

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 m dpl, dengan Topografi datar. Penelitian ini dimulai pada Bulan Oktober 2024 sampai Januari 2025.

Penelitian ini dibimbing oleh Ibu Dr. Ratna Mauli Lubis, M.P. sebagai Ketua Pembimbing dan Ibu Ir. Rahmawati, M.P. selaku Anggota Komisi Pembimbing. Penelitian ini bertujuan untuk mengetahui pengaruh penggunaan mulsa organik terhadap budidaya tanaman jagung manis di fase vegetativ. Mengetahui pengaruh pemberian pupuk anorganik terhadap budidaya tanaman jagung manis di fase vegetativ. Mengetahui interaksi antara penggunaan mulsa organik dan pemberian pupuk anorganik terhadap budidaya jagung manis di fase vegetativ. Mengetahui laju dekomposisi bahan C-Organik terhadap pertumbuhan tanaman jagung manis. 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, diameter batang, dan C-Organik.

Berdasarkan hasil analisis menunjukkan bahwa penggunaan mulsa tidak berpengaruh nyata terhadap peningkatan tinggi tanaman, jumlah daun, dan diameter batang pada tanaman jagung manis. Perlakuan terbaik terdapat pada perlakuan mulsa jerami padi. Perlakuan pemupukan berpengaruh nyata 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 nyata terhadap tinggi tanaman, tetapi tidak berpengaruh terhadap jumlah daun, dan diameter batang. Perlakuan terbaik terdapat pada interaksi antara jerami padi dengan pupuk tunggal. C-Organik secara konsisten menunjukkan kestabilan dan efektivitasnya dalam mempertahankan kualitas tanah dengan perlakuan jerami padi dan pupuk kandang kambing.

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, located on Karya Wisata Street, Gedung Johor Subdistrict, Medan Johor District, Medan City, North Sumatra Province. The site is situated at an altitude of approximately 48 meters above sea level, with flat topography. The study was carried out from October 2024 to January 2025.

This research was supervised by Dr. Ratna Mauli Lubis, M.P. as the principal advisor, and Ir. Rahmawati, M.P. as a member of the advisory committee. The purpose of this study was to examine the effects of organic mulch application on the cultivation of sweet corn during the vegetative phase; to determine the effect of inorganic fertilizer application on the cultivation of sweet corn during the vegetative phase; to assess the interaction between the use of organic mulch and inorganic fertilizer on sweet corn cultivation during the vegetative phase; and to determine the rate of organic C-material decomposition in relation to sweet corn plant growth. The research employed a Randomized Complete Block Design (RCBD) consisting of two treatment factors. The first factor was organic mulch (M), which included four treatment levels: M_0 = Control (No Treatment); M_1 = Rice Straw = 5 tons/ha = 2 kg/plot; M_2 = Rice Husk = 5 tons/ha = 2 kg/plot; M_3 = Biochar = 5 tons/ha = 2 kg/plot. The second factor was inorganic fertilizer (P), which also included four treatment levels: P_0 = Control (No Treatment); P_1 = Goat Manure = 5 tons/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. The observed variables included plant height, number of leaves, stem diameter, and organic C content.

Based on the analysis results, the use of mulch did not have a significant effect on increasing plant height, number of leaves, or stem diameter in sweet corn. The best treatment was found in the rice straw mulch application. Fertilizer application had a significant effect on plant height but did not significantly affect the number of leaves or stem diameter. The best treatment was the application of single (inorganic) fertilizer. The interaction between mulch and fertilizer treatments showed a significant effect on plant height but had no significant effect on the number of leaves or stem diameter. The best interaction treatment was the combination of rice straw mulch and single fertilizer. Organic C consistently demonstrated stability and effectiveness in maintaining soil quality under the treatment of rice straw mulch combined with goat manure.

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