

Research Article

DOI: 10.15740/HAS/AJSS/10.2/299-305

# Spatial variability and geostatistics application for mapping of soil properties and nutrients in intensively cultivated village of Veeranam Command Area, Tamil Nadu

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Received : 27.06.2014; Revised : 15.11.2015; Accepted : 29.11.2015

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**Summary**

Knowledge of spatial variability in soil fertility is important for site specific nutrient management. In the current study, the spatial variations of soil pH, organic carbon, N, P, K, Fe, Cu, Mn and Zn were evaluated in Orathur village (Typic Haplusterts) of Veeranam command area of Cuddalore district, Tamil Nadu. Global positioning system (GPS) guided surface soil sampling (0-15 cm) were done over an area of about 100 hectares in a 100 x 100 m grid. Wide ranges of variation were noted for different soil physico-chemical properties as well as nutrient status in the study area. The pH of soils ranged from 6.70 to 8.30, organic carbon ( %) varied from 0.49 and 0.88, available nitrogen (kg ha<sup>-1</sup>) from 173.60 to 235.20, available phosphorus (kg ha<sup>-1</sup>) content varied from 4.90 to 17.10, available potassium varied between 180.00 to 330.0 kg ha<sup>-1</sup>, while available S content varied from 3.10 to 21.30 ppm. The available Fe and Mn varied from 3.26 to 20.16 ppm and 0.94 to 8.26 ppm. The variation of soil nutrient contents across the study area was found to be related to the fertilizer use pattern among farmers. The evaluated physico-chemical and nutrient status data of the area were used to develop variability maps with the aim of generating site –specific nutrient management strategies.

**Key words :** Spatial variability, Soil fertility, Site-specific nutrient management, GPS, GIS

**How to cite this article :** Arunkumar, V. and Paramasivan, M. (2015). Spatial variability and geostatistics application for mapping of soil properties and nutrients in intensively cultivated village of Veeranam Command Area, Tamil Nadu. *Asian J. Soil Sci.*, **10**(2) : 299-305.