

## Intisari

Pengolahan lahan pertanian intensif menggunakan alat berat menyebabkan lahan terdegradasi dan mengalami kompaksi yang berdampak pada genangan air di musim hujan, sehingga berdampak pada penurunan kualitas tanah baik secara biologi, kimia, maupun fisik yang berpengaruh ke produktivitas tanaman budidaya. Oleh karena itu, penelitian ini berjudul “pengaruh berat volume dan kadar lengas tanah terhadap pertumbuhan nanas klon GP-3 di Lampung Tengah”. Penelitian bertujuan mengetahui pengaruh berat volume tanah dengan kadar lengas tanah terhadap kadar hara tanah, kadar hara daun, pertumbuhan tanaman, dan kesehatan akar. Penelitian ini menggunakan rancangan acak lengkap (RAL) dua faktor dengan tiga ulangan yaitu berat volume tanah (BV) 1,3, 1,5 dan 1,7 g/cm<sup>3</sup> dengan kadar lengas maksimum 25%, kadar lengas maksimum 50%, kadar lengas maksimum 75%, dan kadar lengas maksimum 100%. Kombinasi faktor menghasilkan 12 perlakuan yaitu BV 1,3 dengan KLM 25%, BV 1,3 dengan KLM 50%, BV 1,3 dengan KLM 75%, BV 1,3 dengan KLM 100%, BV 1,5 dengan KLM 25%, BV 1,5 dengan KLM 50%, BV 1,5 dengan KLM 75%, BV 1,5 dengan KLM 100%, BV 1,7 dengan KLM 25%, BV 1,7 dengan KLM 50%, BV 1,7 dengan KLM 75%, dan BV 1,7 dengan KLM 100%. Data hasil penelitian selama 4 bulan dianalisis sidik ragam dengan uji lanjut tukey taraf 5%. Hasil penelitian menunjukkan bahwa perlakuan berat volume tanah 1,7 g/cm<sup>3</sup> dengan KLM 100% dan KLM 25% memiliki pertumbuhan dan perkembangan lebih lambat dibandingkan perlakuan lainnya serta memiliki indeks kesehatan akar lebih buruk. Kondisi kadar hara di tanah pada perlakuan berat volume tanah 1,7 g/cm<sup>3</sup> dengan KLM 25% menunjukan nilai lebih tinggi, sedangkan kadar hara di daun semakin rendah. Perlakuan tanah padat dengan kadar lengas maksimum 100% menyebabkan tanah tergenang dan menimbulkan gejala terhadap fisiologis tanaman nanas selama 4 BST.

Katakunci: berat volume tanah, kadar lengas tanah, nanas klon GP-3.

## **Abstract**

Intensive land cultivation using heavy equipment causes the land to be degraded so that it Intensive agricultural land processing using heavy equipment causes the land to degrade and experience compaction which has an impact on puddles of water in the rainy season, resulting in a decrease in soil quality both biologically, chemically, and physically which affects the productivity of cultivated plants. Therefore, this study entitled " the effect of soil bulk density and soil moisture on the growth of GP-3 pineapple clone in Lampung Tengah". This study aims to determine the effect of soil bulk density with soil moisture content on soil nutrient content, leaf nutrient content, plant growth, root health, and soil water loss. This study used a two-factor completely randomized design (CRD) with three replications, namely soil bulk density (BD) of 1.3, 1.5, and 1.7 g/cm<sup>3</sup> with a maximum moisture content of 25%, a maximum moisture content of 50%, maximum moisture content of 75%, and a maximum moisture content of 100%. The combination of factors resulted in 12 treatments, namely BD 1.3 with KLM 25%, BD 1.3 with KLM 50%, BD 1.3 with KLM 75%, BD 1.3 with KLM 100%, BD 1.5 with KLM 25%, BD 1.5 with KLM 50%, BD 1.5 with KLM 75%, BD 1.5 with KLM 100%, BD 1.7 with KLM 25%, BD 1.7 with KLM 50%, BD 1.7 with a KLM of 75%, and BD of 1.7 with a KLM of 100%. The research data for 4 months were analyzed for variance with the Tukey further test with a 5% significance level. The results showed that the soil bulk density treatment of 1.7 g/cm<sup>3</sup> with KLM 100% and KLM 25% had slower growth and development than other treatments and had a worse root health index. The condition of the nutrient content in the soil in the treatment of heavy soil bulk density of 1.7 g/cm<sup>3</sup> with a KLM of 25% showed a higher value, while the leaf nutrient content was lower. Treatment of solid soil with 100% maximum water content caused the soil to be flooded and caused physiological symptoms of pineapple plants for 4 months after the plant.

**Keywords:** soil bulk density, soil moisture content, GP-3 pineapple clone.