan Agustus 2023 sampai dengan Februari 2024. Penelitian ini dilakukan dengan menggunakan Rancangan Acak Kelompok Lengkap (RAKL) dengan pola perlakuan faktorial. Faktor yang dicoba terdiri dari dua faktor, yaitu residu bahan organik (B0: Tanpa pemberian bahan organik, B1: Bahan organik arang sekam 8 ton/ha, dan B2: Bahan organik pupuk kandang sapi 16 ton/ha) dan dosis pupuk nitrogen (N0: Tanpa pemberian pupuk N, N1: 50 kg/ha urea, N2: 100 kg/ha urea, N3: 150 kg/ha urea, dan N4: 200 kg/ha urea). Terdapat 15 kombinasi perlakuan, yang diulang sebanyak 3 kali, sehingga dibutuhkan 45 satuan percobaan, dan setiap satuan percobaan terdiri dari tiga tanaman, sehingga dibutuhkan 135 satuan percobaan. Analisis data dilakukan menggunakan analisis ragam dengan tingkat kesalahan 5%. Apabila berbeda nyata maka akan dilanjutkan menggunakan uji lanjut *Duncan Multiple Range Test* (DMRT) dengan tingkat kesalahan 5%.

Aplikasi bahan organik di tanah ultisol memberikan pengaruh yang nyata terhadap variabel pengamatan tinggi tanaman, jumlah daun, luas daun, jumlah anakan, jumlah malai, bobot kering tajuk, dan bobot gabah per rumpun. Adapun aplikasi pupuk nitrogen memberikan pengaruh yang nyata pada tinggi tanaman (umur 8, 10, dan 12 minggu setelah tanam (MST)), jumlah daun (umur 8, 10, 12 MST), luas daun (umur 6, 8, 10, 12 MST), kehijauan daun (umur 8 MST), jumlah anakan (umur 6, 8, 10, dan 12 MST), jumlah malai (umur 12 MST), bobot kering tanaman, bobot kering tajuk, bobot kering akar, dan bobot gabah per rumpun. Kemudian untuk interaksi pemberian bahan organik dan pupuk nitrogen berpengaruh nyata pada jumlah daun (umur 10 MST), jumlah anakan (umur 10 MST), jumlah malai (umur 12 MST), dan bobot 1000 gabah.

SUMMARY

Rice production mostly comes from paddy fields. However, currently the area of paddy fields is decreasing due to the conversion of paddy fields into non-agricultural land. Extensification through upland rice cultivation on ultisols can be one solution to overcome these problems. However, there are several problems in ultisol soils that are often encountered such as acidic soil reaction, low Ca-dd, Mg-dd, and CEC, moderate C-organic, N-total, P-available, and K-dd, and very high Al saturation. Therefore, efforts are needed to overcome these problems by adding organic matter and nitrogen fertilization. The objectives of this study were: (1) Knowing the agronomic response and yield of upland rice on the provision of organic materials in ultisol soil. (2) Knowing the agronomic response and yield of upland rice on the application of nitrogen fertilizer in ultisol soil. (3) Knowing the interaction between the type of organic matter and the dose of nitrogen fertilizer on ultisol on agronomic response and yield of upland rice.

This research was conducted at the experimental field of Universitas Jenderal Soedirman, Kedungrandu Village, Patikraja District, Soil Science Laboratory, and Agronomy and Horticulture Laboratory, Faculty of Agriculture, Universitas Jenderal Soedirman, from August 2023 to February 2024. This research was conducted using a Randomized Complete Group Design (RAKL) with a factorial treatment pattern. The factors tried consisted of two factors, namely residual organic matter (B0: No organic matter, B1: Husk charcoal organic matter 8 tons/ha, and B2: Cow manure organic matter 16 tons/ha) and nitrogen fertilizer dosage (N0: No N fertilizer, N1: 50 kg/ha urea, N2: 100 kg/ha urea, N3: 150 kg/ha urea, and N4: 200 kg/ha urea). There were 15 treatment combinations, which were repeated 3 times, so 45 experimental units were needed, and each experimental unit consisted of three plants, so 135 experimental units were needed. Data analysis was carried out using analysis of variance with an error rate of 5%. If significantly different, it will be continued using the Duncan Multiple Range Test (DMRT) with a 5% error rate.

The application of organic materials in ultisol soil gave a significant effect on the observation variables of plant height, number of leaves, leaf area, number of tillers, number of panicles, crown dry weight, and grain weight per clump. The application of nitrogen fertilizer gave a significant effect on plant height (age 8, 10, and 12 weeks after planting (MST)), number of leaves (age 8, 10, 12 MST), leaf area (age 6, 8, 10, 12 MST), leaf greenness (age 8 MST), number of tillers (age 6, 8, 10, and 12 MST), number of panicles (age 12 MST), plant dry weight, crown dry weight, root dry weight, and grain weight per clump. Then for the interaction of organic matter and nitrogen fertilizer significantly affected the number of leaves (age 10 weeks), the number of tillers (age 10 weeks), the number of panicles (age 12 weeks), and the weight of 1000 grains.