



Physical properties of different soil profiles of agro-biodiversity park of Acharya N.G. Ranga Agricultural University, Hyderabad, Andhra Pradesh

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SUMMARY

In the present study twenty representative pedons were selected based on topography from various physiographic units identified in Agro Bio Diversity Park (ABDP) of Acharya N. G. Ranga Agricultural University, Rajendranagar, Hyderabad. On the basis of geomorphic units, soils were selected from upland, midland and lowland. All the pedons were studied for their morphological characteristics and horizon wise samples were processed for physical and described morphologically. Based on morphology and analytic data profiles were characterized. The soils were very shallow to deep (10 to 60 cm), dark red to very dark grayish brown (2.5 YR 3/6 – 10YR 3/2) and well drained. The results showed that variation in soil properties strongly influenced the land form and topography. The analysis of soils indicate that the upland soils are shallow, midland and lowland soils are medium to deep, but along the slope the depth of soil increased along with other physical properties like clay, available water content, infiltration rate and bulk density. Soil texture was sandy loam to sandy clay loam with variation in relation to physiography. The upland soils were exhibiting higher bulk density, particle density and lower available water content, where as midland and lowland soils were recorded higher available water content, infiltration rate and clay percentage.

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The first of its kind in India Acharya N.G. Ranga Agricultural University, Hyderabad, has established newly an Agro Bio Diversity Park (ABDP) in 60 ha area with natural ecosystem, undulating terrain rocks, boulders and hillocks in the University campus, Hyderabad during August 2008. Out of this 30 ha area is covered under natural water tank. The Agro Biodiversity Park is aimed to preserve and conserve the native flora and fauna of Deccan plateau region through *ex-situ* conservation of the species and to establish 15–20 biotic communities including wild relative field crops as a repository that flourished in the region in the past. Tree blocks depicting genetic diversity such as teak, mahuva, palm, *Ficus*, medicinal plants and mixed forest tree blocks were planted in 10 ha area (Aariff Khan *et al.*, 2011).

Characterization helps in determining the soil potentials and identifying the constraints in crop production besides giving detailed information about different soil

properties. The systematic study of morphological description and physical properties of the Agro Bio Diversity Park soils helps in understanding the basic characteristics of the soils and the constraints associated with the management of soils. The study of characterization of soils of Agro Bio Diversity Park related data generation and basic information at initial stage play a crucial role in optimum utilization of resources and its potential capabilities for further development and maintenance of park in better way (Kamalakar, 2011).

EXPERIMENTAL METHODS

In the present study the Agro Bio Diversity Park (ABDP) of Acharya N.G. Ranga Agricultural University, Hyderabad is located between 17° 18.572' and 17° 18.638' latitudes and 78° 24.882' and 78° 24.961' longitudes. Physiographically the study area is located at an average elevation of 545 m from mean sea level and forms a part

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