

## RINGKASAN

Jagung manis merupakan komoditas pertanian yang cukup penting dalam tatanan pangan di Indonesia. Inceptisol menjadi salah satu lahan kering yang potensial untuk dijadikan lahan pertanian jagung. Namun, Inceptisol memiliki kelemahan seperti halnya kandungan unsur hara N dan bahan organik yang rendah. Pupuk anorganik seperti pupuk nitrogen dapat digunakan dalam meningkatkan kandungan unsur hara N karena mampu menyediakan unsur hara dengan cepat. Pemberian bahan organik seperti kasgot juga penting dilakukan untuk meningkatkan kesuburan tanah. Kandungan unsur hara N dan C/N rasio kasgot yang cukup rendah, perlu dilakukan adanya pengkayaan kasgot menggunakan zeolit sebagai bahan pengikat nitrogen sementara yang mampu membantu pengontrolan dalam pelepasan nutrisi tanaman. Penelitian ini bertujuan untuk (1) mengetahui pertumbuhan dan hasil tanaman jagung manis sebagai akibat dari pemberian N dan kasgot yang diperkaya zeolit, (2) mendapatkan dosis terbaik N dan kasgot yang diperkaya zeolit untuk meningkatkan pertumbuhan dan hasil tanaman jagung manis, (3) mengetahui pengaruh interaksi aplikasi dosis N dan kasgot yang diperkaya zeolit terhadap pertumbuhan dan hasil tanaman jagung manis.

Penelitian ini dilaksanakan di Laboratorium Agronomi dan Hortikultura, lahan percobaan Fakultas Pertanian Universitas Jenderal Soedirman, serta BPSIP Jawa Tengah. Kegiatan penelitian dilakukan pada bulan Desember 2023-April 2024. Penelitian ini menggunakan Rancangan Acak Kelompok Lengkap (RAKL) dengan 2 faktor dan 3 ulangan. Faktor pertama adalah dosis nitrogen yang terdiri dari 3 taraf yaitu N0: tanpa pemberian nitrogen, N1: 150 kg N/ha, N2: 300 kg N/ha. Faktor kedua adalah dosis kasgot dan zeolit yang terdiri dari 4 taraf perlakuan yaitu K0: tanpa pemberian kasgot, K1: kasgot 100%, K2: kasgot 95%+ zeolit 5%, K3: kasgot 90%+ zeolit 10%. Data hasil penelitian dianalisis menggunakan uji ANOVA. Jika hasil analisis menunjukkan adanya pengaruh nyata, maka dilanjutkan uji *Duncan's Multiple Range Test* (DMRT). Variabel yang diamati meliputi tinggi tanaman (cm), jumlah daun (helai), luas daun (cm<sup>2</sup>), kehijauan daun (unit), bobot kering tanaman (g), bobot tongkol berkelobot (g), bobot tongkol tanpa kelobot (g), panjang tongkol berkelobot (cm), panjang tongkol tanpa kelobot (cm), diameter tongkol berkelobot (mm), diameter tongkol tanpa kelobot (mm), hasil per petak (kg/petak), dan hasil per hektar (ton/ha).

Hasil penelitian menunjukkan bahwa dosis nitrogen berpengaruh terhadap tinggi tanaman, jumlah daun, luas daun, kehijauan daun, bobot kering tanaman, bobot tongkol berkelobot, bobot tongkol tanpa kelobot, panjang tongkol berkelobot, panjang tongkol tanpa kelobot, diameter tongkol berkelobot, diameter tongkol tanpa kelobot, hasil per petak, dan hasil per hektar. Dosis kasgot diperkaya zeolit serta interaksi antara dosis nitrogen dan dosis kasgot yang diperkaya zeolit tidak berpengaruh terhadap semua variabel pengamatan. Dosis nitrogen 150 kg/ha menghasilkan hasil jagung manis terbaik sebesar 4,04 kg/ha.

## SUMMARY

Sweet corn is an agricultural commodity of great importance to Indonesia's food system. Inceptisol is one of the dry lands that has the potential to be used as corn farming land. However, Inceptisol has weaknesses such as low N nutrient content and organic matter. Inorganic fertilizers such as nitrogen fertilizer can be used to increase the N nutrient content because they are able to provide nutrients quickly. The addition of organic materials such as maggot frass is also important to increase soil fertility. The N nutrient content and C/N ratio of maggot frass are quite low, it is necessary to enrich maggot frass using zeolite as a temporary nitrogen fixing material which can help control the release of plant nutrients. This research aimed to (1) determine the growth and yield of sweet corn plants as a result of applied N and maggot frass enriched with zeolite, (2) get the best dose of N and maggot frass enriched with zeolite to increase the growth and yield of sweet corn plants, (3) determine the effect of the interaction of N doses and zeolite-enriched maggot frass on the growth and yield of sweet corn plants.

This research was carried out at the Agronomy and Horticulture Laboratory, experimental field at the Faculty of Agriculture, Jenderal Soedirman University, and BPSIP Central Java. This research was held on December 2023-April 2024. The design used a Randomized Completely Block Design (RCBD) with factorial pattern and repeated three times. The first factor was the nitrogen dose, N0: without nitrogen application, N1: 150 kg N/ha, N2: 300 kg N/ha. The second factor was the dosage of maggot frass and zeolite, K0: without giving maggot frass, K1: maggot frass 100%, K2: maggot frass 95%+ zeolite 5%, K3: maggot frass 90%+ zeolite 10%. The research data were analyzed using the ANOVA, if there was a significant different, continued with Duncan's Multiple Range Test (DMRT). Observed variables included plant height (cm), number of leaves (strands), leaf area (cm<sup>2</sup>), leaf greenness (units), dry plant weight (g), weight of cobs with husks (g), weight of cobs without husks (g), length of husked cobs (cm), length of cobs without husks (cm), diameter of husked cobs (mm), cob diameter without husks (mm), yield per plot (kg/plot), and yield per hectare (tons/ha).

The results showed that the dose of nitrogen had an effect on plant height, number of leaves, leaf area, leaf greenness, dry plant weight, weight of cobs with husks, weight of cobs without husks, length of cobs with husks, length of cobs without husks, diameter of cobs with husks, diameter of cobs without husks, yield per plot, and yield per hectare. All of the variables that were observed were unaffected by either the zeolite-enriched maggot frass dose or the interaction between the zeolite-enriched maggot frass dose and the nitrogen dose. A nitrogen dose of 150 kg/ha produced the best sweet corn yield of 4,04 tons/ha.