

Research Article

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# Impact of continuous fourteen years of integrated nutrient management practices on forms of soil N and P on terraced land

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## Summary

An experiment was conducted in the experimental farm at School of Agricultural Sciences and Rural Development, Medziphema, Nagaland to find out the impact of continuous fourteen years integrated nutrient management practices on forms of soil N and P on terraced land. Twelve treatments involving N, P and K fertilizers, farmyard manure, poultry litter, forest litter, *Azospirillum* and Zn either alone or in combinations were applied continuously for fourteen years. The highest  $\text{NH}_4\text{-N}$  content was recorded in NPK+ FYM+ Zn followed by NPK+ FYM treatment, whereas the highest  $\text{NO}_3\text{-N}$  content was in NPK followed by NPK+ FYM and NPK+ FYM+ Zn treatments. After fourteen years, the rate of build up of available N in different nutrient management practices was 0.5 to 10.3 kg N ha<sup>-1</sup> yr<sup>-1</sup> with an average of 5.8 kg N ha<sup>-1</sup> yr<sup>-1</sup> whereas, the rate of build up of total N in various nutrient management practices was 1.28 to 16.1 kg N ha<sup>-1</sup> yr<sup>-1</sup> with an average of 11.2 kg N ha<sup>-1</sup> yr<sup>-1</sup>. The significant increase in organic N in NPK+ FYM, NPK+ poultry litter and NPK+ FYM+ Zn treatments over NPK was 5.7, 5.0 and 5.4 per cent, respectively. The inorganic P in NPK+ poultry litter, NPK+ FYM+ Zn and NPK+ FYM was 5.8, 3.8 and 2.2 per cent higher as compared to NPK, respectively. The rate of build up of available P in different treatments was 0.01 to 0.76 kg P ha<sup>-1</sup> yr<sup>-1</sup> with an average of 0.49 kg P ha<sup>-1</sup> yr<sup>-1</sup>. On an average, solution P, inorganic P, available P and organic P represented 0.3, 40.6, 3.3 and 59.6 per cent of total P.

**Key words :** N fraction, P fraction, Terraced land

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