

age trees as juvenile clones is recommended.



Figure 8. Logs from thinning of a 10-year-old, farm forestry stand in coastal lowlands north of Townsville, Queensland. Note the high proportion of dark-coloured wood of the log end. K. Harding.

Conserving the best trees across all post-1990s plantings

Maintaining a diverse genetic base is the best option for coping with changes in selection criteria e.g. following appearance of a serious pest. Conservation is practiced in most tree improvement programs (31, 32). Hazards such as cyclones and fire, as well as the need for a diverse base for recurrent selection gains, confirm the need for selecting and grafting the best trees across all plantings since the 1990s and their conservation in breeding clone banks.

Pooling old and new germplasm in a collaborative domestication program

Intuitively, pooling the best material developed in the governments' improvement program with the unimproved farm-forestry plantings and the broadly-based industry plantations nearing selection age would be a good strategy for the industry as a whole. This broad base of selected trees would enable maximum genetic gain and hedge against future changes of selection criteria. Nikles (16) illustrates how this could be achieved.

Developing and using a tree selection index

The most efficient method of selection is by index (33) supported by genomic selection. Indices are in use with many crops and animals. For Ks an initial index using weighted selection criteria such as diameter, bole length, straightness and heartwood percent is needed.

Conclusions

African mahogany forestry is potentially an important new industry with capacity to expand in northern Australia producing high-value products and benefitting the whole value chain. Having built up very valuable genetic resources, expertise, technologies and knowledge of the species to almost 'industry ready' status over the past 13 years, every effort should be made to exploit the comparative advantage these assets and knowledge provide. Priorities for some operational and R&D work suggested in this paper should be considered among such efforts.

Capitalising on current R&D, and initiating new work through all-stakeholder collaboration via an African Mahogany Improvement Alliance, are essential actions to achieve the goal of greater plantation profitability proposed in this paper and underpin expansion of the embryonic Ks industry in Australia..

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