

RINGKASAN

Jagung manis memiliki peluang pasar besar serta permintaan yang meningkat. Salah satu upaya untuk meningkatkan produksi jagung manis dengan pemanfaatan tanah ultisol dan penambahan bahan organik seperti kasgot. Namun, kasgot memiliki kekurangan seperti kandungan unsur hara yang rendah. Kasgot memiliki kandungan N 1,90% dan C/N ratio 10,57 yang hasilnya di bawah standar Kepmentan RI No. 261/KPTS/SR.310/M/4/2019. Terkait kekurangan kasgot, dapat diatasi dengan penambahan biochar, legum kacang, dan zeolit. Biochar untuk meningkatkan C-organik. Legum kacang tanah untuk meningkatkan kandungan N. Zeolit untuk meningkatkan serapan hara N dan K. Tujuan penelitian ini untuk mengetahui pengaruh formula kasgot yang diperkaya biochar dan zeolit terhadap pertumbuhan dan hasil tanaman jagung manis.

Penelitian dilakukan di Laboratorium Agronomi dan Hortikultura serta Laboratorium Kebun Percobaan Fakultas Pertanian Universitas Jenderal Soedirman mulai bulan September 2023 hingga April 2024. Rancangan yang digunakan adalah rancangan acak kelompok (RAK) non faktorial dengan tujuh perlakuan dan ulangan sebanyak empat kali. Perlakuan yang dicoba terdiri dari K0/kontrol negatif (air saja), K1/kontrol positif (NPK: urea 4,9 g; KCl 1,4 g dan SP-36 1,4 g) K2 (kasgot 100%), K3 (kasgot 88% + biochar 5% + legum 2% + zeolit 5%), K4 (kasgot 76% + biochar 10% + legum 4% + zeolit 10%), K5 (kasgot 64% + biochar 15% + legum 6% + zeolit 15%), K6 (kasgot 52% + biochar 20% + legum 8% + zeolit 20%). Data hasil dianalisis dengan menggunakan ANOVA, jika hasil didapat menunjukkan berbeda nyata, maka dilanjutkan uji *Duncan Multiple Range Test* pada taraf kesalahan 5%.

Hasil penelitian menunjukkan formula kasgot mampu meningkatkan komponen karakteristik pertumbuhan jagung manis seperti: tinggi tanaman pada umur 2 MST dengan nilai tertinggi pada perlakuan kasgot 100% sebesar 27,59 cm; jumlah daun pada umur 6 MST dengan nilai tertinggi pada perlakuan kasgot 100% sebesar 6,40 helai; luas daun umur 6 MST pada perlakuan kasgot 100% dengan nilai 111,96 cm²; diameter umur 2 MST perlakuan K5 sebesar 0,29 mm; diameter umur perlakuan K2 sebesar 8,88 mm; kehijauan daun pada umur 2MST pada perlakuan K3, K4 dan K5 sebesar 3,02; kehijauan daun pada umur 6 MST perlakuan K6 sebesar 4,28; bobot brangkasan kering umur 2 MST pada perlakuan K5 dan K6 masing-masing sebesar 0,18g; dan bobot brangkasan kering umur 4 MST perlakuan K4 sebesar 0,47g. Berdasarkan analisis yang sudah dilakukan di Laboratorium BPTP Semarang menunjukkan bahwa perlakuan Kasgot 100% memiliki C-organik lebih tinggi daripada perlakuan lain sebesar 25,49%. Formula kasgot perlakuan Kasgot 100% juga memiliki nilai K₂O tertinggi dibandingkan perlakuan lain yaitu sebesar 1,73% Demikian pula dengan N-total pada perlakuan K2 memiliki nilai lebih tinggi dibandingkan dengan perlakuan lain yaitu sebesar 1,92. Nilai pH.H₂O juga menunjukkan angka yang stabil berkisar di 7,52. Namun formula kasgot belum mampu meningkatkan diameter tongkol dengan kelobot dan tanpa kelobot, panjang tongkol dengan kelobot dan tanpa kelobot, serta bobot tongkol dengan kelobot dan tanpa kelobot.

SUMMARY

Sweet corn has a huge market opportunity as well as an increasing demand. One of the efforts to increase the production of sweet corn is the use of ultisol soil and the addition of organic matter such as maggot frass. However, maggot frass has drawbacks such as low nutrient content. Kasgot has a N content of 1.90% and a C/N ratio of 10.57 which results are below the standard of the Ministry of Agriculture of the Republic of Indonesia No. 261/KPTS/SR.310/M/4/2019. Regarding the shortage of maggot frass, it can be overcome by adding biochar, legumes, and zeolite. Biochar to increase C-organic. Peanut legumes to increase the content of N. Zeolite to increase the absorption of N and K nutrients.

The research was conducted at the Agronomy and Horticulture Laboratory and the Experimental Garden Laboratory, Faculty of Agriculture, Jenderal Soedirman University, from September 2023 to April 2024. The design used was a non-factorial randomized block design (RAK) with seven treatments and four replications. The treatments tried consisted of K0/negative control (water only), K1/positive control (NPK: urea 4.9 g; KCl 1.4 g; and SP-36 1.4 g), K2 (maggot frass 100%), K3 (maggot frass 88% + biochar 5% + legumes 2% + zeolite 5%), K4 (maggot frass 76% + biochar 10% + legumes 4% + zeolite 10%), K5 (maggot frass 64% + biochar 15% + legumes 6% + zeolite 15%), and K6 (maggot frass 52% + biochar 20% + legumes 8% + zeolite 20%). The resulting data was analyzed using ANOVA; if the results obtained showed significant differences, then the Duncan Multiple Range Test was continued at an error level of 5%.

The results showed that the maggot frass formula was able to increase the components of sweet corn growth characteristics such as: plant height at the age of 2 MST with the highest value at 100% casgot treatment of 27.59 cm; the number of leaves at the age of 6 MST with the highest value in 100% kasgot treatment was 6.40 pieces; leaf area aged 6 MST at 100% casgot treatment with a value of 111.96 cm²; the diameter of age 2 MST of K5 treatment is 0.29 mm; the diameter of the K2 treatment age is 8.88 mm; leaf greenness at the age of 2MST in K3, K4 and K5 treatment is 3.02; the greenness of leaves at the age of 6 MST for K6 treatment is 4.28; the weight of dry bracts aged 2 MST in K5 and K6 treatment was 0.18g, respectively; and the weight of dry straw at the age of 4 MST with K4 treatment was 0.47g. Based on the analysis that has been carried out at the BPTP Semarang Laboratory, it shows that the 100% maggot frass treatment has a higher C-organic than other treatments of 25.49%. The maggot frass formula of the 100% Kasgot treatment also had the highest K₂O value compared to other treatments, which was 1.73%. Similarly, the N-total in the K2 treatment had a higher value compared to other treatments, which was 1.92. The pH.H₂O value also showed a stable number around 7.52. However, the kasgot formula has not been able to increase the diameter of the cob with and without the cob, the length of the cob with and without the cob, and the weight of the cob with and without the cob.