

PHYSICO-CHEMICAL PROPERTIES AND AVAILABLE MACRO AND MICRONUTRIENTS IN THE SOILS OF GARIKAPADU RESEARCH STATION OF KRISHNA DISTRICT OF A.P., INDIA

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ABSTRACT

The physico-chemical characteristics and nutrient status of soils of Agricultural Research Station, Garikapadu of Krishna district of Andhra Pradesh, indicated that soils were neutral to moderately alkaline in reaction and non-saline in nature. The nutrient status regarding to the available macro and micronutrients in soil profiles indicates that the soils are low in available N, medium to high in available P and K in the surface horizons, and in general, sufficient in available Zn, Cu, Fe and Mn in the surface layers of the profiles.

Key words : Available macronutrients, Available micro nutrients, Garikapadu soils, Krishna district

Agricultural Research Station, Garikapadu, Krishna district was started with an objective to cater to the research needs of the Nagarjuna Sagar Project (NSP) Left Canal Command area. The NSP is one of the biggest multi purpose irrigation project in Southern India. The soils of NSP Left canal command mostly consists of red sandy loams locally known as chalka soils and mixed sandy loams (dubba soils) together constituting 75% of the soils (0.285 m ha) and rest 0.095 m ha (25%) is clay and clay loam soils.

The physico-chemical characteristics, available macro and micro nutrients status in the soil profile aid in determining the soil potential to supply for crop growth. In order to provide a base line data and information, the study was taken up.

The Agricultural Research Station extending over an area of 44 ha is bounded between 16°53' North latitude and 80°06' East longitude and is situated at an altitude of 84.4 m above Mean Sea Level. Nearly three fourth of the land is under *Pedi plains* and characterized by low-lying flat terrain. The climate of the study area is semi arid and temperature begins to rise after February and the hottest month is May with maximum temperature up to 45°C, and the minimum temperature ranges from 12-14°C in the months of December-January. The mean annual rainfall is 833.6 mm during July and August months. The southwest monsoon contributes 70% of the

annual rainfall from June to September. Occasionally there is rainfall from November onwards occurs due to cyclone depression in the Bay of Bengal. The main source of irrigation to the farm is from NSP Left canal (Kachavaram canal branch).

MATERIALS AND METHODS

The soil samples representing each horizon of the pedons were collected and analysed for physico-chemical properties and available nutrient status by using *standard procedures*. The physiography and morphological features of each pedon are as follows.

Pedon 1 (A-Block) :

The natural vegetation includes *Cynodon dactylon*, *Cyprus rotundus*, *Azadiracta indica*, *Prosopis juliflora*, Subabul, Teak (*Tectona indica*), Mango, Jamun, Tamarind, Polyalthia, *Pongamia glabra* etc. The topography is nearly level. Soils are reddish yellow to reddish brown with sandy loams. Crops grown in this block over the years are red gram, green gram, black gram, groundnut, vegetables. This block also contains office buildings, laboratory and other permanent structures.

Pedon 2 (B- Block) :

The natural vegetation generally covers with grasses *Cyprus rotundus*, *Echinoclova* sps., broad leaf weeds such as *Selotia*, Parthenium, Euforbia sps, Celotropis and *Azadiracta indica*, Soils are red to reddish yellow with loamy to sandy loam texture, nearly level to gently sloppy