

## RINGKASAN

Tanaman caisim (*Brassica juncea* L.) merupakan sayuran hijau yang mengandung nilai gizi tinggi. Tingkat permintaan masyarakat terus mengalami peningkatan sehingga produktivitas tanaman caisim harus terus ditingkatkan dengan berbagai upaya salah satunya ialah pemupukan. Pengelolaan sampah organik dengan memanfaatkan biodegrator larva *Black Soldier Fly* (BSF) menjadi salah satu alternatif teknologi pengelolaan sampah dalam upaya biokonversi sampah organik menjadi kasgot yang dapat digunakan sebagai pupuk organik tanaman budidaya. Pupuk kandang sapi mengandung unsur N, P, dan K yang dibutuhkan oleh tanaman. Selain itu juga dapat memperbaiki sifat fisik tanah, diantaranya kemantapan agregat, total ruang pori, dan daya ikat air. Tujuan dari penelitian untuk mengetahui pengaruh pupuk kasgot dan pupuk kandang sapi serta mendapatkan dosis pupuk kasgot dan pupuk kandang sapi terhadap pertumbuhan dan hasil tanaman caisim.

Penelitian dilaksanakan di *Screen House Experimental Farm*, Laboratorium Ilmu Tanah, Laboratorium Agronomi dan Hortikultura Fakultas Pertanian, Universitas Jenderal Soedirman, Purwokerto. Pelaksanaan penelitian dilakukan pada bulan Januari 2023 sampai dengan bulan Agustus 2023. Rancangan yang digunakan adalah Rancangan Acak Kelompok Lengkap (RAKL) dengan 2 faktor perlakuan dan 3 ulangan. Faktor pertama dosis pupuk kasgot (K), yaitu K0 (kontrol), K1 (5 ton/ha), dan K2 (10 ton/ha), sedangkan faktor kedua dosis pupuk kandang sapi (S), yaitu S0 (kontrol), S1 (5 ton/ha), dan S2 (10 ton/ha). Variabel yang diamati terdiri dari tinggi tanaman, jumlah daun, luas daun, kehijauan daun, volume akar, bobot segar tanaman, bobot tanaman kering, bobot akar basah, bobot akar kering, suhu, kelembaban, dan intensitas cahaya. Data yang diperoleh dari hasil penelitian dianalisis secara statistik menggunakan uji ANOVA pada taraf kesalahan 5% untuk mengetahui pengaruh perlakuan. Apabila hasil analisis menunjukkan adanya keragaman antar-perlakuan, maka dilanjutkan dengan uji lanjut *Duncan's Multiple Range Test* (DMRT) pada taraf kesalahan 5%.

Hasil penelitian menunjukkan bahwa pemberian pupuk kasgot dapat meningkatkan tinggi tanaman, jumlah daun, luas daun, dan kehijauan daun sedangkan perlakuan pupuk kandang sapi tidak meningkatkan pada semua variabel pengamatan. Aplikasi dosis kasgot 10 ton/ha memberikan hasil terbaik pada variabel tinggi tanaman yaitu 36,84cm, memberikan hasil terbaik pada variabel jumlah daun 4,7 helai, memberikan hasil terbaik pada luas daun yaitu 141,09 cm<sup>2</sup>, dan memberikan pengaruh terbaik terhadap kehijauan daun yaitu 39,41. Perlakuan kombinasi antara pupuk kasgot dan pupuk kandang sapi terdapat interaksi pada variabel jumlah daun dan kehijauan daun. Kombinasi terbaik untuk jumlah daun adalah pupuk kasgot 10 ton/ha dan pupuk kandang sapi 10 ton/ha memberikan hasil 6,11 helai. Kombinasi terbaik untuk kehijauan daun adalah pupuk kasgot 10 ton/ha dan pupuk kandang sapi 10 ton/ha memberikan hasil 42,31.

## ***SUMMARY***

Caisim plants (*Brassica juncea* L.) are green vegetables with high nutritional value. The demand for them continues to increase, so caisim plant productivity must be continuously improved through various efforts, one of which is fertilization. Organic waste management utilizing Black Soldier Fly (BSF) larvae biodegraders is one alternative technology for managing waste in the effort to convert organic waste into compost that can be used as organic fertilizer for cultivated plants. Cattle manure contains N, P, and K elements needed by plants. Additionally, it can improve soil physical properties, including aggregate stability, total pore space, and water retention capacity. The aim of the research is to determine the effect of maggot frass and cattle manure fertilizer, as well as to determine the doses of maggot frass and cattle manure fertilizer on the growth and yield of caisim plants.

The research was conducted at the Screen House Experimental Farm, Soil Science Laboratory, Agronomy and Horticulture Laboratory, Faculty of Agriculture, Jenderal Soedirman University, Purwokerto. The research was carried out from January 2023 to August 2023. The design used was a Completely Randomized Block Design (CRBD) with 2 treatment factors and 3 replications. The first factor was the dose of maggot frass (K), namely K0 (control), K1 (5 tons/ha), and K2 (10 tons/ha), while the second factor was the dose of cattle manure fertilizer (S), namely S0 (control), S1 (5 tons/ha), and S2 (10 tons/ha). The observed variables consisted of plant height, number of leaves, leaf area, leaf greenness, root volume, fresh plant weight, dry plant weight, wet root weight, dry root weight, temperature, humidity, and light intensity. The data obtained from the research results were statistically analyzed using ANOVA at a 5% error level to determine treatment effects. If the analysis results show variations among treatments, then it is followed by Duncan's Multiple Range Test (DMRT) at a 5% error level.

The results showed that the application of maggot frass could increase plant height, number of leaves, leaf area, and leaf greenness, while the cattle manure fertilizer treatment did not increase in all observed variables. The application of 10 tons/ha compost dosage gave the best results in plant height variable, which was 36.84 cm, provided the best results in the number of leaves variable, which was 4.7 leaves, provided the best results in leaf area variable, which was 141.09 cm<sup>2</sup>, and had the best effect on leaf greenness, which was 39.41. There was an interaction between maggot frass and cattle manure fertilizer in the number of leaves and leaf greenness variables. The best combination for the number of leaves was maggot frass 10 tons/ha and cattle manure fertilizer 10 tons/ha, resulting in 6.11 leaves. The best combination for leaf greenness was maggot frass 10 tons/ha and cattle manure fertilizer 10 tons/ha, resulting in 42.31.