

## Soil Quality and Yield Performance of Dry Direct Seeded *Boro* Rice in Response to Organic Amendments

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Dry direct seeding is an alternative method that allows rice cultivation using 50-60 % less irrigation water input compared to the puddle transplanted conventional irrigation system. Information about the effect of organic amendment on the yield performance of rice in this new system is scarce. The present study was conducted at farmer's field of Rajshahi district (24°75' N latitude, 90°50' E longitude, altitude 18 m) of Bangladesh to evaluate the effect of organic amendment on soil quality and yield performance of dry season (*boro*) rice. The organic amendments was done with Trichocompost (TC), Vermicompost (VC) and Mustard oil cake (MOC). Trichocompost and Vermicompost were applied 3 t ha<sup>-1</sup> while Mustard oil cake was applied 0.5 t ha<sup>-1</sup>. The treatments used for the experiment were T<sub>0</sub>=Control (no organic matter applied), T<sub>1</sub>=Trichocompost (TC) @ 3 t ha<sup>-1</sup>, T<sub>2</sub>=Vermicompost (VC) @ 3 t ha<sup>-1</sup>, T<sub>3</sub>=Mustard oil cake (MOC) @ 0.5 t ha<sup>-1</sup>, T<sub>4</sub>=Trichocompost @ 3 t ha<sup>-1</sup>+ Mustard oil cake @ 0.5 t ha<sup>-1</sup>, T<sub>5</sub>=Vermicompost @ 3 t ha<sup>-1</sup> + Mustard oil cake @ 0.5 t ha<sup>-1</sup>. All the experimental plots received inorganic fertilizers at their recommended rates. The experiment was laid out in a Randomized Complete Block Design with three replications. Data on plant height, grain yield, yield attributes and soil parameters were collected and subjected to statistical analysis; using the analysis of variance (ANOVA) technique and mean differences were adjudged by Duncan's Multiple Range Test with the help of a computer package programme Statistix10. The results revealed that the rice grain yield of BRRI dhan28 for trichocompost and vermicompost applied plots were 5.95 and 5.57 t ha<sup>-1</sup> while that for the control plot was only 4.25 t ha<sup>-1</sup>. The addition of mustard oilcake with trichocompost or vermicompost did not add any yield advantages over the compost application alone. The organic amendments did not have any significant influence on soil pH, organic matter content, bulk density, field capacity, phosphorus and potassium content. The present study concludes that yield of dry direct seeded *boro* rice can be improved by applying amendments with trichocompost or vermicompost @ 3 t ha<sup>-1</sup> in addition to inorganic fertilizers at their recommended rates.

**Keywords:** Dry direct seeding, Dry season rice, Organic amendment, Water saving technology