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Breeding trees for the low rainfall regions of southern Australia

by the Australian Low Rainfall Tree Improvement Group (ALRTIG)

Edited by Chris Harwood and David Bush

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Des Stackpole	Forest Science Centre
Mick Underdown	ForestrySA

Joint Venture Agroforestry Program Managers

Roslyn Prinsley
e-Mail: roslyn.prinsley@rirdc.gov.au

Deborah O'Connell
e-Mail: deborah.o'connell@rirdc.gov.au

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Breeding trees for the low rainfall regions of southern Australia

Executive summary

Clearing of deep-rooted native vegetation to make way for cropping and grazing has caused rising water tables and increasing salinity levels over large areas of southern Australia's low rainfall zone. Farmers, rural communities and private and public investors are planting trees to help control or even reverse these problems and the associated damage to farmlands and natural environments. Other potential benefits of farm forestry in the low rainfall zone include diversifying agricultural income through sales of timber and other products, sequestration of atmospheric carbon dioxide and increased biodiversity.

Investment in tree planting in southern Australia's low rainfall areas (those receiving less than around 600 mm of annual rainfall, too dry for radiata pine and blue gum plantations) will be maximised if planting stock is adapted to the low rainfall environments and able to yield marketable forest products. The Australian Low Rainfall Tree Improvement Group (ALRTIG) was set up in 1999 to develop improved breeds of trees that meet these requirements. The key to widespread adoption of farm forestry is commercial viability. By providing high quality tree genetic resources, ALRTIG aims to help growers improve the performance of tree plantations in low rainfall areas and the economic and environmental returns from plantations.

We have targetted a number of 'key species' that can produce high value products on a range of low rainfall site types. They include eucalypt and pine species that produce high-value timber logs and mallee eucalypts grown on short rotations to produce commodity products such as eucalyptus oil, biomass energy, and "green" bio-based industrial products.

This booklet describes the ALRTIG key species, reasons for their inclusion in ALRTIG breeding programs and their potential for commercial low rainfall forestry. The breeding strategies and genetic improvement objectives for the key species, and the progress made to date, are summarised.



Key species

Key timber-producing eucalypt species

- Sugar gum - *Eucalyptus cladocalyx*
- Swamp yate - *E. occidentalis*
- Red ironbarks - *E. tricarpa* and *E. sideroxylon*
- Spotted gums - *Corymbia maculata* and *C. variegata*
- River red gum - *E. camaldulensis* and its interspecific hybrids

Key timber-producing softwood species:

- Brutian pine - *Pinus brutia*
- Maritime pine - *P. pinaster*

Key oil-producing mallee eucalypt species:

- Blue mallee - *E. polybractea*
- Oil mallee - *E. horistes*