G x E Interaction in Clones of *Casuarina equisetifolia*

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Abstract

Three clonal tests involving eighty-seven clones selected by the Institute of Forest Genetics and Tree Breeding, Coimbatore were conducted in Tamil Nadu, India to understand the GxE interaction for growth traits. Stability analysis was performed using the data on tree height, diameter at breast height and volume index at 2.5 years of age. As per the method suggested by Eberhart and Russel, a high yielding genotype with unit regression coefficient (bi=1) and the deviation from regression not significantly different from zero ($s^{-2}di=0$) is considered as the stable one. Clones which possessed high mean (general mean + two SE) only were considered for classification and characterization for adaptability. When the data for tree height, DBH and volume index were subjected to stability analysis, the variance due to clone x growth period interaction was found significant for all these characters. Therefore, further analyses were carried out for these characters and stability parameters worked out. Clones CH 3001 and CE 2003/5 were included in group I (bi around unity, $s^{-2}di$ around 0) when stability parameters for tree height was considered and hence are the most stable clones with respect to tree height. Two clones (CE 224 and TNVM 3) though recorded high mean values, were found unpredictable over growth periods due to the significant deviation from regression. Clones CE 268, CE 224 and CE 2003/5 exhibited stability for DBH. Five clones namely, CE 220, CH 3001, CE 243, CE 224 and CE 2003/5 proved to be stable across the three locations with respect to volume index. Clones CE 243, CE 9 and TNPP 1 were found suitable for planting in sites with stress or favourable conditions. They were placed in group II (bi significantly deviating from unity, $s^{-2}di$ around 0) when analysed for DBH or volume index.