

Improving growth of red ironbark by provenance selection

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Red Ironbark has timber properties that have been highly sought after throughout Australia's History. Many of the mixed box-ironbark forests were logged with ironbark being sought for railway sleepers, poles and firewood. Even today, ironbark is selected and cut from remnant box-ironbark forests.

Name Change and Natural Distribution

Red ironbark was previously known as *Eucalyptus sideroxylon* with two subspecies. Recently these subspecies have been classed as separate species *E. tricarpa* and *E. sideroxylon*. The two differ in geographic location and the number of buds per cluster. Both species grow into a medium to large tree, 10–25 m in height, and are found on poor soils. They occur between 450 mm and 1000 mm rainfall/annum.

Why plant Red Ironbark?

The timber properties of *E. tricarpa* and *E. sideroxylon* are similar and consist of a dark red heartwood and pale yellow sapwood, interlocking grain and high density. The density and interlocking grain make the wood difficult to work and care is needed when drying to minimise surface checking (Bootle 1998). Despite the difficulties, red ironbark can be cut, dried and sold for furniture timber, fetching prices of between \$210–\$3500 per cubic metre (Bovalino Fine Furniture & Timbers Timber sales – 1.7.97–30.6.98). Other uses of the timber include railway sleepers, poles, flooring, decking, jetties, heavy construction and firewood.

Growth and Provenance Selection

In 1985, *E. sideroxylon* from Gilgandra, NSW (ATSC 14443) was planted at four sites. These trials indicated that red ironbark had a moderate growth rate, particularly, and poor form which was only marginally improved by early form-pruning. Height and diameter at year 14 at Culla was 7.7m and 18cm respectively. At Rutherglen, trees planted in 1985 were 9.9 m tall and 19 cm diameter at year 9 (Roger Hall 994).

In 1995, four red ironbark provenance trials were established. The objective was to look for major differences among provenances in growth and form of red ironbark when grown in farm woodlots in SW Victoria. Results have recently become available for one of these trials. The site is situated at Telangatuk in western Victoria and receives 600 mm of rainfall. The soil type is a grey sandy loam soil over clay, with ironstone gravel in the clay. The site was ripped prior to planting. Four provenances are represented, two being *E. sideroxylon* and two *E. tricarpa*, (Table 1). There were four replicates of each seedlot, with 24 trees in each seedlot group. The trees were planted at 3 m by 3 m spacing. Early results show that differences in growth occur among species and neither species grows quickly. It was evident from observation and through statistical analysis that *E. tricarpa* from Bodalla State Forest, NSW had a significantly greater mean and straighter form height compared to the other three seedlots (Figure 1). *E. sideroxylon* from Parkes, was also significantly taller than *E. tricarpa* from Dunolly State Forest.

Other studies using red ironbark include one by CSIRO (Russell Washusen, WAN seminar at Edenhope 1/11/98), looking at wood properties of selected timber species that grow in the 580–750 mm rainfall zone. Conclusions from the study were that:

- Tree form in unpruned trees was variable, although recoveries were still moderate to high.
- Knots are a concern in unpruned trees, as they retain dead branches.
- Drying performance is good and is possible in a relatively short time.

Conclusion

The decorative and durable characteristics of this species make it a desirable timber for the farm plantation. If this spp is to produce quality timber, attention to provenance selection, together with form-pruning and clear-bolt pruning will be required to produce a high quality timber product from Red Ironbark.

More information:

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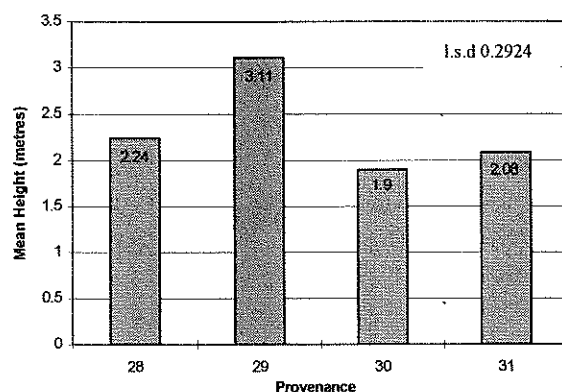


Figure 1. Red Ironbark provenance trial at Telangatuk – mean height at 39 months

Table 1. Provenances of Red Ironbark planted at Telangatuk

Provenance No.	Species	Provenance Location	Seedlot No.
28	<i>Eucalyptus sideroxylon</i>	32.7km NE of Parkes, NSW	ATSC 15094
29	<i>Eucalyptus tricarpa</i>	Bodalla State Forest, NSW	ATSC 19103
30	<i>Eucalyptus tricarpa</i>	Dunolly State Forest, VIC	PVI 1988
31	<i>Eucalyptus sideroxylon</i>	Central Western NSW	Kimseed 1988