

Abstract

This study was conducted in Peoples' Cooperative Project farm, north of Khartoum north at AlFaky Hashim area about 25 km north of Khartoum north. The objectives of the study is to characterize the soil of the farm and to determine its suitability for farming for the production of field crops, fodder, vegetables fruits and mangos by applying modern irrigation methods. The soils of the project farm were described and sampled in the field at Auger observations and profiles pits sites. The topography of this area is somewhat flat including flooding soils from the River Nile, dominant by Dark Brown in color. The Soils classified in this and a previous study as Entisols .and the climate of the study area is arid

The morphological field studies revealed flooding soils with the some clay contend in some horizons. The structure ranged between weak angular to massive, slightly calcareous in the sub soils.

.Moderate drainage and slow permeability in the wet stat
The geomorphologic mapping unites of the soil have been identified and mapped as three levels; Recent Alluvium, Semi-recent alluvium .and Old alluvium

The occurred particles size distribution indicated that fine fractions .of silt clay and silty clay loam in different sites and horizons

The soils were classified according to USDA soil taxonomy as Typic Torrifluvents. The results of field descriptions and laboratory analyses revealed that the soil of the farm is non-saline, slightly alkaline in reaction with pH (1:5) ranging from 6.5 to 7.9 and EC_e ranging from 1.6 to 0.3. The fertility status of the soils is poor due to their adverse chemical and physical characteristics and susceptible to prolonged .flooding specially in soil map unit SRA

The study recommended the soils of the farm require good soil conservation practices, it recommended to enhance the soil aeration by good tillage and management. Good farming systems such as bush fallow

and good irrigation methods should be practiced for soil nutrient replenishment with the introduction of improved varieties, crop intensification, diversification, and farm mechanization better water control conditions are required. Better water control can be achieved through the implementation of drainage along or in combination with flood .control measures