

**IMPACTS OF REDDISH BROWN EARTH AND LOCALLY AVAILABLE
ORGANIC MANURES ON NITROGEN, PHOSPHORUS RETENTION AND
PHYSICOCHEMICAL PROPERTIES OF SANDY REGOSOL**



BY

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ABSTRACT

A leaching column study 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 manures on nitrogen, phosphorus retention and physicochemical properties of sandy regosol. There were two sets of leaching columns: one with sandy regosol and other with sandy regosol reddish brown earth combination. In both sets there are three organic sources (farmyard manure, poultry manure and compost) were integrated with urea and were compared with sole chemical fertilizer treatment. These four treatments were replicated three times in a complete randomized design.

Incorporation of reddish brown earth with sandy regosol improved the nitrogen and phosphorus retention and physicochemical properties of sandy regosol. Among the organic sources, farmyard manure performed well and improved the physicochemical properties such as porosity in reddish brown earth combined sandy regosol, cation exchange capacity and electrical conductivity in both soil types. Compost improved water holding capacity in reddish brown earth added soil and moisture content in both soil types.

Integration of organic manure with urea reduced nitrate and phosphate leaching. In sole sandy regosol nitrogen retention was high in farm yard manure treatment but integration of poultry manure with urea improved the phosphorus retention and decrease phosphate loss. The study concluded that, in reddish brown earth combined with sandy regosol integration of farmyard manure with urea improved the nitrogen and phosphorus retention and decrease nitrate and phosphate loss.

Key words: *Farmyard manure, Nitrate, Phosphate, Nutrient retention, Sandy regosol.*

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