

# R&Dworks

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**Chris Lafferty**  
R&D Manager

Dear << Test First Name >>,  
Plastics have been in the news a lot recently and are also the subject of many applied research projects using lignin or cellulose to create new biomaterials. This edition features potential wood-generated substitutes in 3D printing, food wrappers and even adhesive tapes and bandages. Closer to home, FWPA Bioenergy and Biomaterials interest group member Weathertex has collaborated with the Queensland University of Technology on an investigation into possible commercial uses for the waste liquor created during the manufacture of timber cladding.

## **New partnership tackles production challenges in manufactured timber products**

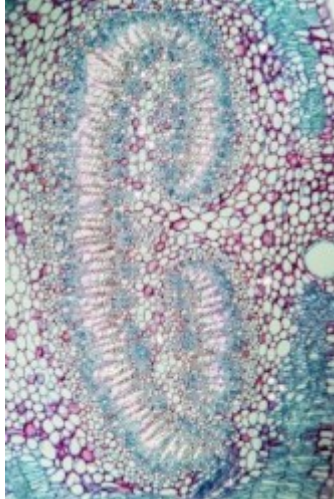
A new pilot program has been launched by Weathertex and Queensland University of Technology (QUT) to understand the chemical changes that take place during the production of external timber cladding.

[Read more](#)



## **DNA technology research set to give forestry industry a big boost**

An industry 'game changer' is how the Southern Tree Breeding Association has described the use of DNA technology in identifying the physical attributes of trees at the seedling stage. This technology has significant



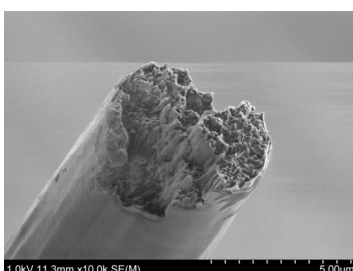
potential in assisting seedling selection for planting, speeding up growth and boosting log yield.

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## New podcast series WoodChat by FWPA showcases latest in home-grown industry innovation

FWPA is excited to announce the launch of its inaugural series of podcasts, WoodChat, with one of the first episodes focusing on a new climate model which predicts how climate will impact growing conditions around Australia.

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## Wood nanofibre forms strongest biomaterial ever made

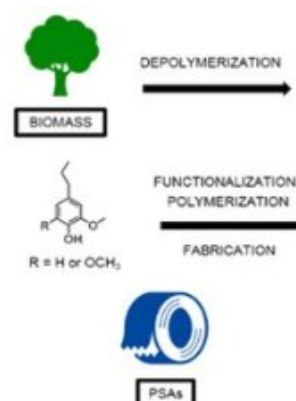
Spiderman and Superman move over... the world's next superhero could well be The Woodsman – a fearless fighter who battles evil while clad in armour woven from a nanofibre biomaterial derived from wood.

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## Wood provides a sticky solution

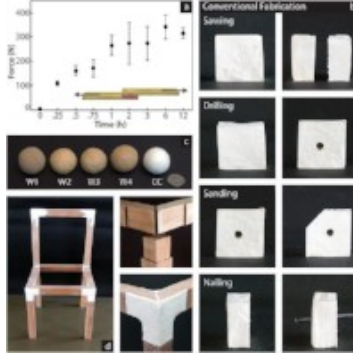
Adhesive tape made from lignin, a common waste product of paper manufacturing, performs just as well as at least two commercially available products.

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## Printed wood to be “global turning point” for sustainable manufacturing

FWPA has an ongoing project which uses 3D printing to produce timber panels composed of forestry waste– and by- products. Interest in this technology is growing and cellulose has been found to offer a cheap alternative to plastic for



printing objects. Moreover, the material produced can be further processed in the same way as wood by drilling, sawing and sanding.

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## Lignin becomes mouldable plastic

The aptly named Professor Tim Bugg has used bacteria to turn lignin into a strong, mouldable plastic.

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## Unwrapping lignin and starch alternative to plastic food packaging

Plastic and paper-based food packaging needs a coating to prevent water or oxygen from penetrating the cover and spoiling the foodstuff inside. This is usually manufactured from petroleum-based plastic, but there may be an alternative in the works.

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## Wood formation model to fuel progress in bioenergy

A new systems biology model mimicking the process of wood formation allows the prediction of effects in switching on and off genes involved in producing lignin. The model speeds the process of engineering trees for specific needs in timber, biofuel, pulp, paper and green chemistry applications.

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## Scientists capture wood formation images

Advances in microscope technology and molecular biology are allowing researchers to see exactly how xylem or wood is formed, in real-time, at the cellular level.

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## Eye in the sky helps fight deadly plant disease

Fast-spreading *Xylella fastidiosa* is one of the world's most dangerous plant pathogens, devastating tree species from citrus to oak trees across the globe. Now, hyperspectral cameras mounted on drones can provide an early warning system by detecting subtle changes in leaf colour long before symptoms are visible to the human eye.

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From:

Traditional forestry systems involving highly manual and analog processes, "broad-brush" management prescriptions



To:



## Precision forestry: a revolution in the woods

This report by Harsh Choudhry and Glen O'Kelly for McKinsey & Company looks at which advanced technologies for forest management are most promising, and how forestry companies can start their digital transformation.

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## Wooden kitchen knife an award winner

Canadian design house Maison Milan has produced a multi-functional wooden kitchen knife.

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## Five thousand per cent increase in native trees on rat-free Palmyra Atoll

Native trees benefitted from rat removal at Palmyra Atoll, a magnificent national wildlife refuge and natural research laboratory located about 1,000 miles south of Hawaii.

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**Our mailing address is:**

FWPA  
Level 11, 10-16 Queen Street  
Melbourne, Vic 3000  
Australia

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