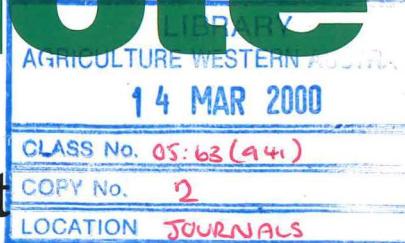


Farmnote



Specialty Timbers for the Western Australian Wheatbelt

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Introduction

This Farmnote outlines the issues influencing commercial returns from trees grown for high value, appearance grade timber in the wheatbelt of Western Australia. A list of potential species is included.

The objective of most revegetation in the wheatbelt is landcare – primarily to reduce groundwater recharge and manage salinity. Other objectives include productivity gains from windbreaks, nature conservation, and tree products for sale or on-farm use. It is often possible to achieve the primary objective of landcare and produce timber with little compromise.

'Specialty timbers' describes the timber from trees that produce attractive, distinctive timber. Many craftspeople and consumers recognise these unique properties (such as strength, grain and colour) and they are what make wheatbelt specialty timbers highly sought after for cabinet making and craft applications. This represents an opportunity for landholders, both to grow this timber for

commercial gain as well as to receive the landcare benefits from perennial vegetation on their farms.

Markets and marketing issues

The world is short of good quality timber. The main reasons for this are: over harvesting and depletion of forests in many developing countries; decreasing availability of native forests for timber production in developed countries such as the USA and Australia; and increasing timber consumption due to rising world population and standards of living.

Even though Australia produces significant quantities of sawn timber (3.66 million m³ in 1997/98), 21% of all sawn timber is imported (784 000 m³ in 1997/98). Anecdotal evidence suggests that craftspeople cannot get enough of the wheatbelt timbers, and if more was available they would use it.

Selling the timber

Farm grown timber can be sold in two ways. Firstly, the harvested logs can be sold directly to the mill, processor or craftsman, or secondly, processed timber (sawn and seasoned) can be sold direct to timber merchants. The first option is the easiest for most farmers, but the second will



Specialty timber logs, including gimlet (*E. salubris*) and salmon gum (*E. salmonophloia*), for auction at CALM Timber Technology, Harvey.



Sandalwood, (*S. spicatum*), using a jam tree (*A. acuminata*) as a host. This is part of a CALM trial plantation at Highbury, near Narrogin.

bring greater economic returns. Producing sawn and seasoned timber requires access to a sawmill and timber drying facilities, or contracting out the processing to someone who owns a mill.

Transport costs can significantly reduce the profitability of timber harvesting, and therefore it is advisable to minimize the transport distance and/or the volume of material to be transported. Local or regional processing and value adding is recommended, if possible.

Species selection

A list of potential wheatbelt timbers can be found in Table 1. There are potentially many others, but these species are the most promising.

Table 1: Some specialty wheatbelt timbers.

Wandoo (<i>Eucalyptus wandoo</i>)	Gimlet (<i>Eucalyptus salubris</i>)
Jam (<i>Acacia acuminata</i>)	Sandalwood (<i>Santalum spicatum</i>)
Red morrel (<i>Eucalyptus longicornis</i>)	Rock sheoak (<i>Allocasuarina huegeliana</i>)
York gum (<i>Eucalyptus loxophleba</i>)	Flat topped yate (<i>Eucalyptus occidentalis</i>)
Brown mallet (<i>Eucalyptus astringens</i>)	Dundas blackbutt (<i>Eucalyptus dundasii</i>)
Salmon gum (<i>Eucalyptus salmonophloia</i>)	Dundas mahogany (<i>Eucalyptus brockwayi</i>)
Native willow (<i>Pittosporum phillyraeoides</i>)	Redwood (<i>Eucalyptus transcontinentalis</i>)

Species must suit the site characteristics (such as soil type, soil nutrient status, depth to water table), and in particular those characteristics that could limit plant growth. These limiting factors can then be managed by treating them directly (eg. drainage to reduce waterlogging), or choosing tolerant tree species (eg. flat topped yate, *Eucalyptus occidentalis*, for waterlogged and saline sites). Site assessment techniques can be found in Farmnote No. 36/98, 'Site assessment for successful revegetation'.

An important factor to consider in species selection is the relative demand and supply of the timber, which determine its price into the future. It may be helpful for potential growers to speak to timber merchants or the Department of Conservation and Land Management (CALM) about which timbers are in demand now and into the future, and select timber species based on both biological and market factors.

Provenances

Many biological and commercial characteristics of trees are inherited, and great variation in these characteristics occurs between populations of trees. Choosing seed from the right population (provenance) is vital for any commercial tree plantation. By obtaining seed from superior parent trees, sawn timber recovery, which increases with tree straightness, can increase by up to 30 per cent.

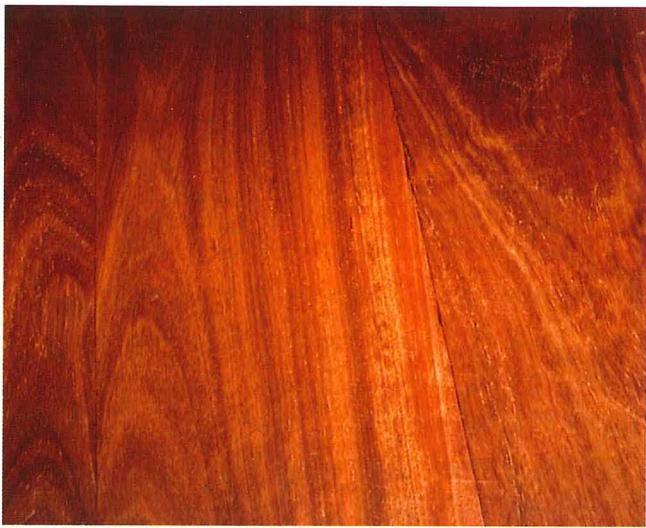
When collecting seed, obtain seed from the largest, straightest and most vigorous individuals that are on sites similar to where the seed will be planted. If the seed is ordered from a supplier, specify the site characteristics and the area of the State where it is to be planted.

When ordering seedlings, provenance should be specified, making clear the requirements for high growth rate and good form. Seedlings must be ordered early, before November of the year before planting if seed is available, or the year before that if seed of a particular provenance needs to be collected.

Planting design

The main factors that need to be considered when designing the plantation are:

- Closer tree spacing generally gives a straighter tree with smaller branches and therefore a less knotty, more valuable log.
- Closer spacing leads to inter-tree competition and therefore slower growth rates. Thinning is usually required.
- Edge trees (those on the outside rows of the planting) usually grow faster, but have larger limbs on the outside, and may have uneven growth stresses.



Redwood. The attractive timber of redwood, (*E. transcontinentalis*) is sought after by many cabinetmakers and craftspeople.

Designs that are integrated into the agricultural landscape, such as windbreaks, usually have a large proportion of edge trees. Wide tree belts and large block plantations usually suit fast growing forestry species in high rainfall areas, such as blue gums.

Belts are generally considered to be the best design for trees in the wheatbelt because they maximize the edge effects. This results in the edge trees growing faster due to less competition for light, nutrients and water. The main disadvantage of these designs are that the trees require more intensive pruning to produce knot free timber, as the trees grow larger side branches. In comparison to plantations, more fencing may also be required.

Tree establishment

Site preparation and subsequent management is particularly critical for commercial revegetation. High establishment rates and rapid early growth is essential to maximize the economic return.

Weed control is one of the major factors affecting seedling survival and growth in the first few years. Knockdown and residual herbicides are essential prior to planting seedlings. On many sites, second year weed control with selective or residual herbicides may also be required.

Deep ripping is highly recommended as part of the site preparation because it breaks up the soil, which improves root penetration. This gives the seedlings a much greater chance of surviving the first summer, and is also an advantage when competing with weeds the next growing season. If the site is susceptible to waterlogging, mounding may also be required.

Site preparation and weed control for revegetation are covered in Farmnotes 37/98 and 47/98 ('Site preparation for successful revegetation' and 'Weed control for successful revegetation').

Seedlings

Seedlings are the most effective establishment method when planting commercial trees. The main advantages are that the trees are evenly spaced, with more reliable establishment and survival than with direct seeding. Nurseries are able to give advice regarding seedling establishment.



York gum. The timber of York gum, (*E. loxophleba*), a common tree in the wheatbelt. The sprawling form of this tree will usually result in a low timber yield.

Management issues

Thinning and pruning

The major management requirements to produce sawlogs are thinning and pruning. Thinning ensures the best trees grow the quickest, and pruning encourages the trees to grow straight with a minimum number of large knots. Straight logs maximize the sawn recovery (the volume of sawn timber obtained from the log) when the log is milled, and knots reduce the timber quality (both the physical properties and appearance).

Pruning can start at about four or five years old, using pruning shears to remove any 'double leaders' or forks, and to also remove the lower limbs. Over the life of the trees, pruning will probably be required three or four times. The idea is to encourage one straight section at least two to three metres in length, which will be the future commercial log. The rule of thumb when pruning is to not remove more than one-third of the tree crown at one time otherwise the growth rate of the tree will be adversely affected.

Thinning is also important, the timing of which is dependent on the tree species and the initial planting density. Thinning should be done to remove stunted trees and competition to maximize the growth rate of the remaining trees.

Specialist advice is recommended on the pruning and management of commercial plantations.

Harvesting

Harvesting (or tree felling) can be done by the farmer, or it can be contracted out. An advantage of trees, as opposed to annual crops, is that the harvest time is not as crucial, and the trees may be harvested over many months or years as required.

Processing

There is a good opportunity with specialty timbers for value adding through processing on farm. For small lots of very high value timber, on farm processing would be the most profitable option for farmers. This is the process of taking a fallen log into dry, sawn timber, ready for use in making cabinets and furniture.

Sawing the timber on farm can be done with a mobile sawmill (eg, the Lucasmill™). This dramatically increases the value of the wood, particularly if it is also seasoned on farm. Given the logistical problems of actually buying a mobile sawmill, or getting a contractor who owns one to come out and time commitment involved in processing timber on farm, many farmers may elect to sell the fallen logs straight to the craftsperson or sawmill.

Economics

Due to the long rotation times (30 to 50 years depending on rainfall), growing trees only for specialty timber in the wheatbelt is not going to be profitable when compared to traditional enterprises such as grazing or cropping. However, the other benefits that trees provide through water table control and wind protection of crops and stock may make tree establishment for timber more economically attractive.

The key in maximizing the benefits is to select tree species that will give landcare benefits, and produce high quality timber.

Conclusion

This Farmnote is intended to be a guide outlining the issues to consider when planting trees for profit in the wheatbelt. If

more detailed information is required, expert advice should be sought (eg. from CALM, AGWEST or private tree nurseries).

In summary, the main issues for landholders to consider when planting trees for profit are:

- Species selection – type, provenance and form.
- Tree establishment – weed control and site preparation.
- Planting design – belts or a block plantation.
- Management issues – pruning, thinning and fencing requirements.
- Harvesting and processing.

Further information

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Farm Forestry Advisory Service Website:
www.agric.wa.gov.au/programs/srd/farmforestry

This publication contributes to the Western Australian Salinity Action Plan.