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"Assessment of soil suitability for fruit crops in Nashik District"

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Abstract:

The study area mainly consist of basalt rock however differences in the micro-climatic conditions formed varied types of soil. So that determines cultivation various fruit crops in study region. The soils of study region can be broadly grouped into four subtypes viz. laterite, foothill zone, alluvial and scarcity tract soils. Those are respectively suitable for strawberry, mango grapes and pomegranate crops.

Introduction:

The district under study is located in peninsular India, which is covered with 'Great Deccan Trap' of volcanic formation (District Gazetteer 1975). These volcanic portions consist of compact stratified basalt rock. Hence the region is dominated by black cotton soil type. But differences in the micro-climatic conditions along with the topography at different locations mainly altered the physical characteristics of the basic soil type (Deshpande, 1971).

Aim and Objective of the study:

The main of present study is to understand different soil types in study region and objective is to understand the suitability of soil types for various fruit crops in study region.

Hypothesis:

The physical factor especially soil type determines cultivation various fruit crops in study region.

Methodology:

Present study is geographical in nature therefore the soil map was prepared with help of GIS techniques and textural soil classification was understood for suitability of different orchards.

Discussion:

The soils of study region can be broadly grouped into four subtypes.(Fig. No.1.1). Those are discussed in detail as below.

a) Soils of Sahyandri:

This zone is characterized by high rainfall with warm humid climate; rich in natural vegetation gave rise to laterite soil type (Dixit K. R. 1986). Obviously, it contains high amounts of organic matter. They are light in texture with open or free draining structure but poor in all other fertility constituents. (Husain Majid 2002). Depending on altitude, these soils vary in colour from yellowish, brown, grayish brown to reddish brown. This soil type covers the western part including Surgana, Peth, Trambak, Igatpuri tehsil. Those are found suitable for mango orchards and strawberry cultivation.

b) Soils of Foothill Zone:

It lies to east of Sahyandri covers the central portion covers Dindori, Niphad, Kalwan, parts of Satana tehsil. Due to sloping lands accompanied with moderate rainfall, it gets eroded easily (Singh and Dhillon 1998). These soils derived from basaltic rocks contain ferrous or iron hence dark brown to grayish blank in color. They are sandy to loamy in texture favours grape farming as well as guava orchards.

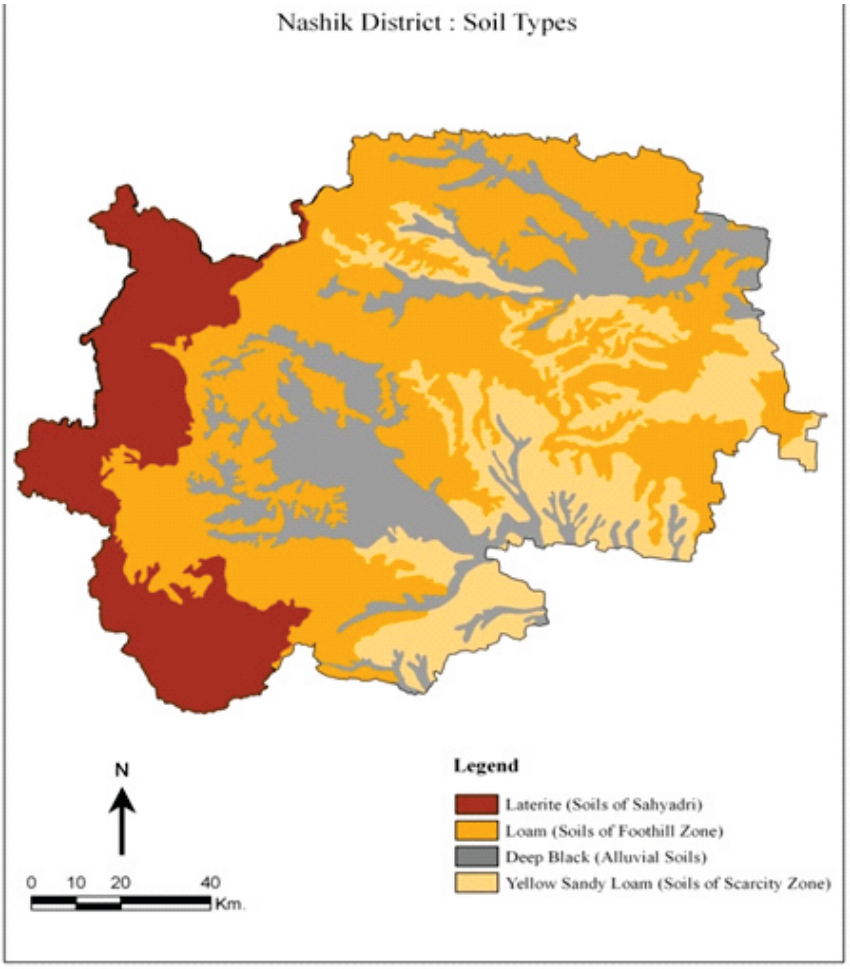


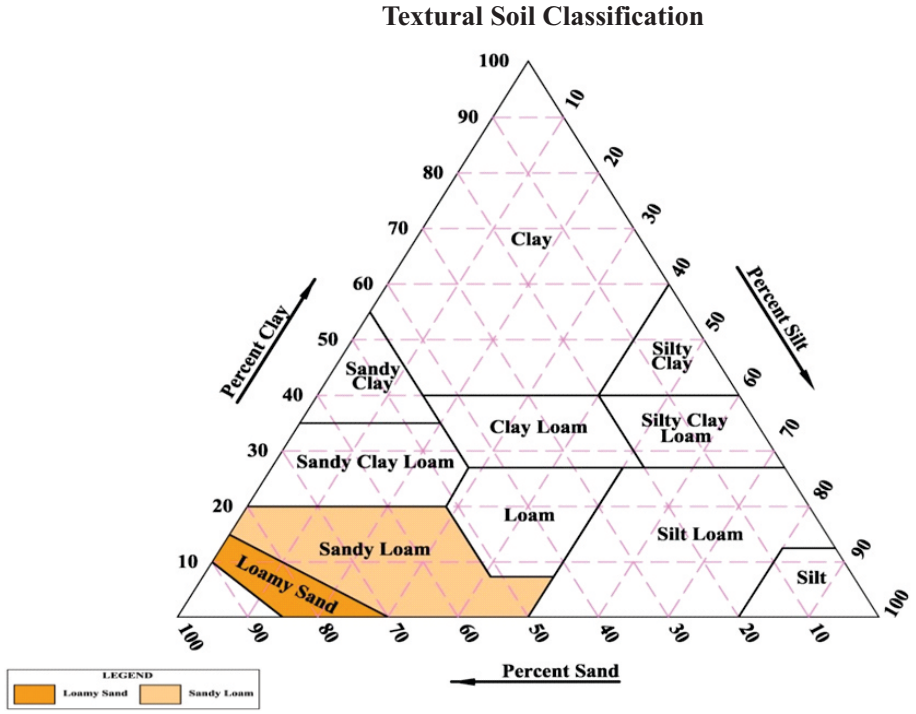
Figure No.1.1 Nashik District : Soil Types

c) Deep Alluvial Soil:

The soils in the valleys of the Godavari, the Kadwa and Girna and Mosam rivers are quite deep and fertile. Due to a sudden decrease in slope, these rivers deposited certain amount of alluvium in their valleys. Their color is much darker and profile thickness is much deeper and uniform in depth. These soils have a larger proportion of clay. Soil characteristic like the high water retention capacity makes it potentially productive for agriculture especially for grape fruit crop.

d) Soils of Scarcity Zone:

These are light black color soils found in low rainfall region covers Chandwad, Sinnar, Nandgaon, Yeola, Deola, and Malegaon tehsils of district. Their texture ranges from sandy to sandy loam as well as structure is also highly variable being porous and free draining in characteristic. The moisture retentive capacity is low because of their shallow profile and a coarse texture. The free water drains easily. This characteristic of scarcity tract soil favour growth of pomegranate tree.



(Source: Compiled by researchers from USDA Textural Soil classification)

FigureNo. 1.2 Textural class of soils suitable for pomegranate.

Findings:

It is concluded that lateritic soil type of high rainfall tract are favourable for mango orchards as well as recently strawberry cultivation. But Foot hill soils and river plains alluvial are suitable for World famous grape cultivation in Nashik District due to moisture retention characteristics. Pomegranate crop is more successful in coarse textured scarcity tract soils viz. loamy sand and sandy loam soils (Fig No. 1.2).Those are porous or free water draining in nature. The eastern half portion dominated by these soil types indicated good potentials for pomegranate production in the study area, where 90 % orchards of this fruit crop are concentrated.

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