

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 ± 48 mdpl, 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. Fenty Maimunah Simbolon, M.P. selaku Anggota Komisi Pembimbing. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian mulsa pada budidaya tanaman jagung manis di fase vegetatif. Mengetahui pengaruh pemupukan pada budidaya tanaman jagung manis di fase vegetatif. Mengetahui interaksi antara pemberian mulsa dan pemupukan pada budidaya tanaman jagung manis di fase vegetatif. Mengetahui pengaruh penggunaan mulsa dan pemupukan terhadap neraca N di tanah inceptisol. 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, neraca hara N-Total dan pH tanah.

Berdasarkan hasil analisis menunjukkan bahwa penggunaan mulsa tidak berpengaruh terhadap pertumbuhan tanaman jagung manis di fase vegetatif tinggi tanaman, jumlah daun, dan diameter batang. Perlakuan terbaik terdapat pada M_1 . Perlakuan pemupukan hanya berpengaruh terhadap pertumbuhan tanaman jagung manis di fase vegetatif tinggi tanaman, tetapi tidak berpengaruh terhadap jumlah daun, dan diameter batang. Perlakuan terbaik terdapat pada P_2 . Interaksi perlakuan mulsa dengan pemupukan hanya berpengaruh terhadap pertumbuhan tanaman jagung manis di fase vegetatif tinggi tanaman, tetapi tidak berpengaruh terhadap jumlah daun, dan diameter batang. Perlakuan terbaik terdapat pada M_1P_2 . Pengaruh penggunaan mulsa dan pemupukan serta interaksi dari kedua perlakuan berpengaruh terhadap neraca hara N-Total dan pH tanah. Neraca hara N terbaik terdapat pada perlakuan M_1P_3 .

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 Dr. Ratna Mauli Lubis, M.P. as the Main Advisor, and Ir. Fenty Maimunah Simbolon, M.P. as a Member of the Advisory Committee. The objectives of this study were to determine: the effect of mulch application on the cultivation of sweet corn during the vegetative phase; the effect of fertilization on the cultivation of sweet corn during the vegetative phase; the interaction between mulch application and fertilization in sweet corn cultivation during the vegetative phase; and the effect of mulch and fertilization on the nitrogen balance in inceptisol soil. The study was conducted using a Randomized Block Design (RBD) with two treatment factors. The first factor was 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; M_3 = Biochar at 5 tons/ha = 2 kg/plot. The second factor was fertilizer (P), consisting of 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; 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, total nitrogen balance (N-Total), and soil pH.

Based on the analysis results, mulch application did not significantly affect the vegetative growth of sweet corn in terms of plant height, number of leaves, and stem diameter. The best mulch treatment was M_1 . Fertilization treatment only had a significant effect on plant height during the vegetative growth phase of sweet corn, but did not affect the number of leaves or stem diameter. The best fertilization treatment was P_2 . The interaction between mulch and fertilization treatments only had a significant effect on plant height during the vegetative growth phase, but had no significant effect on the number of leaves or stem diameter. The best combined treatment was M_1P_2 . The use of mulch, fertilization, and their interaction significantly affected the total nitrogen (N-Total) balance and soil pH. The best nitrogen balance was found in the M_1P_3 treatment.

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