The federal minister for fisheries, forestry and conservation, the Hon Senator Ian Macdonald, expressed enthusiasm for CRC research on plantation blue gum and microwave technology during a visit to Creswick on 31 October.

Graeme Stoney (Victorian opposition forestry spokesman) arranged Senator Macdonald’s visit to the CRC at the request of the minister.

Senator Macdonald, accompanied by Graeme Stoney and Philip Davis (Leader of the Opposition in the Legislative Council) listened attentively to presentations by CRC researchers Gary Waugh, Barbara Ozarska and Voytek Gutowski. The visitors were fascinated by a working demonstration of the microwave wood modification equipment provided by Grigori Torgovnikov.

Senator Macdonald received a special memento from the CRC; a photograph framed in finished blue gum timber which had been dried using the microwave.

The ministerial visit resulted in lots of media cover, with articles in the Ballarat Courier and Creswick Advocate and a news story on Prime television.

Gary Waugh (left) presents Senator Macdonald with a specially framed photograph with (from left) Graeme Stoney, Philip Davis and CRC CEO Peter Vinden looking on. Photo by Andrew Wilson.
“Speaking to CRC staff, Senator Macdonald commented on the potential of CRC research to make a significant contribution to the Australian community.”

From the CEO

Last November we were honoured by a visit from the federal Minister for Agriculture, Fisheries and Forestry, Senator Macdonald. Speaking to CRC staff, Senator Macdonald commented on the potential of CRC research to make a significant contribution to the Australian community. It was a pleasure to host a senior cabinet member who was vitally interested in our work, and shared our vision for its applications in the forest products industry.

In November 2003 CRC Wood Innovations passed a significant milestone with successful completion of our second year review. The exhaustive analysis by two review panels has provided a number of valuable strategic recommendations. Many of these have already been implemented, and we are in the process of carrying out others. No doubt these will be fine tuned when our Board meets next March to review strategic planning.

The review panels were highly complimentary on the quality of CRC science and CRC researchers. My thanks to all CRC staff who worked very hard to ensure that the CRC shone so creditably in the spotlight.

CRC students in international business competition

MTECH, winners of the Melbourne University Entrepreneurs Challenge 2002, flew to Singapore at the end of October to compete in Global Start-up@Singapore, an international business plan competition open only to winners of previous competitions.

The MTECH plan for commercialization of microwave technologies for wood modification was presented by CRC students Karl Wild and Lyndall Bull and Eric Jansen of Melbourne Business School.

The competition was fierce, against teams from prestigious business schools all over the world. MTECH were selected to advance to the final round. On this occasion the winners were the UC (Berkeley) team, which presented a plan for a novel obesity-fighting technology.

Getting the most out of CNC equipment

A new report by CRC researcher Philip Ashley provides practical recommendations to furniture manufacturers about CNC (Computer Numerically Controlled) equipment.

Philip won a 2002 Gottstein fellowship to study world’s best practice in CNC manufacturing of timber furniture. His report presents his insights from discussions with manufacturers and researchers in Germany, Spain, the UK and Canada. It can be downloaded from the Gottstein Trust website www.gottsteintrust.org under “Reports”. Contact us on crc-wood@unimelb.edu.au for a copy of Philip’s recommendations.

Assessing a new generation of wood preservatives

CRC chemist Simon Przewloka will spend three months in the US assessing Accelerated Field Simulator techniques for rapid screening of the effectiveness of wood preservative formulations, and comparing their effectiveness in Australian hardwoods with existing, slower methods. Simon has been awarded a Dennis M Cullity fellowship by the FWPRDC to work with the US Department of Agriculture in Madison, Wisconsin. He will commence work in the US in May 2004.

What makes a commercial success story?

Why do some new forest products progress rapidly to commercial success, while others never make it out of the development phase? CRC PhD student Lyndall Bull hopes to provide some answers. Lyndall is analysing how innovative wood products come to market, and hopes to identify key factors critical for the commercial success of products such as LVL (laminated veneer lumber).

Support from the FWPRDC and an Australian Business Foundation Roger Pysden fellowship, has enabled Lyndall to broaden the scope of her studies and investigate cases in the USA and Canada, where a higher percentage of innovative products progress from R&D to marketplace than in Australia. She leaves for the US at the end of February.
“The Panel strongly endorses the quality of the research program and particularly the quality of the research staff. The Panel agrees with the direction of the research program.”

Scientific panel report, stage one, second year review.

Visitors to the CRC

Several international groups with an interest in the growing and processing of Australian plantation eucalypts visited CRC researcher Gary Waugh during 2003. These included a delegation from the Research Institute of Wood Industry at the Chinese Academy of Forestry in Beijing, led by Prof. Jiang Xiaomei, with CRC researchers. Gary also hosted Chilean researchers, including managers from Forestal Mininco SA, Bopar SA, Servicios Forestales Río Calle Calle Ltda, Agricola y Comercial Traimun Ltda, and several branches of Agricola y Forestal Ltda.

Martin Lehmann, visiting Swiss research student, hosted his supervisor from the Swiss School of Wood Engineering, Christophe Sigrist, at the beginning of October. Martin, Christophe and program manager Barbara Ozarska discussed Martin’s progress on his research project on Vintorg 2 from southern blue gum.

Gary Waugh ran a seminar on converting plantation blue gums into high value-added sawn timber at the Timber Training Centre, Creswick on December 1. The seminar presented plantation management techniques using pruning and thinning to produce 12 year-old trees which provide better recovery of quality sawn timber than 60 year old regrowth ash. It included a sawmilling demonstration of managed eucalypt plantation timber, shown in our photo. About 50 people attended the seminar, including on-farm tree growers and representatives from contract plantation companies.

Getting reviewed—Second Year Review

The federal Department of Education, Science and Technology (DEST), which administers the entire CRC program, requires each CRC to undergo operational reviews at the end of their first year, second year and fifth year. During the last six months of 2003, CRC Wood Innovations underwent its second year review.

Two stage review

The second year review examines the strategic direction of the CRC in two stages. Stage 1 is an independent scientific and technical review of research activities. Stage 2 is a strategic review and performance evaluation of collaboration, research applications, education, training, management, and CRC budget conducted by DEST.

Both review panels delivered reports and recommendations. This CRC received a “tick of approval” for the quality of its researchers and research from both panels.

Panel endorses research quality

The independent scientific panel included Dr Ted Hillis AM, former Chief Research Scientist at CSIRO; Dr Lena Antti of Luleå University of Technology, Sweden, a specialist in microwave drying of wood; and Roger Simpson, managing director of Design Synergy Pty Ltd. John Yencken, as CRC Visitor, was included on both panels.

The scientific audit involved presentations on all CRC research projects. The panel acknowledged the quality of presentations to be very high.

CRC implements panel recommendations

The strategic review panel members were Ian Pitman, current co-chair of the CRC Program expert panel on Life Sciences; Dr Ron Beckett, former General Manager, Technology and Innovation, Hawker de Havilland; Gail Baker, of DEST; and John Yencken.

The strategic audit expressed concern at the loss of cash and in-kind resources after Microwood ceased to be a CRC participant. To redress this, the CRC is actively seeking additional funding and in-kind contributions from a variety of sources.

The strategic review panel made a number of recommendations on a variety of matters, from collection of market intelligence and research know-how to CRC policy on reporting, staff induction and peer scientific review.
New CRC research program

CRC Wood Innovations is currently implementing a new program, Program 5, entitled Raw Wood Value Enhancement, to address applications for CRC microwave technology outside the scope of Programs 1 and 2.

Program 5 will incorporate research to develop non-formaldehyde-based resin formulations from pyrolysis products, to be managed by David Butt. The project is synergistic with existing work on microwave-modified solid wood products, and we anticipate extensive collaboration between the two projects.

Development of timber treatment schedules which offer improved efficiencies in terms of cost and time using a CRC-developed treatment plant will also be a part of Program 5.

Program 5 will ultimately incorporate other projects that build on CRC expertise in microwave technology and engineering. These include log sterilization for export, microwave pulping, and use of microwaves for veneer processing.

Adding value to Australian hardwood plantation timbers

Microwave technology developed at CRC Wood Innovations may offer access to a sustainable hardwood resource for high value sawn timbers from Australia’s eucalypt plantations.

This means that wood worth only $70-80 a tonne as woodchips has potential to be used as high quality sawn wood for a wide range of appearance end-uses worth 10-20 times more than woodchips.

Plantation-grown southern blue gum (Eucalyptus globulus) is our largest national plantation hardwood resource. However, it has a reputation for inferior sawlogs with smaller diameters, a large knotty core, end splitting of logs and distortion of the sawn timber, both off the saw and during drying. Intensive plantation management can overcome many of these problems. Increased growth rate improves log diameters, pruning eliminates knots and tree selection improves form. Lower competition during growth also appears to diminish tension wood, reducing the growth-stress related problems of log end-splitting, distortion during sawing and drying degrade.

Conditioning of whole logs with low-intensity microwave treatment could also diminish growth-stress related problems. Microwave treatment is rapid, can be implemented as an online process, and through reduction of growth stresses offers the potential of adopting sawing systems for hardwoods similar to those in use for softwoods, with significant improvements in sawing efficiency and costs.

CRC research Project Leader Gary Waugh says that plantation Eucalyptus globulus has ideal attributes for high value sawn timber. “It has high strength and hardness, an attractive blonde colour across both sapwood and heartwood which is maintained with age, and uniform log characteristics ideally suited for high technology processing systems.”

Through his position as chair of the International Union of Forest Research Organisation (IUFRO) Division 5 Eucalypt Working Party on improving usage of eucalypt plantations, Gary Waugh is at the forefront of eucalypt research. “Growth stress can be dramatically reduced by early thinning and pruning. In Spain and Chile, blue gums thinned and pruned at three to five years of age have produced premium quality sawlogs after 20 years. If this approach was adopted for even 10% of the 400,000 hectares of plantation blue gum in southern Australia we could have a considerable resource to overcome an increasing hardwood supply problem facing our hardwood sawmilling industry,” he says.

Waugh says a major advantage of planted eucalypts is that they have the potential to produce high quality sawlogs in about a third of the time needed for regrowth timber. “It takes 60 years to produce a sawlog in a regrowth forest. A plantation can produce a similar sized log in 20 years,” he says.