Research Article

Soil-site suitability evaluation for soybean in meghal irrigation command area of southern saurashtra region of Gujarat

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Summary

The five representative soil pedons were studied for characterization and evaluate for soil-site suitability for soybean in the soils of Meghal Irrigation Command area of Southern Saurashtra region in Gujarat. The soils of study area were moderately alkaline in reaction and highly calcareous in nature. The soils on higher altitude have low pH, EC, CEC and ESP than the soils on lower altitude. The soils over undulating upper pediment (Typic Ustorthents) and coastal plain (Fluventic Haplustepts) were placed in sustainable class S_2 whereas soils associated with upper pediment (Typic Ustothrents), lower pediment (Vertic Haplustepts) and alluvial plain (Calcic Haplustepts) were placed in sustainable with high input class S_3. The soils over Lower Pediment, alluvial plain and coastal plain were marginally suitable (S_3) whereas upper pediment were currently not suitable (N_1) for soybean cultivation. The soils over undulating upper pediment were not suitable (N_2) for soybean cultivation.

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

How to cite this article : Patel, H.P., Savalia, S.G. and Chopada, M.C. (2012). Soil-site suitability evaluation for soybean in meghal irrigation command area of southern saurashtra region of Gujarat. *Asian J. Soil Sci.*, **7**(1): 117-123.

Introduction

Soybean (*Glycine max* L.) is an important legume house and oilseed crop, possessing a very high nutritional value as it contains 40-42 per cent protein and 20-22 per cent oil. Performance of any crop is largely influenced by soil-site parameters as conditional by climate and topography and management level (Sehgal, 1991). Thus, it is essential to interpret the soil-site characteristics of any place in terms of their suitability for the important crops grown in the area. However, growing the crop without proper consideration of soil and site characteristics has resulted in overall lower yield and deterioration of soil health.

Information on soil-site suitability of soybean crop in different land forms in Meghal Irrigation Command area of Southern Saurashtra region or for that matter for entire Gujarat is scanty. Hence, it is desirable that the soybean 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

of soybean for the region was developed taking into an 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-site suitability for soybean crop in Meghal Irrigation Command area of Southern Saurashtra region of Gujarat.

Resources and Research Methods

The study area comprises of south Saurashtra agro-climatic zone covering major part of Junagadh district in Southern Saurashtra region of Gujarat. It lies between $21^0 14'$ to $21^0 01'$ N latitude and $70^0 24'$ to $70^0 16'$ E longitude.

The area falls under semi-arid (dry) climate with a mean annual rainfall of 815 mm. The area falls under semi-arid (dry) climate with a mean annual rainfall of 815 mm. The representative water balance of the study area is given in Fig. A.

IRS 1A LISS II FCC imagery on 1:50,000 scale in conjunction with survey of India topographical (SOI) map