

## RINGKASAN

Kedelai (*Glycine max* (L.) Merril) sebagai salah satu tanaman pangan penghasil biji-bijian yang sangat penting karena mengandung gizi tinggi terutama protein, lemak, vitamin B1, vitamin B2, vitamin A dan vitamin D. Pupuk Organik Cair mengandung unsur hara yang dapat meningkatkan pertumbuhan tanaman. Pemberian kombinasi pupuk guano dan pupuk organik cair dapat meningkatkan untuk menyediakan unsur hara dan menjaga kestabilan mikroorganisme dalam tanah tanpa kandungan bahan kimia. Manfaat pupuk guano dan POC limbah sayur-sayuran diantaranya membantu pertumbuhan tanaman dan mengurangi terjadinya kerusakan tanah akibat penggunaan bahan kimia dan dapat mengatasi defisiensi hara lebih cepat, tidak mengalami pencucian hara dan terfiksasi oleh partikel tanah, mampu menyediakan hara secara cepat. Salah satu adalah penggunaan pupuk organik air dari limbah sayur-sayuran yang memiliki kadar Nitrogen (0,05%), Fosfor (0,04%), Kalium (0,40%) dan pupuk guano : Nitrogen (0,07), Fosfor (0,95), Kalium (0,08).

Penelitian ini dilakukan di Lahan Percobaan Fakultas Pertanian Universitas Islam Sumatera Utara, Jalan Karya Wisata, Kecamatan Medan Johor, Kota Medan, Provinsi Sumatera Utara. Tempat ini berada pada ketinggian Tempat  $\pm$  25 meter diatas permukaan laut (mdpl), dengan topografi darat. Penelitian ini dilaksanakan pada bulan Februari sampai dengan bulan Mei 2023. Penelitian ini bertujuan untuk menguji pengaruh pemberian Pupuk Guano dan Pupuk Organik Cair terhadap pertumbuhan dan produksi tanaman kedelai serta ketersediaan P pada tanah inceptisol. Penelitian ini menggunakan Rancangan Acak Kelompok (RAK) Faktorial dengan dua faktor pertama yaitu : Pupuk Guano terdiri 4 taraf yaitu : G0 = 0 ton/ha, G1 = 25gr/Polibag (5 Ton/ha), G2 = 50gr/polibag (10 ton/ha), G3 = 75gr/polibag (15 ton/ha). Faktor kedua yaitu : P0 = 0 ton/ha, P1 = 75 ml/polibag, P2 = 150 ml/polibag, P3 = 225 ml/polibag. Parameter yang diamati adalah Tinggi tanaman (cm), Jumlah Cabang Produktif, Diameter Batang, Jumlah Polong, Bobot Polong, Jumlah Biji, Bobot Biji, Bobot 100 Biji, P. tersedia Tanah. Hasil Penelitian menunjukkan Pemberian Guano berpengaruh nyata terhadap tinggi tanaman, diameter batang, jumlah cabang produktif, jumlah polong (polong), bobot polong (g), bobot biji kering (g), bobot 100 butir biji kering (g). Pemberian Pupuk guano terbaik diperoleh pada dosis 75 gr/polibag (G3). Pemberian Pupuk Organik Cair berpengaruh nyata terhadap tinggi tanaman, diameter batang, jumlah cabang produktif, jumlah polong (polong), bobot polong (g), bobot biji kering (g), bobot 100 butir biji kering (g). Pemberian pupuk organik cair terbaik diperoleh pada dosis 225 ml/polibag (P3).

Kata Kunci : *Tanaman Kedelai, Pupuk Organik Cair, Pupuk Guano.*

## SUMMARY

Soybean (*Glycine max* (L.) Merrill) is one of the most important grain-producing food crops because it contains high nutrients, especially protein, fat, vitamin B1, vitamin B2, vitamin A and vitamin D. Liquid Organic Fertilizer contains nutrients that can enhance plant growth. Giving a combination of guano fertilizer and liquid organic fertilizer can increase the supply of nutrients and maintain the stability of microorganisms in the soil without chemical content. The benefits of guano fertilizer and POC vegetable waste include helping plant growth and reducing soil damage due to the use of chemicals and being able to overcome nutrient deficiencies more quickly, not experiencing nutrient leaching and fixation by soil particles, being able to provide nutrients quickly. One is the use of water organic fertilizer from vegetable waste which has levels of Nitrogen (0.05%), Phosphorus (0.04%), Potassium (0.40%) and guano fertilizer: Nitrogen (0.07), Phosphorus (0.95), Potassium (0.08).

This research was conducted at the Experimental Field of the Faculty of Agriculture, Islamic University of North Sumatra, Jalan Karya Wisata, Medan Johor District, Medan City, North Sumatra Province. This place is located at an altitude of  $\pm 25$  meters above sea level (masl), with land topography. This research was conducted from February to May 2023. This study aimed to examine the effect of applying Guano Fertilizer and Liquid Organic Fertilizer on the growth and production of soybean plants and the availability of P in inceptisol soil. This study used a factorial randomized block design (RBD) with the first two factors, namely: Guano fertilizer consisted of 4 levels, namely: G0 = 0 tons/ha, G1 = 25gr/polibag (5 tons/ha), G2 = 50gr/polibag (10 tons) /ha, G3 = 75gr/polibag (15 tonnes/ha). The second factor is: P0 = 0 tons/ha, P1 = 75 ml/polybag, P2 = 150 ml/polibag, P3 = 225 ml/polybag. Parameters observed were plant height (cm), number of productive branches, stem diameter, number of pods, pod weight, number of seeds, weight of seeds, weight of 100 seeds, available soil P. The results showed that the application of Guano had a significant effect on plant height, stem diameter, number of productive branches, number of pods (pods), pod weight (g), dry seed weight (g), 100 dry seed weight (g). The best guano fertilizer application was obtained at a dose of 75 g/polibag (G3). Application of Liquid Organic Fertilizer significantly affected plant height, stem diameter, number of productive branches, number of pods (pods), pod weight (g), dry seed weight (g), 100 dry seed weight (g). The best liquid organic fertilizer was obtained at a dose of 225 ml/polibag (P3).

Keywords : *Soybean Plant, Liquid Organic Fertilizer, Guano Fertilizer.*