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R&D Works – July 2015

Welcome to our July edition of the R&D Works newsletter.

This month our stories include a study on transforming the lignin properties in softwood for the bio-fuel and pulp industries; machine stability of mechanized steep terrain harvesters; the development of a new software tool by CSIRO to predict the severity and spread of bushfires; a report linking the health benefits of wood in the built environment; and an FWPA funded project that developed industry-wide EPDs for five key Australian wood products.

I do hope you enjoy reading about these exciting research projects and their applications.

Chris Lafferty
R&D Manager
FWPA

MAIN NEWS

Green Stars for Australian timber

For the Australian forest and timber industry, producing products that can be used by builders of Green Star sustainably rated buildings makes good economic and environmental sense. A range of certifications may contribute to a building product being recognised by the Green Building Council (GBC) and so be eligible for inclusion in its star ratings

Australian Timber EPDs



Australasian EPD Programme www.epd-australasia.com
International EPD® System www.environdec.com
WoodSolutions www.woodsolutions.com.au

system. The development of an Environment Product Declaration (EPD) is one such opportunity to demonstrate the environmental credentials of a product and be included in the certification system.

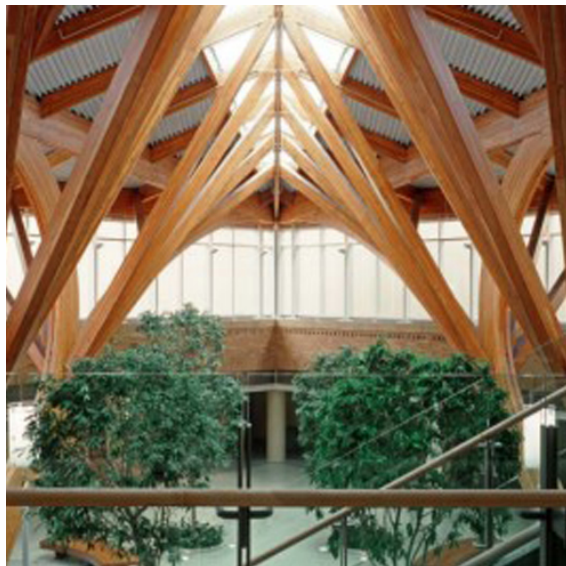
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Emergency services fired up over new prediction software

A new software tool that can predict the severity and spread of destructive bushfires has been released by CSIRO. The software, known as 'Spark' will give fire-fighting agencies a more accurate view of fire behaviour, informing decisions that could minimise property damage and save lives.

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Wood as a restorative material in healthcare environments

While the study of wood and health is relatively new in the field of environmental psychology, a clear relationship between the presence of other natural elements has been established in built environments.

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FOREST GROWING

Assessing the impact of climate change on



wildfire regimes in forests

Fire is an intrinsic element of many forest ecosystems; it shapes their ecological processes, determines species composition and influences landscape structure. However wildfires also release carbon emissions, create smoke pollution, cause loss of lives and property and affects biodiversity and vegetation coverage. There are also increasing concerns about the potential impacts of climate change on forest fires, forest fuels and the probability of fires.

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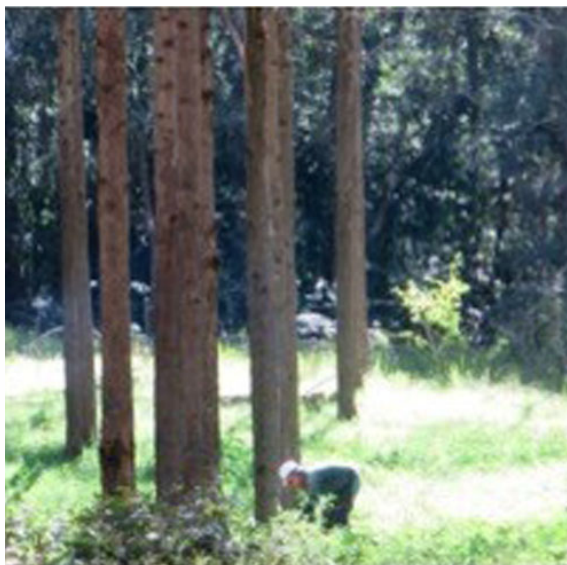
WOOD HARVESTING TRANSPORT AND LOGISTICS



How terrain slope affects the machine slope when harvesting

Steep terrain harvesting can be expensive and have high safety risks. Mechanised ground-based machines are increasingly being used on steeper slopes to decrease harvesting costs and improve safety by removing the manual tasks of tree felling and choking.

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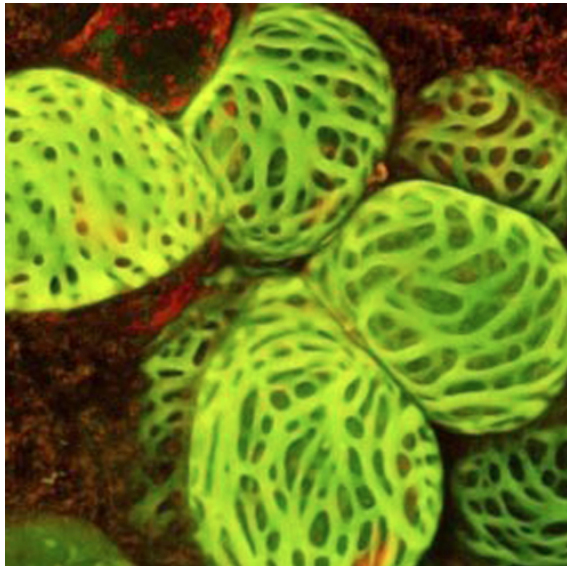
Portable tools for assessing the bearing capacity of forest roads compared

Forest roads provide access to logging sites and enable transportation of timber from forest to mills. Efficient forest management and forest industry are impossible without a proper forest road network. The bearing capacity of forest roads is a key factor in building a safe network, however this varies significantly due to weather conditions, seasons, use

and quality of roading materials.

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NEW PRODUCT INNOVATIONS



Transforming the properties of lignin in softwoods

Radiata pine that is easier to process into pulp and bio-fuel is one step closer thanks to a team of Scion biotechnologists working in collaboration with the University of Wisconsin-Madison.

Easier-to-process softwood brings economic and environmental benefits. Needing less energy, the pre-treatment processes will be faster, more efficient and less wasteful, yielding improved feedstock for the pulp, paper and bio-fuel industries.

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Rice husks alternative to particleboard

A team of students from the University of California, Riverside's Bourns College of Engineering recently won two awards at an international design competition for a material composed of rice husks that they created as a less costly, more environmentally friendly and termite resistant alternative to particleboard.

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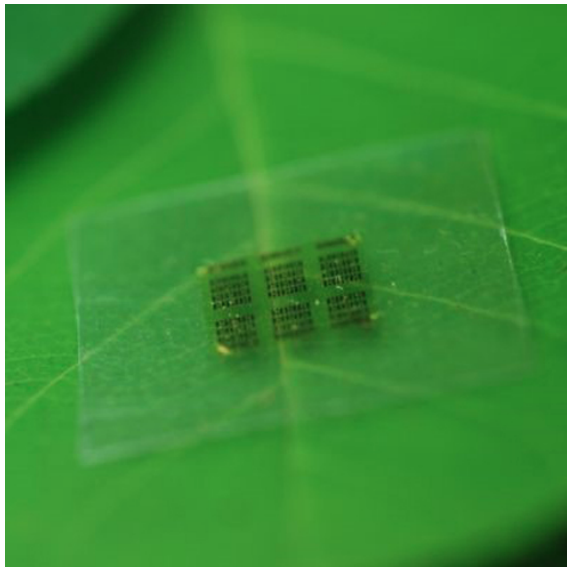
Trees are source for high-capacity, soft batteries

A method for making elastic high-capacity batteries from wood pulp was unveiled by



researchers in Sweden and the US. Using nanocellulose broken down from tree fibres, a team from KTH Royal Institute of Technology and Stanford University produced an elastic, foam-like battery material that can withstand shock and stress.

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A new kind of wood chip: biodegradable computer chips

Portable electronics — typically made of non-renewable, non-biodegradable and potentially toxic materials — are discarded at an alarming rate in consumers' pursuit of the next best electronic gadget.

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OTHER

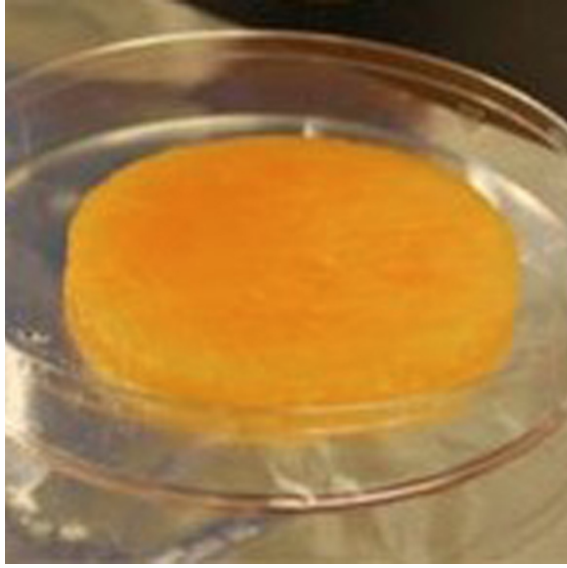


Audi claims first synthetic gasoline made from plants

Just weeks after producing its first batch of synthetic diesel fuel made from carbon dioxide and water, Audi has laid claim to another synthetic, clean-burning and petroleum-free fuel called "e-benzin." The fuel was created by Audi's project partner Global Bioenergies, in France.

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Smart packaging to the rescue



What if technology could guarantee that the package of cold cuts you just bought were free from *Listeria* and other harmful bacteria? What if technology could ensure that the antimicrobials in packaging didn't leach onto your spinach? What if technology could do that without using chemicals? Well... technology can.

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Paper based device can detect ricin, other biological threats

As researchers around the world develop cheap paper devices to detect health threats including the Ebola virus and malaria, biological threats appear to be the next target. U.S. researchers are developing a paper diagnostic tool that could detect ricin using materials that would cost a few dollars, and require an electronic reader valued at about US\$100.

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