

Forestry for life

Technology, innovation and automation



Eastland Wood Council

Kim's comments



Kim Holland, chief executive, Eastland Wood Council

THE Harvest Tech conference held in Rotorua in June, provided a showcase of technology, innovation and automation from across the global forest industry.

There are advancements through robotics, mechanisation, and unmanned aerial vehicles (UAV'S) all driven by improving worker safety, addressing ongoing skills and labour shortages, efficiency, improving environmental performance, increasing productivity, and providing access to otherwise inaccessible areas.

The increase in the use of technology means that the roles required to work in the forest industry are changing rapidly too. Simulators are an important training tool – allowing people to train and develop 'real' world skills in a safe and controlled environment.

Richard Stringfellow from Toi Ohomai is a frequent visitor to the Generation Programme, and the Eastland Wood Council Careers Expo stand, with the Waratah simulator, providing 'hands on experience' for those interested in learning machine operations.



Arian with Richard



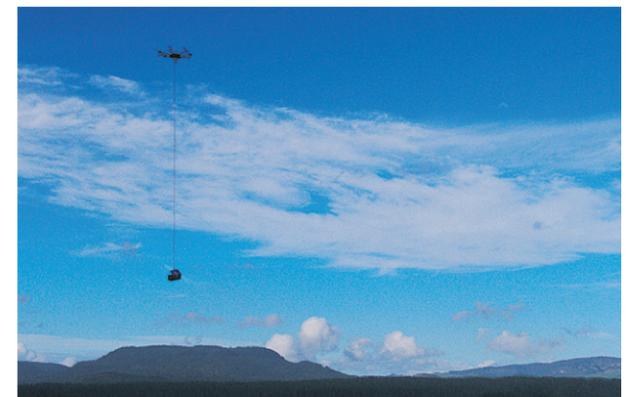
Truck Driving Simulator

Some of the uses of technology in our forests include:

- Geographic Information System (GIS) technology which provides the ability to gather, manage and analyse data, producing highly accurate forest maps.
- The practical application of automation, robotics and sensors by forest managers.
- Integrating virtual and augmented headsets which use sensors to interact with reality, combining holograms with the real world — creating a mixed reality.
- Smart technology clothing — Researchers at the University of Waikato are developing a hi-tech way to keep forestry workers safe on the job, with a 'smart shirt.' Using sensors on the front of the shirt to monitor heart-rate variability and others on the back to measure perspiration, the garment could detect when workers

showed signs of fatigue or dehydration.

- Satellite tools for mapping, planning and operations
- New innovations in mobile forest apps and collection tools.
- Results from remote sensing research and in-forest trials.
- Workflow solutions for data collected from airborne and unmanned aerial vehicles (UAV's) systems such as drones.
- Drones are used for a variety of roles including forest mapping, and harvest planning.
- Drones are being used to deliver radiata pine seedlings to planters in steep terrain; no more 'donkeys' delivering bags of seedlings, enabling trees to get to planters quickly and efficiently.
- David Herries from Interpine Forestry reported that the planting crews involved in the trial say that they were 30 percent more efficient.



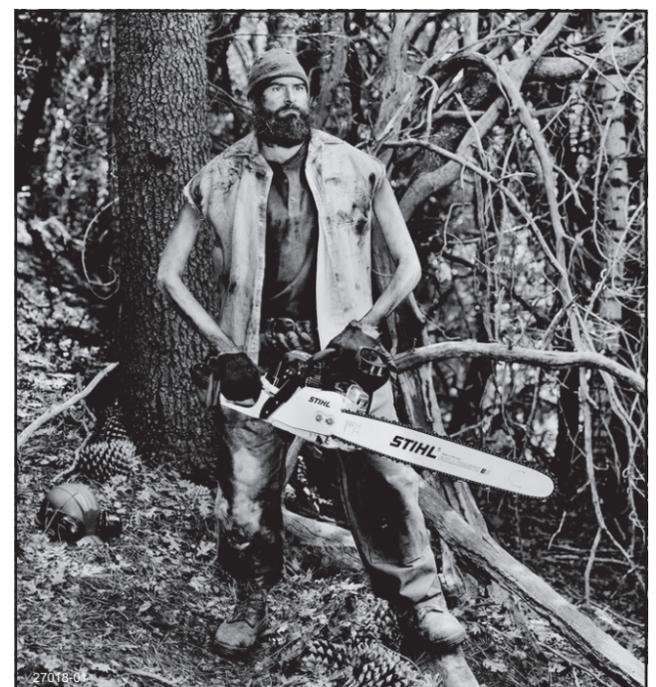
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Harvesting Innovation for Farm Foresters

A NEW project to initiate harvesting innovation, specifically aimed at farm foresters and small-scale forest investors, who are concerned about rising costs, health and safety, and improvements in harvesting, was presented at a workshop in Gisborne recently.

It was an opportunity to engage with stakeholders and develop ideas, innovations, and discuss issues.

The project, funded by the Forest Growers Levy, is managed by the Small and Medium Enterprise Committee of the Forest Growers Levy Trust.

The rationale for the project, aimed at identifying new ways of harvesting small forests and woodlots, is that harvesting, roading and transport costs can be 70-80 percent of the delivered cost of wood from small grower woodlots, and these costs are rising rapidly. Another reason is finding ways to utilise waste wood and debris economically. Any new approaches to address these costs will improve profitability of small-scale forestry in the region. Otherwise high costs and low profitability is likely to constrain further investment in afforestation at the farm forestry scale.

Regional workshops are being organised at various locations around the country over the next few weeks to engage with small growers, harvest managers, contractors, equipment developers and industry organisations, such as NZ Farm Forestry Association and the Eastland Wood Council, to generate feedback and develop research projects into small-scale grower harvesting, roading and transport systems.

Project leader John Schrider says that they are looking for “ideas for improvements that challenge traditional ways of harvesting small forest lots, or examples of a well-managed or innovative operation that achieved all your objectives as an owner of a small forest, the project team would like to make contact with you,” he says.

“Examples could include innovative use of new or re-designed harvesting equipment, multifunctional or versatile felling, bunching and extraction equipment, or different approaches to log manufacturing and processing, or new transport systems.”

For any ideas, or initiatives that will lead to cost reductions, profitability gains or safety improvements, contact John Schrider at Forme Group (john.schrider@forme.co.nz).

Investing in mechanisation



Madill 2250 self-leveller

BLACKSTUMP Logging’s Wayne and Ange McEwan needed little convincing to invest heavily into mechanisation meaning a safer work environment for their crews.

Wayne had heard about the DC Forestry Equipment’s falcon claw being used in the Nelson region by their own crews, so he and foreman Tapu Dixon headed south to see it for themselves.

They spent two days visiting crews and watching the falcon claw in action alongside DC Forestry Equipment’s mechanised felling and winch-assisted operations.

“Tapu and I decided it was something worth pursuing for the tough terrain here on the East Coast,” says Wayne.

“It could potentially remove human breaker-outs from the hauler face. At a cost of \$170,000 it was well worth the investment.”

That was in 2018 and they were quickly proved right.

“The main reason we moved into

mechanisation was to reduce the amount of man hours on the breaking-out and falling faces on these high risk areas.”

Next on the shopping list was a \$1.2 million Madill 2250 self-leveller felling machine which would reduce the number of manual fallers in the Blackstump Logging crews.

“The leveller can go into severe windthrown areas, dismantling teepees as well as interlocked and uprooted trees, keeping the operator safe while having the logs well-presented and ready for extraction by the falcon claw or breaker outs.”

And Wayne and Ange didn’t stop there.

“Due to the steepness of the terrain on the East Coast, it quickly became clear that our next purchase would be an excavator based Falcon winch assist for the Madill 2250 self-leveller.”

Having the added safety of the \$730,000 winch assist attached to the base of the leveller meant the machine

could now safely fall hauler settings in steep terrain, and in some cases eliminating the use of manual fallers completely.

Blackstump Logging then added a Madill 123 grapple swing yarder in mid-2018, and after a complete rebuild it joined the crews early this year.

“Being a fully mechanised crew has meant eliminating breaker outs completely as the swing yarder operator has a TV in his cab and is able to see and pick up the logs with a camera attached to the grapple.”

The Madill 2250 self leveller and tether does the majority of the felling for both crews and has also been utilised by two other contractors — one to fall their settings, eliminating high risk areas, and the other to fall a windthrown setting which was too dangerous for manual felling.

Wayne and Ange are constantly looking at using innovation and technology, to keep them and their crews at the forefront of the industry.



Falcon claw

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