



RESEARCH PAPER

Soil fertility assessment and mapping of red and black soil farm of Regional Agricultural Research Station, Kovilpatti, Thoothukudi district, Tamil Nadu state

V. Sanjivkumar*, K. Baskar¹, S. Manoharan¹, M. Manikandan¹, A.Solaimalai¹ and G. Ravindrachary²
Department of Soil Science and Agricultural Chemistry, Tamil Nadu Agricultural University,
Agricultural Research Station, Kovilpatti (T.N.) India
(Email: sanjivkumarv@rediffmail.com)

Abstract : The soil fertility status and mapping their spatial distribution play a crucial role for sustainable planning of particular area. Thus, a study was conducted to assess the soil fertility status of the Agricultural Research Station, Kovilpatti, Thoothukudi district. The farm is situated 8° 48' and 9° 20' North latitude and 78° 25' east longitude at 90 MSL. The total 18 samples were collected randomly at a depth of 0-20 cm by using soil sampling auger. A GPS device was used for determination of geographical position of soil sampling points. The collected samples were analyzed following standard analytical methods in the laboratory of Soil Science Laboratory, Agricultural Research Station, Kovilpatti. The Arc-GIS 10.1 software was used for the soil fertility distribution mapping. The In red soil farm, the observed data revealed that the soil pH ranged from 7.41 to 7.88. The distribution soil pH varied from mild alkaline to moderate. Soil EC ranged between 0.23 to 1.12 dSm⁻¹. The nature of the soil EC was non-saline. The soil available nitrogen ranged from 158 to 199 kg/ha. This area having low level of soil available nitrogen distribution. The soil available phosphorus ranged between 12.5 to 18.5 kg/ha. The distribution of soil available phosphorus is medium in variability. The available soil potassium ranged from 255 to 478 kg/ha. The soil available potassium having high distribution in red soil. In black soil farm, the soil pH ranged from 7.78 to 8.46. The distribution of the soil pH extended from mild alkaline to moderate alkaline. The soil EC ranged from 0.25 to 1.23 dSm⁻¹. The distribution of the soil EC was non - saline in nature. The soil available nitrogen ranged from 103 to 163 kg/ha. The soil available phosphorus ranged from 7.7 to 12.7 kg/ha. The distribution of the available soil phosphorus was low to medium in status. In spite of soil available potassium ranges between 360 to 560 kg/ha. The distribution of the soil available potassium is high in black soil farm. The determined soil test data can be used for sustainable soil management as well as developing future research strategy in the farm.

Key Words : Soil fertility, Mapping, Digitalization, Geographical positioning system, Arc-Gis

View Point Article : Sanjivkumar, V., Baskar, K., Manoharan, S., Manikandan, M., Solaimalai, A. and Ravindrachary, G. (2022). Soil fertility assessment and mapping of red and black soil farm of Regional Agricultural Research Station, Kovilpatti, Thoothukudi district, Tamil Nadu state. *Internat. J. agric. Sci.*, **18** (2) : 773-779, DOI:10.15740/HAS/IJAS/18.2/773-779. Copyright@ 2022: Hind Agri-Horticultural Society.

Article History : Received : 24.01.2022; Revised : 13.04.2022; Accepted : 16.05.2022

***Author for correspondence:**

¹ICAR-AICRP on Dryland Agriculture, Agricultural Research Station, Kovilpatti, (T.N.) India

²Project Coordinator, ICAR-All India Co-ordinated Research Project on Dryland Agriculture, CRIDA, Hyderabad (Telungana) India