RINGKASAN

Penelitian ini dilaksanakan di Lahan Fakultas Pertanian Universitas Islam Sumatera Utara, Jln. Karya Wisata, Gedung Johor Kecamatan Medan Johor Kota Madya Medan, Provinsi Sumatera Utara dengan ketinggian tempat ±25 meter dpl, dengan topografi datar. Penelitian ini dilaksanakan pada bulan Oktober 2024 sampai dengan selesai.

Penelitian ini dibimbing oleh Bapak Dr. Ir. Muhammad Rizwan, M.P. sebagai Ketua Pembimbing dan Ibu Ir. Fenty Maimunah Simbolon, M.P. selaku Anggota Komisi Pembimbing. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian pupuk organik Sokom terhadap pertumbuhan dan produksi tanaman kedelai. Untuk mengetahui pengaruh pemberian *Rhizobium* terhadap pertumbuhan dan produksi tanaman kedelai. Untuk mengetahui interaksi antara pupuk organik Sokom dan Rhizobium terhadap pertumbuhan dan produksi tanaman kedelai. Penelitian ini menggunakan Rancangan Acak Kelompok (RAK) Faktorial dengan dua faktor yaitu: Faktor pertama yaitu pemberian pupuk organik (O) terdiri dari 4 taraf yaitu: O_0 = tanpa pemberian pupuk organik sokom, O_1= 30 ton/ha = 9 kg/plot, O_2= 25 ton/ha = 7,5 kg/plot, O_3 = 20 ton/ha = 6 kg/plot. Faktor kedua yaitu pemberian Rhizobium (R) terdiri dari 3 taraf yaitu: R_0 = (tanpa perlakuan / kontrol), R_1 = Biji di rendam larutan berisi Rhizobium 50 gr/ liter air, R_2 = Larutan Rhizobium di berikan ke tanah. Parameter yang diamati adalah tinggi tanaman, umur berbunga, jumlah polong berisi/tanaman, jumlah polong hampa/tanaman, jumlah biji/tanaman, produksi/plot.

Hasil penelitian menunjukkan bahwa pupuk organik tidak berpengaruh nyata terhadap peningkatanpertumbuhan tinggi tanaman, umur berbunga, jumlah polong berisi/tanaman, jumlah polong hampa/tanaman, jumlah biji/tanaman, namun berpengaruh nyata terhadap produksi/plot. Pupuk hayati tidak berpengaruh nyata terhadap tinggi tanaman, jumlah polong berisi/tanaman, jumlah polong hampa/tanaman, jumlah biji/tanaman, produksi/plot, namun berpengaruh nyata terhadap umur berbunga. Interaksi antara pemberian pupuk organik dan pupuk hayati berpengaruh nyata terhadap jumlah biji/tanaman dan produksi/plot.

Kata kunci: Pupuk organik ; Rhizobium; kedelai; pertumbuhan tanaman; hasil; efek interaksi; pemupukan organik; pemupukan hayati; polong isi; produksi benih.

SUMMARY

This research was conducted at the Faculty of Agriculture, Islamic University of North Sumatra, Jln. Karya Wisata,Gedung Johor, Medan Johor Sub-district, Medan Madya City, North Sumatra Province with an altitude of ±25 meters above sea level, with flat topography. This research was conducted in October 2024 until completion.

This research was guided by Dr Ir. Muhammad Rizwan (M.P.) as Chief Supervisor, and Mrs Ir. Fenty Maimunah Simbolon as a member of the supervisory commission. The study aimed to determine the effect of Sokom organic fertiliser on the growth and production of soybean plants. It also aimed to determine the effect of Rhizobium on soybean plant growth and production. The study also aimed to determine the interaction between Sokom organic fertiliser and Rhizobium on the growth and production of soybean plants. This study used a factorial randomised group design (RGD) with two factors: The first factor is the provision of organic fertiliser (O), which consists of four levels: O0 = no Sokom organic fertiliser; O1 = 30 tonnes/ha = 9 kg/plot; O2 = 25 tonnes/ha = 7.5 kg/plot; O3 = 20 tonnes/ha = 6 kg/plot. The second factor is the provision of Rhizobium (R), consisting of three levels: R0 = no treatment/control; R1 = seeds soaked in a solution containing 50 g of Rhizobium per litre of water; and R2 = Rhizobium solution given to the soil. The parameters observed were plant height, flowering age, the number of filled pods per plant, the number of empty pods per plant, the number of seeds per plant and production per plot.

The results showed that organic fertilizer had no significant effect on increasing the growth of plant height, flowering age, number of filled pods/plant, number of empty pods/plant, number of seeds/plant, but had a significant effect on production/plot. Biofertilizer had no significant effect on plant height, number of filled pods/plant, number of empty pods/plant, number of seeds/plant, production/plot, but had a significant effect on flowering age. The interaction between organic fertilizer and biological fertilizer significantly affected the number of seeds/plant and production/plot.

Keywords: Sokorn organic fertilizer; Rhizobium; soybean; plant growth; yield; interaction effect; organic fertilization; biological fertilization; randomized block design; filled pods; seed production.