

ABSTRAK

Lahan perkebunan kelapa sawit di Indonesia mencapai 16,83 juta hektar, Provinsi Jambi pada tahun 2023 masuk kategori empat provinsi perkebunan kelapa sawit terluas di Pulau Sumatera, dengan luas 1.152.029 hektar. Tanaman kelapa sawit (*Elaeis guineensis* Jacq.) salah satu tanaman perkebunan penting di Indonesia. Desa Panca Mulya merupakan wilayah pertama kali yang mulai membudidayakan kelapa sawit pada tahun 1984. Perkebunan kelapa sawit ini berumur 3 tahun dengan kelerenghan lahan 8- 15% dan jenis tanah Inceptisol. Budidaya kelapa sawit pada umumnya dipengaruhi oleh kesesuaian lahan, kondisi lahan miring tanpa adanya upaya konservasi tanah dan air menyebabkan erosi dan aliran permukaan yang tinggi, sehingga menyebabkan kondisi tanah menurun. Salah satu metode konservasi tanah dan air pada lahan perkebunan kelapa sawit yaitu *silt pit* (rorak). Tujuan penelitian ini untuk mengevaluasi dampak penerapan *silt pit* (rorak) terhadap kemantapan agregat tanah dan pertumbuhan kelapa sawit, serta menemukan ukuran *silt pit* (rorak) yang efektif pada perkebunan kelapa sawit. Penelitian ini dilakukan dengan 5 perlakuan dan diulangi sebanyak 5 kali, sehingga terdapat 25 sampel *silt pit* (rorak). Adapun penerapan yang dilakukan dalam penelitian ini adalah R0 (tanpa perlakuan *silt pit*), R1 *Silt pit* (ukuran 120 cm x 40 cm x 30 cm), R2 *Silt pit* (ukuran 100 cm x 40 cm x 30 cm), R3 *Silt pit* (ukuran 80 cm x 40 cm x 30 cm), R4 2 *Silt pit* (ukuran 50 cm x 40 cm x 30 cm). Parameter yang diamati adalah kemantapan agregat, persen (%) agregat terbentuk, bahan organik tanah, bobot volume, total ruang pori tanah, lingkaran batang, jumlah dan panjang pelepah. Hasil penelitian menunjukkan bahwa penerapan *silt pit* (rorak) perlakuan R1 *silt pit* (ukuran 120 cm x 40 cm x 30 cm), R2 *silt pit* (ukuran 100 cm x 40 cm x 30 cm), dan R4 yaitu 2 *silt pit* (ukuran 50 cm x 40 cm x 30 cm) lebih efektif meningkatkan kandungan bahan organik tanah, menurunkan bobot volume tanah, meningkatkan total ruang pori tanah, meningkatkan agregat tanah, penambahan jumlah dan panjang pelepah, namun tidak berpengaruh terhadap lingkaran batang tanaman kelapa sawit.

Kata Kunci: *lahan, tanaman kelapa sawit, silt pit (rorak), kemantapan agregat*

ABSTRACT

Oil palm plantation land in Indonesia reaches 16.83 million hectares, Jambi Province in 2023 is categorised as the fourth largest oil palm plantation province on the island of Sumatra, with an area of 1,152,029 hectares. Oil palm (*Elaeis guineensis* Jacq.) is one of the most important plantation crops in Indonesia. Panca Mulya Village was the first area to start cultivating oil palm in 1984. This oil palm plantation is 3 years old with a land slope of 8-15% and Inceptisol soil type. Oil palm cultivation is generally influenced by land suitability, sloping land conditions without soil and water conservation efforts cause high erosion and surface flow, causing soil conditions to decline. One of the soil and water conservation methods on oil palm plantation land is *silt pit* (rorak). The purpose of this study was to evaluate the impact of *silt pit* (rorak) application on soil aggregate stability and oil palm growth, and to find the effective *silt pit* (rorak) size in oil palm plantations. This research was conducted with 5 treatments and repeated 5 times, so there were 25 *silt pit* samples. The applications carried out in this study are R0 (without *silt pit* treatment), R1 *Silt pit* (size 120 cm x 40 cm x 30 cm), R2 *Silt pit* (size 100 cm x 40 cm x 30 cm), R3 *Silt pit* (size 80 cm x 40 cm x 30 cm), R4 2 *Silt pit* (size 50 cm x

40 cm x 30 cm). The parameters observed were aggregate stability, percent (%) of aggregates formed, soil organic matter, volume weight, total soil pore space, stem circumference, number and length of fronds. The results showed that the application of silt pit (rorak) treatment R1 silt pit (size 120 cm x 40 cm x 30 cm), R2 silt pit (size 100 cm x 40 cm x 30 cm), and R4, namely 2 silt pits (size 50 cm x 40 cm x 30 cm) was more effective in increasing soil organic matter content, reducing soil volume weight, increasing total soil pore space, increasing soil aggregates, increasing the number and length of fronds, but had no effect on the stem circumference of oil palm plants.

Keywords: land, oil palm, silt pit (rorak), aggregate stability