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# IMPACT OF RICE HUSK BIOCHAR AND INORGANIC NITROGEN FERTILIZER COMBINATIONS ON YIELD OF MAIZE IN COASTAL SAVANNAH OF GHANA

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## ABSTRACT

The continuous soil fertility decline globally possesses a great threat to food security. Thus requiring fertilizer as well as other integrated soil fertility management options to improve the soil health and increase crop productivity. Biochar is considered a potential remedy to soil fertility loss. This study, therefore, provides a novel insight into the effects of rice husk (RHB) and N-fertilizer (urea) applications at different rates on grain yield, total above-ground biomass, and NUE of *Obatanpa* maize cultivar. The experiment was a factorial trials arranged in RCBD. Three levels of N fertilizer were applied (0, 45 and 90 kg ha<sup>-1</sup>) with and without biochar (10 t ha<sup>-1</sup>) on (*Obatanpa*) maize variety with 3 different planting dates. A total of 45 kg ha<sup>-1</sup> of P and K in the form of Triple Super Phosphate (TSP) and Potassium Chloride (KCl) respectively were applied as basal application. Results revealed that the application of inorganic Nitrogen or in a combination of biochar significantly ( $P < 0.05$ ) increased grain and biomass yields. Interaction between biochar and N fertilizer increased agronomic N efficiency at low N application rates (45N kg ha<sup>-1</sup>) for all 3 planting dates. The results from this study suggest that rice husk biochar amendment and N fertilization have the potential to enhance soil nutrient availability and increase maize yield. The combined application of 10 t ha<sup>-1</sup> BC and 45N kg ha<sup>-1</sup> (urea) fertilizer is hereby recommended as a sustainable soil fertility management option for maize production in the coastal savanna region of Ghana.



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