Impacts of Reddish Brown Earth and Locally Available Organic Manures on Phosphorus Retention of Sandy Regosol

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As it is believed that organic manures can reduce the phosphorus leaching, the present study with leaching column was conducted at soil science laboratory, Eastern University, Sri Lanka during December 2010 to February 2011 to study the impacts of reddish brown earth and locally available organic sources on phosphorus retention in sandy regosol. Three locally available organic manures (farmyard manure poultry litter and compost) selected as organic nutrient sources and were compared with sole chemical nutrient source (triple super phosphate). A factorial experiment with eight treatments was replicated three times in a complete randomized design. Nutrient sources were incorporated with soil and filled in leaching column. Water was added once a week and the leachate was collected and analyzed for phosphate content.

The results indicated that in organic sources treated soil the leachate phosphate concentration was increased and reached to a peak at 5 weeks after incubation in sandy regosol and at 2 week after incubation in reddish brown earth combined soil and there after it declined in both soils. Comparatively the amount of phosphate in leachate was lower in reddish brown earth combined soil than sandy regosol alone. The results also indicated that in chemical treatment the initial phosphate loss was higher in both types of soils. Application of organic manures significantly influenced on available phosphorus content than sole chemical nutrient source. Among the organic manures poultry litter recorded the highest available phosphate content in sandy regosol and in reddish brown earth combined soil farmyard manure recorded highest phosphate content.