Adding value to Southern Blue Gum

Plantation-grown southern blue gum (*Eucalyptus globulus*) is our largest national plantation hardwood resource. Research at CRC Wood Innovations shows that microwave treatment has the potential to reduce the severe end-splitting in logs and excessive distortion during sawing considered characteristic of this timber.

CRC research also indicates that recovery of select appearance product can be significantly increased through use of silvicultural practices. Researchers have shown that twelve year old *E. globulus* grown to a clearwood regime yields approximately 50% of sawn volume as select appearance product, which compares favorably with yields from 62 year old *E. regnans* regrowth.

CRC Wood Innovations researchers use high-intensity microwave conditioning of logs to relieve growth stresses. The microwave treatment is a rapid process and can be implemented on-line. Microwave conditioning potentially facilitates use of improved sawing systems similar to those used for softwoods.

High intensity microwave treatment changes wood structure, creating microvoids in the radial-longitudinal planes of the wood and relieving growth stresses. CRC researchers are investigating how to adjust the intensity of microwave energy supplied to control the number of microvoids, their dimensions and distribution. In this way selective microwave modification protocols to suit different applications are developed. CRC research encompasses microwave conditioning for relaxation of growth stresses in logs, speeding up hardwood drying, facilitating uptake of preservatives, and generation of wood-resin composite products.

The research at CRC Wood Innovations is end-user driven, and has the potential to offer increased security and generate greater returns to plantation growers.

Biographic material on CRC researchers:

Professor Peter Vinden is foundation Professor of Forest Industries at the University of Melbourne and CEO of the CRC Wood Innovations. His experience includes commercialisation of a range of wood treatment and processing technologies. His research has generated over 10 patents. He is a Fellow of the Institute of Wood Science, and of the Russian Academy of Natural Sciences (Forest Science Department).

Professor Grigori Torgovnikov is a wood scientist, a senior research fellow with the University of Melbourne, and previous Head of Microwave Research at the Central Moscow Institute for Forest Industries. He is a Correspondent Member of the Russian Academy of Natural Sciences (Forest Science Department) and a Member of Association of Microwave Power in Europe for Research and Education (AMPERE).

Gary Waugh is a principal scientist with the CRC Wood Innovations. He chairs the International Union of Forest Research Organisations (IUFRO) Division 5 Eucalypt Working Party on improving the utilisation of plantations of eucalypts. He is also Director of the Timber Training Centre at Creswick, and a Fellow of the Institute of Foresters of Australia.