

Urease Activity and Grain Yield of Rice as Influenced by the Long-term Effect of Application of Organic Manure and Inorganic Fertilizers under Flooded Conditions

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ABSTRACT

The effect of long term application of organic manure and inorganic fertilizer on urease activity and grain yield of rice under flooded conditions at Regional Agricultural Research Station, Maruteru, Andhra Pradesh was investigated. The five treatments were unfertilized (control), inorganic N fertilizer (180 kg ha^{-1}), inorganic fertilizer NPK ($180-90-60 \text{ kg ha}^{-1}$), FYM @ 10 Mg ha^{-1} and inorganic fertilizer NPK and FYM@ 5 Mg ha^{-1} . Among the treatments, significantly higher urease activity was found in NPK fertilizer and FYM followed by FYM, Inorganic NPK, Inorganic N and control. The enzyme activity significantly increased up to panicle initiation stage of the crop growth and there after showed a decreasing trend. Further, NPK fertilizer and FYM recorded significantly higher rice grain yield of 7066 kg ha^{-1} followed by FYM (6445 kg ha^{-1}), inorganic NPK (5246 kg ha^{-1}), inorganic N (4245 kg ha^{-1}) and control (2718 kg ha^{-1}). A twofold of increase in urease activity was recorded at panicle initiation stage of the crop growth and was significantly correlated with TOC content of soils.

Keywords: *Manures, fertilizers, urease and flooded conditions.*