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R&D Works – August 2016

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

This month our stories include a report into the development of a bushfire early warning system which utilises NASA's MODIS satellite to better predict forest fire risk; a productivity study on a Uruguayan eucalypt plantation sampling automatic GNSS-enabled harvester data; a carbon cycling project that investigated terrestrial ecosystems and the atmosphere which will better inform more accurate global climate change models; and a new FWPA funded Australian consumer study demonstrating an increase in the preference for wood that also confirms the forest and wood products industry's reliability as a source of environmental information.
I do hope you enjoy reading about these exciting research projects and their applications.

Chris Lafferty
R&D Manager, Forest & Wood Products Australia

Main News

Consumer research puts wood as a firm favourite
The latest wave of Australian consumer tracking research shows an increase in the number of respondents who prefer wood – and also confirms the forest and wood products industry's reliability as a source of environmental information.
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Forest Growing

Using NASA satellite data to help forecast forest fires
Imagine being able to accurately predict where forest fires might strike — even in the most remote locations — using freely accessible data from a NASA satellite. This is the work of Quazi Hassan, a geomatics engineering associate professor in the University of Calgary's Schulich School of Engineering.
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Watching a forest breathe
For the first time, scientists have been successful in measuring the processes by which an entire forest "breathes". A team led by Richard Wehr and Scott Saleska at the University of Arizona obtained detailed long-term measurements of the respiration and

photosynthesis rates of a temperate deciduous forest during the day and the night.
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Timber Construction and Design

3D printer uses paper to create furniture
Eco Concrete Ideas, an architectural concrete manufacturer, has used paper 3D printing technology to develop Morpheus, a two-meter concrete bench cast in a mold made from 4,000 layers of recycled paperboard.
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Wood Harvesting Transport and Logistics

Robotic features could make trucking more efficient
While we hear a lot about self-driving cars, a future with autonomous trucks could be a reality a lot sooner than we thought - and lead to a major shake up of the transportation industry.
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Automatic GNSS-enabled harvester data to evaluate productivity
Most modern cut-to-length (CTL) machines used in forest harvesting have on-board computers that capture individual tree data and can also be coupled with global navigation satellite systems (GNSS).
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Harvest forwarder productivity based on automated data collection
Recent developments in on-board technology have enabled automatic collection of follow-up data on forwarder work. The objective of this study was to obtain highly representative information on time consumption of specific work elements for large forwarders in final felling operations in Sweden.
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New teleoperation forest harvesting technology targets safety
New forest harvesting technology revealed in Nelson, New Zealand, sets its sights on further increasing safety in steep land harvesting operations. The new teleoperation technology provides out of harm's way operation of a purpose-built tracked feller-buncher, from the safety of a separate operator cabin and console.
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New Product Innovation

Wood pulp waste converted to stable, blendable biocrude
Scientists with the Australian start-up Licella have devised a way to use biomass waste from the papermaking process to make a new petroleum substitute – biocrude oil – that has attracted the interest of Canadian pulp and paper producer CanFor.
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Forest residues to biojet fuels: Challenges and opportunities
If the aviation sector was a country, it would be the 8th largest emitter of human-induced greenhouse gases in the world. Many airlines, aircraft manufacturers and industry associations have committed to voluntary targets, including reaching carbon neutrality by 2020 and achieving a 50% reduction in emissions by 2050.
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Other Information
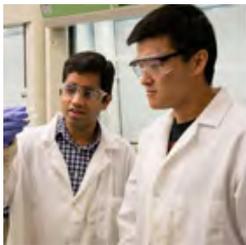
Researchers say trees could help strengthen auto parts
Trees that are removed during forest restoration projects could find their way into car bumpers and fenders as part of a study led by Srikanth Pilla of Clemson University.
Pilla is converting some of those trees into liquid suspensions of tiny rod-like structures with diameters 20,000 times smaller than the width of a human hair.
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