

Research Article

Phsico-chemical properties of surface soils in arecanut growing region of Southern Karnataka (Non-traditional)

■ R. JAYAPRAKASH, Y. VISHWANATH SHETTY, B.C. PUNITHA AND V.M. SHILPASHREE

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MEMBERS OF RESEARCH FORUM :

Corresponding author :
R. JAYAPRAKASH, Department
Of Soil Science and Agricultural
Chemistry, College Of Agriculture,
Navile, SHIMOGA (KARNATAKA)
INDIA

Co-authors :
Y. VISHWANATH SHETTY,
B.C. PUNITHA AND V.M.
SHILPASHREE, Department Of
Soil Science and Agricultural
Chemistry, College Of Agriculture,
Navile, SHIMOGA (KARNATAKA)
INDIA

Summary

Hundred surface samples were collected for the analysis of phsico-chemical properties in southern Karnataka (Non- traditional). Total hundred representative surface samples were collected from the depth viz., 0-20 cms (surface), from the 4 districts namely Chitradurga, Davanagere, Chikkamangalur and part of Shivamoga comprising of 10 taluks. The samples were analysed for different physical and chemical properties. The study revealed that most of the soils were sandy clay loam and pH ranged from strongly acidic to slightly alkaline. Organic carbon ranged from 3.3 g kg⁻¹ to 19.0 kg⁻¹ and cation exchange capacity ranged from 9.0 cmol (p+) kg⁻¹ to 29.0 cmol (p+) kg⁻¹.

Key words : Arecanut, Non-traditional region, Surface soils

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Introduction

Arecanut is grown in Karnataka, Kerala, Assam, West Bengal, parts of Tamilnadu and Maharashtra. Arecanut is one of the most profitable commercial plantation crops grown in Karnataka is the leading state with 1,68,000 hectare area and an annual production of 2.24 lakh tones (Anonymous, 2010). Most of the traditional areca growing soils are acidic in nature while non- traditional areca growing soils are alkaline in nature. Karnataka State has got two distinct tracts viz., the traditional and non- traditional region. The non -traditional tract, essentially consist of Chitradurga, Davanagere, Chikkamangalur and parts of Shimoga districts. These districts are characterized by medium to heavy rainfall (150-400 cm), variation in altitude, temperature fluctuations etc. These factors play a dominant role in determining the soil fertility and productivity. As such crop like arecanut is perennial in nature and its productivity is affected by many reasons, out of which soil nutrient imbalance is one of the important productivity constraints. The status of soil fertility determines

the level of crop productivity. In the present study an effort was made to determine the physico-chemical properties and their fertility status of the selected southern Karnataka taluks that would focus on adopting appropriate cultural and nutritional management practices to keep the plants healthy and productive.

Resources and Research Methods

The collected soil samples were dried under shade. The laboratory analysis of surface soil samples was conducted at the Zonal Agricultural Research Station, college of agriculture Shimoga, Karnataka during 2009. The following standard procedures were adopted for analysis of the nutrients in the laboratory- particle size analysis by Bouyoucos soil hydro meter method (Piper, 1966), organic carbon by Walkely and Black's wet oxidation method (1934), soil pH was determined by 1:2.5 soil : water suspension using digital pH meter (Jackson, 1973). Cation exchange capacity by ammonium in the lechate was quantified by kjeldhal distillation method