# Characterization, Classification and Nutritional Status of Sugarcane Growing Soils of Chittoor District of Andhra Pradesh

**P A Visalakshi Devi and M V S Naidu**
Department of Soil Science and Agricultural Chemistry, S V Agricultural College, Tirupati 517 502

**ABSTRACT**

Based on variation in soils and physiography, six typical pedons namely Neruvoi (P1), Palamangalam (P2), Gollapalle (P3), Vonaruvaripalli (P4), Digavapokalavaripalli (P5) and Gattivaripalli (P6) in Chittoor district, Andhra Pradesh were characterized for their physical and chemical properties and for nutritional status of sugarcane-growing soils. These pedons were shallow (P3 and P4), deep (P2, P5 and P6) and very deep (P1) and had Munsell colour notation of 10 YR / 7.5YR hue, with value 2 to 6 and chroma 1 to 6. The dominant soil structure is fine to medium, weak to moderate and sub-angular blocky. Sand, silt and clay ranged from 32.70 to 94.04, 3.97 to 39.60 and 1.99 to 35.86 per cent, respectively in different horizons and bulk density varied from 1.29 (P4) to 1.94 Mg $m^{-3}$ (P1). These soils are neutral to strongly alkaline in reaction (7.35 to 8.21) . The CEC of the soils varied from 1.30 to 28.80 cmol($p^{+}$)$kg^{-1}$ in different horizons. Calcium and magnesium were found to be the dominant cations on the exchange complex. Organic carbon was low to medium . The soils were low in available N, low to high in available P and K and sufficient in available sulphur. The DTPA-extractable zinc in sugarcane-growing soils was sufficient in surface horizons and deficient in sub-surface horizons in all the pedons except in P4 (Vonaruvaripalli) and P6 (Gattivaripalli) wherein it was found to be deficient in P4 and sufficient in P6. The sugarcane-growing soils were deficient in DTPA-extractable iron and sufficient in DTPA-extractable copper and manganese. Pedon 1 showed argillic (Bt) sub-surface horizon and was classified as Ultic Haplustalf. Pedons 2, 5 and 6 showed cambic (Bw) sub-surface diagnostic horizon and were classified as Typic Dystrustept and Typic Haplustept. Pedons 3 and 4 did not exhibit any diagnostic horizon and were classified as Typic Ustorthent.

**Key words :** Characterisation, Classification, Sugarcane-growing soils, Nutrient status.