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EFFECT OF LOCALLY AVAILABLE ORGANIC
AMENDMENTS ON NITROGEN RECOVERY OF
RED ONION GROWN IN SANDY REGOSOLS.

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DECEMBER 2004.

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ABSTRACT

A pot experiment was conducted to evaluate the effect of adding locally available organic amendments on sandy regosols and nitrogen recovery of crops. Red onion (Wallara 60) plants were selected for the experiment. The study was conducted at the Agronomy farm, Eastern University, Vantharumoolai during August to October, 2004.

The experiment was laid out in Complete Randomized Design (CRD), replicated three times. Three kinds of organic materials were used in the experiment namely; partially burnt paddy husk, tank silt and poultry manures. These organic materials were used with recommended level of chemical fertilizers, half the rate and singularly to analyze the effect of integrated use of mineral and organic fertilizers. Organic amendments were treated with the soil two weeks before planting. Soil samples were collected at 15 – 30cm depth at different stages; at the time of planting, two weeks after planting and at harvesting stage. Samples were used to measure moisture content, cation exchange capacity, nitrogen and organic matter content of soil. Finally, yield and nitrogen recovery of plants were measured.

The results indicated that, nitrogen recovery of plants and yield were influenced by organic matter treatments. Among the treatments partially burnt paddy husk treatment showed more nitrogen recovery than others and poultry manure treatment gives the lowest value. Integration of organic material with $\frac{1}{2}$ recommended levels of chemical fertilizers gave highest nitrogen recovery than other rate of combinations.

Highest yield was obtained from treatment incorporated with tank silt with recommended level of fertilizers. The increase was about two fold over control. Integrated use of organic matter and chemical fertilizers gave better yield than singular use.

Moisture retention was increased with the organic matter additions and was significantly high in tank silt.

Organic matter content of soil was found to be increased from stage I to stage II and then reduced as decomposition continues. Addition of tank silt significantly increased the organic matter content than others.

The CEC of soil was significantly increased with organic matter addition. Tank silt increases the CEC by 15 folds over control. CEC was significantly increased from stage I to stage II and then reduced as organic matter content decreased. Partially burnt paddy husk and poultry manure showed highest reduction in CEC from stage II to stage III.

Soil nitrogen content was significantly influenced by treatments. Poultry manure with recommended level of chemical fertilizers gave highest soil nitrogen content than others. Residual soil nitrogen was higher in poultry manure treatment and lowest in partially burnt paddy husk treatment.

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