

RESEARCH PAPER

Influence of vermicompost and different nutrients on performance of Indian mustard [*Brassica juncea* (L.) Czern and Coss] in Typic Haplustepts

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The experiment was laid out according to Randomized Block Design with three replications. The treatments consisting of three levels of vermicompost (control, 2.5 and 5t ha⁻¹) and five levels of different nutrients (control, S @ 40kg/ha⁻¹, S @ 40kg/ha⁻¹ + iron @ 9.5kg/ha⁻¹, S @ 40kg/ha⁻¹ + zinc @ 5kg/ha⁻¹, S @ 40kg/ha⁻¹ + iron @ 9.5kg/ha⁻¹ + zinc @ 5kg/ha⁻¹) were applied to the mustard var. Bio-902 as soil application with uniform application of nitrogen, phosphorus and potassium as per recommended doses. The main findings of investigation are summarized as:- (i) The increasing levels of vermicompost application increased the plant height, number of siliquae per plant, number of seeds per siliqua, test weight, seed and stover yield as well as content and uptake of nitrogen, phosphorus, potassium, sulphur, zinc and iron in seed and stover, oil content in seed, net returns and B:C ratio as compared to control. The pH and EC of soil decreased whereas, organic carbon and available N, P₂O₅, K₂O, S, Zn, Fe, Mn and Cu content of soil at harvest stage of crop were increased significantly with increasing levels of vermicompost. (ii) the application of different nutrients increased significantly the plant height, number of siliquae per plant, number of seeds per siliqua, test weight, seed yield, stover yield, content and uptake of nitrogen, phosphorus, potassium, sulphur, zinc and iron in seed and stover, oil content in seed and net returns and B:C ratio as compared to control. The application of different nutrients significantly enhanced the available N, P₂O₅, K₂O, S, Zn, Fe, Mn and Cu content of soil whereas, the effect on pH, EC and organic carbon were found non-significant at harvest stage of crop. (iii) The combined application of vermicompost and different nutrients was more beneficial for increasing seed, stover yield, and zinc and iron uptake by seed and net returns of mustard as compared to their individual application. The higher seed yield, Zn uptake by seed, Fe uptake by seed and net returns (2099.02 kg ha⁻¹, 894.60, 3563.69 g ha⁻¹ and 53773 Rs. ha⁻¹) were obtained under the combined application of vermicompost @ 5 t ha⁻¹ + different nutrients (S @ 40kg/ha⁻¹ + iron @ 9.5kg/ha⁻¹ + zinc @ 5kg/ha⁻¹), respectively.

Key words : RDF, NPK, Vermicompost, Stover, Mustard

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