

Abstract

A study on two 19-year-old half-sib open pollinated *Pinus radiata* (D. Don) trial plots, at Timboroa and Nabkoi areas in the Rift Valley Province of Kenya was carried out to determine the effects of *Dothistroma* needle blight on height and dbh growth and disease tolerance levels among 45 families raised from 'plus' mother trees selected from New Zealand and Kenya based on growth and *Dothistroma* resistance. The Timboroa trial had 25 progenies, only one of which was Kenyan, while the Nabkoi trial had 43 progenies, 6 of which were from local populations. Visual ranking of disease severity was carried out by trained and qualified technical personnel based on percent crown attack (yellowing and browning) severity scores of 1-5: 1 = 0 - 25%; 2 = 25-50%; 3 = 50-75%; 4 = 75-100% attack; and 5 = Dead. Height and dbh data were subjected to analysis of variance to identify progenies with high growth for further improvement. Disease severity data was subjected to descriptive statistical analyses using graphs and charts of percent attack. Further, percent attack data was arcsine transformed to enable ANOVA tests. Disease severity was thereafter modelled against height and dbh using the Arcsine transformed data. The results showed that severely attacked progenies had poor height and dbh. Further, both mean height and dbh showed a negative linear relationship with disease severity. The results indicated that the genetic constitution of some families may have influenced their height and dbh growth more than the disease severity alone as some progenies had elevated disease scores but still recorded higher height and dbh sizes. This finding may be especially important in the backdrop of climate change as superior genotypes may be able to withstand many growth stressors. It is recommended that research on resistance be continued and further testing of the selected superior families be undertaken.