Southern Forests: a Journal of Forest Science,
Vol. 75(3), pp 149-154

Growth potential of *Eucalyptus cypellocarpa* as an alternative species for the mid-altitude summer rainfall region of South Africa

Christopher Komakech1, Tammy-L Swain2 and Annabel Fossey3*

1 Forestry and Forestry Products, Natural Resources and the Environment, CSIR, PO Box 395, Pretoria 0001, South Africa
2 Institute for Commercial Forestry Research, PO Box 100281, Scottsville 3209, Pietermaritzburg, South Africa
3 Biotechnology, Central University of Technology, Free State, Private Bag X20539, Bloemfontein 9300, South Africa
** Corresponding author, e-mail: afossey@cut.ac.za*

Abstract

Eucalyptus grandis is predominantly cultivated in the humid, warmer temperate, subtropical regions in South Africa for pulp and paper production because of its rapid growth and desirable wood properties. With forestry expanding into mid-altitude drier and warmer, or drier and colder sites, the growth of *E. grandis* has been compromised by unsuitable growing conditions and, therefore, the search to identify reasonably well-performing species/provenances for such sites has extended to summer rainfall provenances of *E. cypellocarpa* for pulp and paper production. Seed collected from New South Wales, Australia, comprising provenances from Hanging Rock, Nullo Mountain, Wingello State Forests and Kaputar Mountain National Park was established in provenance/progeny trials on three sites in South Africa (Windy Gap, Petrusvlei and Speenkoppies). Trials were planted at 1 667 stems ha−1, in single-row plots of six trees, with four replications in one balanced and two unbalanced lattice designs. Commercial seed of other eucalypts and clones was used as controls. Diameter at breast height and height were measured at 96 months at Windy Gap, and 72 months at both Petrusvlei and Speenkoppies. Basal areas and volumes were derived from these measurements. There were distinct family and provenance differences for growth at the different sites, with the Hanging Rock provenance generally performing well across all sites. A genotype environment interaction was present between two sites, as indicated by low Type B correlations of 0.47 and 0.53 for basal area and volume, respectively.