

**IMPACT OF DIFFERENT SOIL TYPES ON THE GROWTH
PARAMETERS OF SUGARCANE (*Saccharum officinarum*)
GROWN IN HINGURANA GALOYA PLANTATION**



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ABSTRACT

Soil physical, chemical and biological properties are the key factors affecting growth of sugarcane and its management. This study was conducted to study the impact of properties of different Soil types: Reddish Brown Earth (RBE), Non Calcic Brown (NCB) and Alluvial soil in Hingurana plantation and their impact on growth parameters of sugarcane. The Soil samples were collected from Hingurana plantation and soil properties like density, porosity, color, moisture content, pH, Organic matter content and Microbial activities were tested. Plant growth parameters like germination percentage, number of internodes, length of internodes, number of leaves, length of leaves, plant height and girth diameter of stem were recorded from randomly selected plants from RBE, Alluvial and NCB soil types in Hingurana. Statistical analysis were conducted by using Analysis of Variance (ANOVA) in SAS statistical software package and mean comparison of within treatment using Duncan Multiple Range Test (DMRT) at 5% significant level. The results of the study revealed that Alluvial soil type represent mean values including lowest bulk density as 1.2 g/cm^3 , and highest porosity, microbial activity and organic matter content as 52%, $43.76 \text{ mg CO}_2 / \text{lg soil}$, 1.6% respectively than RBE and NCB soil types with the high levels of plant germination percentage, number of internodes, length of internodes, number of leaves, length of leaves, plant height and girth diameter of stem. The study concluded that alluvial soil can be recommended as the most suitable soil type to get high growth efficiency of sugarcane and high production of sugar in the Gal-Oya plantation's cultivation areas and the second soil type is non-calcic brown soil types as a medium for sugarcane cultivation.

Key Words: Soil properties, Growth parameters, Sugarcane cultivation, Soil Types

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