RESEARCH ARTICLE :

Correlation analysis for root, growth, yield and quality parameters of twelve sugarcane clones (*Saccharum officinarum* L.)

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SUMMARY : Sugarcane, an industrial crop was grown in an area of 50.32 l ha with a cane production of 356.56 mt and a productivity of 70.86 t ha^{-1} in India during 2014-15. India ranks second in terms of area and per hectare productivity. Sugarcane being a C_4 plant is distinct and more efficient converter of solar energy, thus having potential to produce huge amounts of biomass. The root system of sugarcane deserves particular attention be- cause it is essential for the regeneration of the cane. The research on sugarcane has greatly advanced in recent decades, but many aspects of sugarcane including the root-shoot relationships are still poorly understood, that ultimately affect yield. Studies on sugarcane roots lag well behind those on other crops, in part due to the large plant stature and long crop cycle. Hence, a study on root characteristics of sugarcane along with growth, quality and yield and yield attributes have been taken up for the present research. Correlation analysis for all the parameters was considered as it shows relation between the characters. A root structure experiment involving twelve sugarcane genotypes was conducted at Agricultural Research Station, Basanthpur, Medak district during 2016-2017 for correlation studies on genotypes for their root mining characteristics in relation to growth and yield. Various root parameters, Morpho- physiological, yield and yield attribute parameters was observed at different growth stages of sugarcane crop. The correlation co-efficient is an index of the proportion of causes common in the genesis of two variables to the total and not the causes themselves. Data collected were subjected to variance and cross-product analysis using the analysis of variance and covariance. Highly significant and positive correlation was observed for all the root, growth, yield and quality parameters. However, a linear negative correlation was observed between the root dry weight and shoot root ratio.

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