Guest editorial

The hardwood dilemma

Australia has been very successful in developing a softwood-plantation-based timber industry. Can it do the same for hardwood timber and veneer, through plantations managed for solid wood (sawlog)?

A picture is worth a thousand words, as the old saying goes, and Figure 1 clearly indicates the Australian 'hardwood dilemma'. The figure shows the projected harvest (log availability) from public and private native forests and from plantations out to 2035, based on the best information available from the National Forest and Plantation Inventories, and additional research undertaken as part of the review by Nolan *et al*. (2005).

The key points are that native forest supply is projected to continue to decrease, and that the sawlogs available from plantations will be about 18% of total estimated sawlogs available in 2035. The figures for plantation supply are probably generous, given there tends to be a gap between the claims of owners and the actual plantation management undertaken on the ground. In addition, the future supply from non-plantation sources could be even more constrained than anticipated, given the undiminished pressure from environmental organisations to stop all harvesting in public and private native forests.

Plantations have long been touted as the alternative to native forest logging, and quite considerable effort has been devoted to the science of hardwood plantations since the mid-1980s. Actual investment, though, has been strongly skewed to short-rotation fibre plantations in response to taxation arrangements. Around the country, hardwood plantations are now accepted politically as the alternative (not a supplement or a complement) to native forests for solid wood supply. This acceptance ranges from complete in Queensland to partial in other states. Even in Tasmania, sawlogs and veneer logs from eucalypt plantations are planned to constitute more than 30% of the total logs available from public land to the industry by 2020.

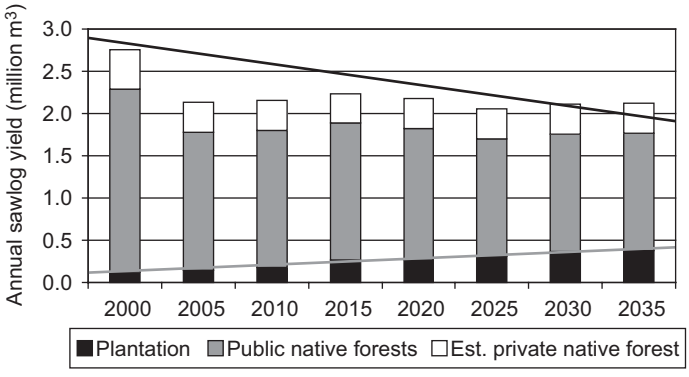

Figure 1. Projected native forest and hardwood plantation log availability

Whilst there has been massive private investment in short-rotation fibre plantations, sawlog plantations have largely been funded through public investment, particularly in Queensland, New South Wales, Western Australia and Tasmania. Although all states seek to encourage private investment in longer-rotation hardwood plantations, success so far has been limited. Australia lacks any coordinated national strategy to develop hardwood sawlog plantations, in contrast to the position adopted for softwoods.

A major conclusion of Nolan *et al.* (2005) was that production of high-quality solid wood, i.e. wood suitable for high-value appearance products, requires early silvicultural intervention through thinning and pruning, even for 'self pruning' species grown on short rotations. This has been occurring to some extent in plantations established from the early 1990s onwards, but some growers seek a commercial return from thinning as a first silvicultural intervention, whilst others do not have the funds nor accept the need to invest early in the rotation and appear to have adopted a 'strategy of hope'. There is a case for reconsidering the balance between cost reduction and value creation.

Logs produced in plantations will generally be smaller and contain more lower-quality juvenile or less dense wood than more mature logs from native forest. Technological advances in sawing and drying will assist in dealing with the challenges of changing resource properties. No technological change, however, can overcome the defects of knotty logs, the timber from which will generally be limited to structural products entering very cost-competitive markets with softwood or other materials.

The option of thinning and possibly pruning older plantations initially established for fibre has also been considered. While not conclusive, the emerging scientific evidence suggests that this is unlikely to be a successful strategy due to larger knotty cores, the possible formation of tension wood in newly-thinned stands, and possible poor growth responses to later-age thinning. Some good sawlogs may be produced in such a regime, but the quantity of such logs may not justify the investment.

Beyond the investment challenges are the economic and commercial ones. Overseas, particularly in South America, there are increasing areas of plantations managed for sawlog with high growth rates, and intensive and low-cost management. Greater quantities of high-quality eucalypt sawn timber and veneer are entering international trade. Australia's comparative advantage in hardwood production has been in access to a range of native forest species of diverse colour and physical properties suitable for use in a wide variety of situations. Australia has no competitive advantage when growing plantations for sawn timber. Any commercial success will require carefully selected sites, high growth rates, low processing costs and a good outturn of the highest-value products.

Australia's population continues to expand, and demand for high-quality hardwood timber will continue. Our historical capacity to meet our own needs in the longer term may be under serious threat. There is a need to critically examine, at a national level, the potential quality, yield and commercial viability of the 'managed for sawlog' plantations. Australia has increased its imports of tropical hardwoods in recent years as a consequence of reduced access to native forests resources. Will eucalypt timber become just another contribution to our intractable balance of payment problems?

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Reference

Nolan, G., Greaves, B., Washusen, R., Parsons, M. and Jennings, S. (2005) *Eucalypt Plantations for Solid Wood Timber Products in Australia.* Forest and Wood Products Research and Development Corporation, Melbourne, 130 pp.