

## ABSTRAK

Ultisol memiliki potensi yang besar untuk pemanfaatan lahan pertanian dalam meningkatkan hasil tanaman, namun Ultisol memiliki beberapa kendala yaitu kemasaman dan kejenuhan Al yang tinggi, kandungan hara dan bahan organik rendah, serta tanah peka terhadap erosi. Salah satu upaya untuk memperbaiki sifat fisika Ultisol yaitu dengan cara penambahan bahan organik. Pupuk cair lebih cepat meresap ke dalam tanah dan cepat digunakan oleh tanaman serta tidak merusak tanah dan tanaman. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian pupuk cair batang pisang terhadap beberapa sifat fisika tanah (berat volume, total ruang pori, kemantapan agregat dan persentase agregat terbentuk) Ultisol dan hasil kedelai (*Glycine max L*). Penelitian ini menggunakan Rancangan Acak Kelompok (RAK) dengan 6 perlakuan dan 4 kelompok. Perlakuan yang digunakan dalam penelitian ini yaitu P<sub>0</sub> = tanpa pupuk cair batang pisang (kontrol); P<sub>1</sub> = pupuk cair batang pisang 7.288 L/ha; P<sub>2</sub> = pupuk cair batang pisang 10.413 L/ha; P<sub>3</sub> = pupuk cair batang pisang 13.383 L/ha; P<sub>4</sub> = pupuk cair batang pisang 16.663 L/ha; P<sub>5</sub> = pupuk cair batang pisang 19.788 L/ha. Ukuran petak percobaan 3 m x 2 m dengan jarak tanam 40 cm x 20 cm. Variabel yang diamati yaitu kandungan bahan organik, berat volume tanah, total ruang pori, agregat terbentuk, kemantapan agregat, tinggi tanaman dan hasil kedelai. Data dianalisis menggunakan sidik ragam dan untuk melihat pengaruh rata-rata perlakuan dilanjutkan menggunakan uji *Duncan New Multiple Range Test* (DNMRT) taraf 5%. Hasil penelitian didapat bahwa pemberian pupuk cair batang pisang dosis P<sub>1</sub> (7.288 L/ha), P<sub>2</sub> (10.413 L/ha), P<sub>3</sub> (13.383 L/ha), P<sub>4</sub> (16.663 L/ha) dan P<sub>5</sub> (19.788 L/h) tidak berpengaruh nyata menurunkan nilai berat volume tanah serta meningkatkan bahan organik, total ruang pori, persentase agregat, kemantapan agregat, tinggi tanaman kedelai, serta pada dosis P<sub>4</sub> (16.663 L/ha) sudah dapat meningkatkan hasil kedelai.

**Kata kunci:** Pupuk Cair, Beberapa Sifat Fisika, Ultisol, Kedelai

## ABSTRACT

Ultisol has great potential for utilizing agricultural land to increase crop yields, but Ultisol has several obstacles, namely high acidity and Al saturation, low nutrient and organic matter content, and soil sensitive to erosion. One effort to improve the physical properties of Ultisol is by adding organic materials. Liquid fertilizer absorbs more quickly into the soil and is quickly used by plants and does not damage the soil and plants. This research aims to determine the effect of applying banana stem liquid fertilizer on several soil physical properties (volume weight, total pore space, aggregate stability and percentage of aggregate formed) Ultisol and soybean yield (*Glycine max L*). This research used a Randomized Block Design (RAK) with 6 treatments and 4 groups. The treatments used in this research were P0 = without banana stem liquid fertilizer (control); P1 = banana stem liquid fertilizer 7,288 L/ha; P2 = banana stem liquid fertilizer 10,413 L/ha; P3 = banana stem liquid fertilizer 13,383 L/ha; P4 = banana stem liquid fertilizer 16,663 L/ha; P5 = banana stem liquid fertilizer 19,788 L/ha. The size of the experimental plot was 3 m x 2 m with a planting distance of 40 cm x 20 cm. The variables observed were organic matter content, soil volume weight, total pore space, aggregate formation, aggregate stability, plant height and soybean yield. The data was analyzed using variance and to see the average effect of treatment, the Duncan New Multiple Range Test (DNMRT) at 5% level was used. The results of the research showed that the application of banana stem liquid fertilizer at doses P1 (7,288 L/ha), P2 (10,413 L/ha), P3 (13,383 L/ha), P4 (16,663 L/ha) and P5 (19,788 L/h) did not had a significant effect on reducing soil volume weight values and increasing organic matter, total pore space, aggregate percentage, aggregate stability, soybean plant height, and at a dose of P4 (16,663 L/ha) it can increase soybean yields.

**Keywords:** Liquid Fertilizer, Some Physical Properties, Ultisol, Soybean