

SPATIAL VARIABILITY OF AVAILABLE CALCIUM AND MAGNESIUM IN SOILS IN THE RUBBER GROWING REGIONS OF SOUTH INDIA

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Spatial variability in soil properties arises due to parent materials, climate, landscape attributes and anthropogenic factors. Geo-statistical methods are effectively used for preparing geographical distribution maps of soil properties based on limited number of samples collected in soil surveys. Geo-referenced soil samples were collected from rubber growing regions of South India, analysed following standard analytical protocol and available Ca and Mg status were mapped geostatistically using kriging interpolation technique. The study showed that rubber growing soils of south and central Kerala were low in available Ca status, and medium in available Mg status. From Trissur district onwards, available Ca and Mg status showed a gradual increase towards north. In the northern districts, except in Kozhikode, available Ca and Mg status were in the high range in majority of the area. In Wayanad and Kasaragod districts, 100 per cent of the area showed high Mg status. In Karnataka, except in some areas of Dakshin Kannada district, Ca status was high. Almost entire rubber area in Karnataka, Goa and Maharashtra showed high Mg status. The study delineated areas low in Ca and Mg availability which need intervention with respect to Ca and Mg nutrition of rubber plants.

Key words: Available calcium, Available magnesium, Rubber growing regions, South India, Spatial variability

INTRODUCTION

Assessment of spatial variability in soil fertility parameters is important for identifying fertility constraints of a particular region and for effective soil resource management. Spatial variability in soil properties arises due to parent materials,

climate and landscape attributes and anthropogenic factors (Brady and Weil, 1996). Global positioning system and GIS are effectively used in recent years for mapping the spatial variability in soil characteristics. Geo-statistical methods are effectively used for preparing geographical