

IMPACT OF RICE HUSK BIOCHAR ON PRODUCTIVITY OF MAIZE IN BANGLADESH

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Executive Summary

Considering the crop-economic condition of Bangladesh motivates the rural people to produce rice husk biochar which can they produce easily by using rice husk and also use them to the crop field. Therefore, the experiment was undertaken to assess the effects of rice husk biochar on soil properties and production of maize variety SAU BHUTTA-1 in the Research field of SAU, Dhaka, Bangladesh, during the Rabi season from October 2018 to April 2019. The experiment was laid out in two factors split plot design with three replications. The experiment comprised of two factors, Factor A: Different Nitrogen doses i.e., N_0 = Control, N_1 = 50% less than recommended doses of Nitrogen, N_2 = 25% less than recommended doses of Nitrogen, N_3 = Recommended doses of Nitrogen and factor B: T_1 = Biochar, T_2 = Compost, T_3 = Control. There were 36-unit plots and the size of the plot was $2m \times 2.5m$ i.e., $5m^2$. Maize seed of SAU Hybrid VUTTA- 1 was sown as planting material. Biochar is offering multiple benefits for soil health as well as supply nutrients and it can constitute a viable option for sustainable agriculture due to its potential as a long-term sink for carbon in soil and beneficial for crops. The highest plant height (70.59, 161.68 and 240.65 cm at 30, 60 and 90 DAS, respectively), diameter of cob (15.99 cm), number of grain rows/cob (32.34), weight per ear (304.71 g), weight of 250 grains (96.47 g), grain yield (12.54 ton/ha) and total yield (25.83 ton/ha) were observed N_3T_3 (100% recommended doses of Nitrogen and control) treatment which was statistically similar to N_3T_1 , N_2T_1 and N_3T_2 . For the combine effect the highest soil p^H (6.49), organic carbon (0.70%), total nitrogen (0.1427%), Available phosphorus (202.15 ppm) and exchangeable potassium (0.1933 meq 100g-1) were recorded in N_3T_1 from which organic carbon (0.65%) and Available phosphorus (198.35 ppm) were statistically similar with N_2T_1 . From this study, it may be concluded that rice husk biochar had significant positive response for the improving growth and yield of maize and also the fertility of the postharvest soil was improved apprehensively due to application of biochar along with 75% recommended dose of Nitrogen.

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