

Effect of different regimes of inorganic and organic manure on the soil properties and yield of groundnut in costal sandy soil

S. SIVAGNANAM, R. SINGARAVEL AND K. COUMARAVEL

SUMMARY

Field experiment was conducted in a farmer's field at Ponnanthittu village in Cuddalore district of Tamil Nadu to find out the influence organic manure and NPK on the soil properties and yield of groundnut in coastal sandy soil. Different organic manures viz., Control, Farm yard manure @ 12.5 t/ha, Composted coir pith (CCP) @ 12.5 t/ha, Casuarina leaves @ 10.0 t/ha and Dhaincha @ 10.0 t/ha were applied as main treatments and different NPK levels viz., 75 per cent, 100 per cent, 150 per cent and 200 per cent of recommended NPK for groundnut was studied as sub treatments in Factorial Randomized Block Design with three replications. Groundnut var. VRI 2 was grown as test crop. The results of the study indicated that application of different organics significantly reduced the pH, salinity and increased the nutrient availability of soil. Among different treatments, application of 150 per cent NPK along with 12.5 t/ha of composted coir pith significantly increased the growth and yield of groundnut.

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KEY WORDS : Organic manures, NPK, Coastal soil, Groundnut

In coastal regions, sandy soil dominates in major areas. The light texture of the soil, low organic matter, poor cation exchange capacity and nutrient availability greatly impair the productivity of crops. Hence, the present study was carried with the application of different organic manure of the coastal areas with varying doses of inorganic fertilizers on soil properties and yield of groundnut in sandy soil.

EXPERIMENTAL METHODS

Field experiment was conducted in a farmer's field at Ponnanthittu village in Cuddalore district of Tamil Nadu during March 2007. The experimental soil was sandy and had pH 8.57 and EC 1.84 dS m⁻¹. With respect to the available nutrient status, it was low in available N (119 kg ha⁻¹), P (7.08 kg ha⁻¹) and K (103 kg ha⁻¹). The experiment was conducted in a Factorial Randomized Block Design (FRBD) with three replications. The treatments included were different organic wastes viz.,

Control (M₁), Farm yard manure @ 12.5 t/ha(M₂), Composted coir pith @ 12.5 t/ha(M₃), Casuarina needles @ 10.0 t/ha(M₄) and Dhaincha @ 10.0 t/ha(M₅) were applied as main treatments and different inorganic doses viz., 75 per cent (S₁), 100 per cent (S₂), 150 per cent (S₃) and 200 per cent (S₄) of recommended NPK for groundnut was studied as sub treatments. Groundnut var. VRI 2 was grown as test crop. All improved package of practices were followed for raising the crop. The crops were grown to maturity and harvested. The pod and haulm yield were recorded at harvest. The soil was analysed for pH, EC, SAR and available N, P and K as per the standard procedure outlined by Jackson (1973).

EXPERIMENTAL FINDINGS AND ANALYSIS

The results of the study indicated that the application of different organics had significantly reduced the salinity and increased the nutrient availability of soil (Table 1). Though all the organics were efficient in improving the

Address of the corresponding author :

S. SIVAGNANAM, Department of Soil Science and Agricultural Chemistry, Faculty of Agriculture, Annamalai University, ANNAMALAINAGAR (T.N.) INDIA

Address of the co-authors :

R. SINGARAVEL, Department of Soil Science and Agricultural Chemistry, Faculty of Agriculture, Annamalai University, ANNAMALAINAGAR (T.N.) INDIA

K. COUMARAVEL, Department of Soil Science and Agricultural Chemistry, P.J.N. College of Agriculture and Research Institute, Karaikal, PUDUCHERRY (U.T.) INDIA