

***Effect of Organic and Inorganic Fertilizer on the Growth and Production of
Glutinous Corn (Zea mays Ceratina) on Sandy Soil***

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ABSTRACT

Sandy soil conditions have a low level of fertility, so they are a limiting factor for the growth and development of corn plants. This study aimed to determine the effect of organic and inorganic fertilizer application and their interaction on the growth and production of glutinous corn (Zea mays ceratina) cultivated on sandy soil. The experiment was conducted in Summersari District, Jember Regency, from July to December 2025. The study used a factorial Completely Randomized Design (CRD) with two factors. The first factor was organic fertilizer in the form of cattle manure applied at four dosage levels: 0, 40.65, 81.30, and 121.95 g per polibag. The second factor was inorganic fertilizer consisting of three types: NPK 15:15:15 (subsidized), NPK 15:15:15 (unsubsidized), and NPK 16:16:16 (subsidized), each applied at an equivalent rate of 300 kg ha⁻¹. Observed variable included plant height, stem diameter, number of leaves, dry biomass, root weight, ear weight, ear length and diameter, and sweetness level. The data were analyzed using ANOVA, followed by Dunnett's test for the organic fertilizer dose factor and orthogonal contrast tests for the synthetic fertilizer dose factor. The results showed that there was no significant interaction between organic and inorganic fertilizers on all observed variable. Organic fertilizer significantly affected several growth variable, while inorganic fertilizer significantly influenced the number of leaves. The highest dose of cattle manure (121.95 g per polibag) resulted in the best plant growth performance. These results indicate that improving soil conditions through organic fertilizers is more decisive in determining the growth response of glutinous corn on sandy soil compared to different types of NPK fertilizers, so that organic fertilization plays an important role as a basis for increasing productivity.

Keywords: *glutinous corn, organic fertilizer, synthetic fertilizer, sandy soil*