

DELINEATION AND MAPPING OF SOIL AVAILABLE IRON AND COPPER STATUS IN SOILS OF SALEM DISTRICT OF TAMIL NADU USING GIS AND GPS TECHNIQUES

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ABSTRACT

The study was conducted in soils of Salem district of Tamil Nadu to understand the available micronutrient status in soil. Totally 1691 soil samples were collected @ 4 samples per village covering 385 panchayat villages in 20 blocks of Salem district following the standard procedure of soil sample collection. GPS data (Latitude °N and Longitude °E) were recorded along with sample collection. Samples were analyzed for DTPA-Fe (Di-ethylene Tri-amine Penta Acetic acid extractable Iron) and DTPA-Cu (Di-ethylene Tri-amine Penta Acetic acid extractable Copper). Nutrient index values, fertility ratings and percentage deficiency were calculated from the analytical results. Thematic maps were prepared using Arc GIS software. Fertility rating for available Fe was high in Attur, Kolathur, Mecheri, Omalur, Ayodhiyapattinam, Panamarathupatti, Salem and Veerapandi blocks and it was adequate in Kadaiyampatty, Taramangalam, Idappadi and Konganapuram blocks. The remaining blocks showed very high fertility rating. The low fertility class for DTPA-Cu was noticed in Nangavalli, Mecheri and Konganapuram blocks while it was adequate in Macdonalds Choultry block. The high fertility rating was observed in Sangagiri, Omalur, Yercaud, Valapady and Gangavalli blocks. The remaining blocks fell under very high fertility rating. Use of newly improved technologies like global positioning system (GPS) and geographic information systems (GIS), facilitate soil micronutrient mapping and provide quantitative support for the decision and policy making to improve agricultural approaches for the balanced nutrition of crops.

KEYWORDS: Di-Ethylene Tri-Amine Penta Acetic Acid (DTPA), Nutrient Index Values, Fertility Ratings, Thematic Maps, GIS and GPS

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