

## RINGKASAN

Produksi padi nasional pada dekade terakhir mengalami pelandaian produksi, dan tidak sebanding dengan meningkatnya input yang digunakan. Kondisi ini disebabkan daya dukung tanah sawah yang menurun akibat intensifikasi dengan input agrokimia dan menurunnya bahan organik tanah sawah. Bahan organik sangat penting bagi kesuburan kimia, fisika, dan biologi tanah. Pengembalian bahan organik tanah, dan aplikasi mikroba berguna sangat baik untuk meningkatkan kesuburan tanah sawah guna mendukung produksi padi. Penelitian ini untuk mengetahui pengaruh perlakuan konsorsium PGPR dan dosis pupuk kandang terhadap pertumbuhan dan hasil tanaman padi.

Penelitian dilaksanakan di lahan sawah Experimental Farm Fakultas Pertanian Universitas Jenderal Soedirman dari bulan Pebruari sampai Juli 2020. Penelitian dirancang dengan menggunakan Rancangan Acak Kelompok dengan perlakuan factorial. Faktor pertama adalah jenis konsorsium PGPR yang terdiri dari control (tanpa aplikasi PGPR), isolat R08 + isolat R11, dan isolat R08 + *Rhizobium* sp. LM-5, dan faktor kedua adalah dosis pupuk kandang yang terdiri dari 0 ton/ha, 15 ton/ha, dan 30 ton/ha. Variabel-variabel yang diamati pada penelitian ini terdiri dari panjang akar, luas daun, lebar bukaan stomata, kerapatan stomata, kadar klorofil a daun, kadar klorofil b daun, kandungan total klorofil daun, tinggi tanaman, jumlah anakan, bobot kering tanaman, panjang malai, jumlah gabah per malai, bobot 1000 biji, bobot gabah per rumpun, dan bobot gabah per petak efektif. Data yang diperoleh dianalisis menggunakan ANOVA, dan apabila berbeda nyata dilanjutkan dengan DMRT 5%.

Hasil penelitian menunjukkan bahwa aplikasi konsorsium PGPR dan dosis pupuk organik mampu meningkatkan pertumbuhan tanaman padi dilihat dari variabel panjang akar, luas daun, bobot kering tanaman, dan komponen hasil tanaman padi. Interaksi antara konsorsium PGPR dengan dosis pupuk kandang mampu meningkatkan bobot gabah per petak efektif berkisar Antara 30 persen sampai 101 persen.

## SUMMARY

*National rice production in the last decade experienced a decline in production, and was not proportional to the increase in the input used. This condition is caused by the decreasing carrying capacity of paddy fields due to intensification with agrochemical inputs and decreasing organic matter of paddy soil. Organic matter is very important for the chemical, physical, and biological soils fertility. The return of soil organic matter, and the application of beneficial microbes are very good for increasing the fertility of paddy fields to support rice production. This study was aimed to determine the effect of the PGPR consortium treatment and the dose of organic manure on the growth and yield of rice plants.*

*The research was carried out in the Experimental Farm rice field, Faculty of Agriculture, Jenderal Soedirman University from February to July 2020. The study was designed using a Randomized Block Design with factorial treatment. The first factor was the type of PGPR consortium consisting of control (without PGPR application), isolate R08 + isolate R11, and isolate R08 + Rhizobium sp. LM-5, and the second factor was the dose of organic manure consisting of 0 tons/ha, 15 tons/ha, and 30 tons/ha. The observed variables in this study consisted of root length, leaf area, stomata opening width, stomata density, leaf chlorophyll a content, leaf chlorophyll b content, total leaf chlorophyll content, plant height, number of tillers, plant dry weight, panicle length, number of grain per panicle, weight of 1000 seeds, weight of grain per clump, and weight of effective grain per plot. The data obtained were analyzed using ANOVA, and if it was significantly different, it was continued with DMRT 5%.*

*The results showed that the application of the PGPR consortium and the dose of organic fertilizer was able to increase the growth of rice plants in terms of root length, leaf area, plant dry weight, and components of rice yields. The interaction between the PGPR consortium and the dose of manure was able to increase the weight of the grain ranging from 30 percent to 101 percent.*