



Research Article

Evaluation of soil constraints and soil-site suitability for groundnut in different land forms of meghal irrigation command area of Southern Saurashtra region of Gujarat

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Summary

The soil sustainability and soil site suitability for groundnut cultivation were *elevated* in different landforms of Meghal Irrigation Command area of Southern Saurashtra region of Gujarat. The soils were moderately alkaline in reaction and High CaCO₃ content. The pH, EC, CEC and ESP increased with decrease in elevation. The major soil constraints identified were shallow soil depth, poor soil fertility (Low O.C.), high pH as well as B.D., texture and low Sat. hydraulic conductivity. Out of five land forms, the soils over undulating upper pediment of Maliya Taluka and coastal plain of veraval Taluka of Junagadh district were in sustainable class (S₂). The soils over upper pediment belong to Typic Ustothrents as well as lower pediment belongs to Vertic Haplustepts of Maliya taluka of Junagadh district were marginally suitable (S₃) for groundnut. The soils over alluvial plain belongs to Calcic Haplustepts of Maliya Taluka as well as coastal plain belongs to Fluventic Haplustepts of Veraval Taluka of Junagadh district are currently not suitable (N₁) for groundnut cultivation. However, the soils over undulating upper pediment belongs to Typic Ustothrents of Maliya Taluka are not suitable (N₂) for groundnut cultivation.

Key words : Soil-site suitability, Groundnut, Land forms, Soil sustainability, Limitations

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Introduction

The soils of Southern Saurashtra region are unique in origin having diverse in genesis physiographic, climate, vegetation, depth, colour, age etc. soil sustainability can be assessed by monitoring indicators of soil quality. Understanding the severity of constraints for soil sustainability would serve as baseline indicator for future planning and also determine the crop yield and response to the management practices adopted.

Yield of any crop is influenced by kind of soils occurring in the area, prevailing climate, topography and management levels. Groundnut (*Arachis hypogea*) is grown in the soils of Meghal Irrigation Command area of Southern Saurashtra region in Gujarat state. The groundnut production of this area is not stable. Growing the crop without proper

consideration of soil and site characteristics has resulted in overall lower yield and deterioration of soil health. Hence, it is essential to interpret the soil site and its characteristics in terms of their suitability for this crop grown in this area and alternative land use planning on suitable basis. Information on soil site suitability for groundnut crop in different landforms in Meghal Irrigation Command area or for that matter in entire Gujarat is scanty. Hence, it is desirable that the groundnut crop should be grown as per suitability in different kinds of soils as well as climate and physiography. Optimum requirement of a crop are always region specific. Considering this, soil-site requirement for groundnut in the region was developed taking into account the available literature and field and local experience as suggested by FAO (1976). In the present study, an attempt has been made to evaluate "soil sustainability and soil-site suitability for groundnut crop in