

## RINGKASAN

Penelitian ini dilaksanakan di lahan Percobaan Fakultas Pertanian Universitas Islam Sumatera Utara, Jln. Karya Wisata, Kelurahan Gedung Johor, Kecamatan Medan Johor, Kota Madya Medan, Provinsi Sumatera Utara Pada Ketinggian tempat  $\pm$  48 mdpl, dengan Topografi datar. Penelitian ini dimulai pada Bulan Oktober 2024 sampai Januari 2025.

Penelitian ini dibimbing oleh Ibu Ir. Mindalisma, M.M. sebagai Ketua Pembimbing dan Ibu Ir. Ratna Mauli Lubis, M.P. selaku Anggota Komisi Pembimbing. Penelitian ini bertujuan untuk mengetahui pengaruh penggunaan mulsa organik terhadap pertumbuhan dan produksi jagung manis. Mengetahui pengaruh pemberian pupuk anorganik terhadap pertumbuhan dan produksi jagung manis. Mengetahui interaksi antara penggunaan mulsa organik dan pemberian pupuk anorganik terhadap pertumbuhan dan produksi. Penelitian menggunakan Rancangan Acak Kelompok (RAK) yang terdiri dari 2 faktor perlakuan, yaitu : Faktor pertama menggunakan mulsa organik (M) sebagai faktor pertama yang terdiri dari 4 taraf perlakuan, yaitu :  $M_0$  = Kontrol (Tanpa Perlakuan);  $M_1$  = Jerami Padi = 5 ton/Ha = 2 kg/plot;  $M_2$  = Sekam Padi = 5 ton/Ha = 2 kg/plot;  $M_3$  = Biochar = 5 ton/Ha = 2 kg/plot. Faktor kedua menggunakan pupuk anorganik (P) sebagai faktor kedua yang terdiri dari 4 taraf perlakuan, yaitu :  $P_0$  = Kontrol (Tanpa Perlakuan);  $P_1$  = Pupuk Kandang Kambing = 5 ton/Ha = 2 kg/plot;  $P_2$  = TSP = 335 kg/Ha = 134 g/plot, Urea = 250 kg/Ha = 100 g/plot, KCl = 250 kg/Ha = 100 g/plot;  $P_3$  = NPK Mutiara 16-16-16 = 300 kg/Ha = 120 g/plot. Variabel pengamatan yang terdiri dari tinggi tanaman, jumlah daun, Panjang tongkol, diameter tongkol, berat pertongkol dengan kelobot, berat tongkol tanpa kelobot, jumlah baris biji.

Berdasarkan hasil analisis menunjukkan bahwa penggunaan mulsa tidak berpengaruh terhadap peningkatan tinggi tanaman, jumlah daun, dan diameter batang pada tanaman jagung manis. Perlakuan terbaik terdapat pada perlakuan mulsa jerami padi. Perlakuan pemupukan berpengaruh terhadap tinggi tanaman, tetapi tidak berpengaruh terhadap jumlah daun, dan diameter batang. Perlakuan terbaik terdapat pada perlakuan pupuk tunggal. Interaksi perlakuan mulsa dengan pemupukan berpengaruh terhadap tinggi tanaman, tetapi tidak berpengaruh terhadap jumlah daun, dan diameter batang. Perlakuan terbaik terdapat pada interaksi antara jerami padi dengan pupuk tunggal.

**Kata Kunci :** Tanaman Jagung Manis, Mulsa, Jerami Padi, Sekam Padi, Biochar,

Pupuk NPK, TSP, Urea, KCl, Pertumbuhan dan Produksi.

## SUMMARY

*This research was conducted at the Experimental Field of the Faculty of Agriculture, Islamic University of North Sumatra, Jln. Karya Wisata, Gedung Johor Village, Medan Johor District, Medan City, North Sumatra Province, at an elevation of approximately 48 meters above sea level, with a flat topography. The research was carried out from October 2024 to January 2025.*

*This research was supervised by Ir. Mindalisma, MM., as the Principal Supervisor, and Ir. Ratna Mauli Lubis, M.P., as a Member of the Supervisory Committee. The objectives of this study were to: (1) determine the effect of organic mulch application on the cultivation of sweet corn during the vegetative phase; (2) evaluate the impact of inorganic fertilizer application on sweet corn cultivation in the vegetative phase; (3) analyze the interaction between the use of organic mulch and inorganic fertilizers on the growth of sweet corn during the vegetative phase; and (4) assess the decomposition rate of organic carbon materials and its effect on the growth of sweet corn plants. The research was conducted using a Randomized Complete Block Design (RCBD) with two treatment factors. The first factor was the use of organic mulch (M), consisting of four treatment levels:  $M_0$  = Control (No Treatment);  $M_1$  = Rice Straw at 5 tons/ha = 2 kg/plot;  $M_2$  = Rice Husk at 5 tons/ha = 2 kg/plot; and  $M_3$  = Biochar at 5 tons/ha = 2 kg/plot. The second factor was the use of inorganic fertilizer (P), which included four treatment levels:  $P_0$  = Control (No Treatment);  $P_1$  = Goat Manure at 5 tons/ha = 2 kg/plot;  $P_2$  = TSP at 335 kg/ha = 134 g/plot, Urea at 250 kg/ha = 100 g/plot, and KCl at 250 kg/ha = 100 g/plot; and  $P_3$  = NPK Mutiara 16-16-16 at 300 kg/ha = 120 g/plot. The observed variables included plant height, number of leaves, stem diameter.*

*Based on the results of the analysis, the use of mulch did not significantly affect the increase in plant height, number of leaves, or stem diameter in sweet corn plants. The best treatment was found in the rice straw mulch application. Fertilizer application had a significant effect on plant height but did not affect the number of leaves or stem diameter. The best result was obtained from the single fertilizer treatment. The interaction between mulch and fertilizer treatment influenced plant height but had no significant effect on the number of leaves or stem diameter. The best interaction was found between rice straw mulch and single fertilizer application.*

**Keywords:** *Sweet Corn, Mulch, Rice Straw, Rice Husk, Biochar, NPK Fertilizer, TSP, Urea, KCl, Growth and Yield.*