

We are unable to supply this entire article because the publisher requires payment of a copyright fee. You may be able to obtain a copy from your local library, or from various commercial document delivery services.

From Forest Nursery Notes, Summer 2008

179. © Nursery transplant practices determine seedling root quality of two subtropical eucalypts. Thomas, D. S., Heagney, G. A., and Harper, P. *New Forests* 36:125-134. 2008.

Nursery transplant practices determine seedling root quality of two subtropical eucalypts

Dane S. Thomas · Geoff A. Heagney · Piers Harper

Received: 30 January 2007 / Accepted: 26 March 2008 / Published online: 8 April 2008
© Springer Science+Business Media B.V. 2008

Abstract This study assessed the influence of various operational transplanting procedures on J-rooting compared to a no transplanting approach of direct sowing into Hiko trays. *Eucalyptus dunnii* Maiden and *E. pilularis* Smith seedlings were examined. All transplanting treatments increased severity and incidence of J-rooting for both species. Gently loosening seedling plugs by hand prior to their removal from cells of 512 trays and gentle manual production of seedling planting holes (dibbering) in potting media in Hiko cells, rather than mechanically loosening and mechanical dibbering, reduced the incidence of J-rooting for both species. Disturbance of seedling plugs from mechanized loosening and increased compaction from mechanical dibbering are believed to have a negative effect on root development. Direct sowing produced seedlings with highest root quality when measured at 27 weeks.

Keywords *Eucalyptus pilularis* · *Eucalyptus dunnii* · Root deformation · J-root

Introduction

Forestry increasingly relies on plantation grown timber to meet demands for wood products. Plantation forestry requires successful establishment of planted material, low levels of mortality and sustained high rates of growth to remain economically viable. Mortality and growth rates of plantation grown seedlings have been related to many factors, including seedling quality (Mattsson 1996; Stape et al. 2001; Campbell and Hawkins 2004). Root system quality has been recognized as a major component of seedling quality (Ritchie 1984; Simpson 1990; Folk and Grossnickle 1996; Stape et al. 2001). An essential requirement for plantation performance is to assess the effect of nursery cultivation regimes on root system quality in nursery material. Roots can be measured by various methods including quantity of roots, potential of new roots to grow following planting, or

D. S. Thomas (✉) · G. A. Heagney · P. Harper
Land Management and Technical Services, Forests NSW, P.O. Box J19, Coffs Harbour Jetty,
NSW 2450, Australia
e-mail: danet@sf.nsw.gov.au