

## **Soil biological parameters as indicators of sustainability of natural and agricultural land use systems**

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### **ABSTRACT**

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Evaluating the sustainability of any land use system poses challenging methodological questions. The study conducted at the University of Agricultural Sciences, Bangalore, India revealed that management practices under different land use systems have altered soil functions and processes. The biological changes observed in man-made systems relative to the natural systems are important indicators of the impacts of management practices. Strategies based on these biological indicators and correlating them with productivity of an ecosystem would be a tool to evaluate sustainability of the land use systems. The natural systems such as grasslands and mixed forests, gave higher soil microbial biomass and enzyme activities (dehydrogenase, acid phosphatase and urease) than the agricultural systems. The results suggest that biomass turnover and disturbance through cultivation, pesticides, fire, etc. determine the nature and degree of biological activity in an ecosystem. Microbial biomass and enzyme activity can be used as indicators to evaluate land use system sustainability.

**Keywords:** land use systems. soil biological parameters. soil enzymes. soil microbial biomass. sustainability.