

## ABSTRACT

Ultisols are generally characterized by low organic matter content, less stable soil structure, slow infiltration and permeability, poor aeration, low porosity so that the soil tends to be denser, slow aggregate stability resulting in increased erosion hazard, and high volume weight of soil in the subsoil. . Biochar and organic matter in the form of compost are soil enhancers that can be used to improve ultisol density. This study aims to evaluate the effect of a combination of lamtoro biocompost and coconut shell biochar. This study used a randomized block design (RBD) with a combination of lamtoro biocompost and coconut shell biochar consisting of 10 treatments and 3 groups. The size of the experimental plot was 3 m × 4 m with a spacing of 75 cm × 40 cm. This research was conducted in Tangkit Village, Sungai Gelam District, Muaro Jambi Regency, and was carried out from October to March 2023. The variables observed were soil organic matter, volume weight, total pore space, penetration resistance, plant height and maize yield. The results showed that the application of a combination of lamtoro biocompost and coconut shell biochar with the addition of ½ recommendation of inorganic fertilizer was able to reduce soil density compared to no treatment. Giving 10 tons/ha of lamtoro biocompost with 10 tons/ha of coconut shell biochar with the addition of ½ recommended inorganic fertilizer is the best treatment in increasing corn yields 21.59% - 53.26%.

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