



RESEARCH ARTICLE :

Study of soil physical and Microbial properties of soil as influenced by weed management in maize (*Zea mays* L.)

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SUMMARY : A field investigation was conducted at BAU experimental Farm, Ranchi during *Kharif* season 2015 on sandy clay loam soil. The experiment was laid out in a RBD with 13 treatments: atrazine 0.5 + pendimethalin 0.5 kg/ha PE, two hand weeding at 20 and 40 DAS, two mechanical weeding at 20 and 40 DAS, atrazine 1.0 kg/ha PE, pretilachlor 0.5 + metribuzin 0.175 kg/ha PE, metribuzin 0.35 kg/ha at 15 DAS, pendimethalin 1.0 kg/ha PE, atrazine 1.0 kg/ha at 15 DAS, metribuzin 0.35 kg/ha PE, pretilachlor 1.0 kg/ha PE, pretilachlor 1.0 kg/ha at 15 DAS, green manuring by *Sesbania* @ 80 kg/ha fb 2, 4-D 0.625 kg/ha at 30 DAS and weedy Check, replicated thrice.. Maize *var.* Suwan was sown (on 30-06-2015) with spacing of 70 x 20 cm, seed rate 20 kg/ha and RDF 120:60:40 kg/ha. Result revealed that soil physical properties such as pH, organic carbon and EC observed non-significantly affected with different weed management practices but CO₂ was observed maximum with green manuring by *Sesbania* @ 80 kg/ha fb 2, 4-D 0.625 kg/ha at 30 DAS. Population of soil microbial biomass (fungi, bacteria and *Actinomycetes*) was at par with all the different weed management practices. Dehydrogenase activity ($\mu\text{g TPF g}^{-1}$ soil day⁻¹) and azotobacter count observed significantly highest with the application of green manuring by *Sesbania* @ 80 kg/ha fb 2, 4-D 0.625 kg/ha at 30 DAS (T₁₀).

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