

Bulletin

Winter 2020

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Double whammy – COVID-19 and the Bill

The Minister of Forestry revealed the Forests (Regulation of Log Traders and Forestry Advisers) Amendment Bill under urgency in the 2020 Budget.

In doing so, he directed a threat like never before to the plantation forest sector.

Some parts of the forest industry have been focused only on the parts of the Bill aimed at tightening up on cowboy traders and advisers through a Forestry Authority and concluded that it must therefore be OK to support. The vast majority of submitters have recognised the real intention of the Bill lies elsewhere.

It is enabling legislation deliberately broad enough to allow the Minister his stated intent t to override the market and direct export logs instead to local sawmills, through the guise of requiring a ‘continuous, predictable and long-term supply for domestic processing’.

This would create a compulsory subsidy extracted from exporters to pay local timber processors. It is unprecedented in the history of New Zealand’s primary sector.

Forest growers already assist the processing sector. We promote timber construction. Many FOA members are processors as well. Local processing has been supplied, particularly with higher quality grade logs, for at least twenty years in consistent qualities. There is an emerging supply issue unique to Northland but that’s because there’s no longer enough trees in the ground – something this Bill will exacerbate.

According to our colleagues in the Wood Processors and Manufacturers Association, the Bill is meant to be a correction mechanism for the subsidies other governments pay to their timber processors. Only by taxing log exporters, says the WPMA, will local mills be able to afford to invest in upgrading and modernising sufficiently to compete internationally. It’s not transparency of supply – it’s lowness of price.

That contradicts the stated aim of Forests Minister, Shane Jones, who says he wants to save timber processing jobs. The truth is though that upgrading mills results in fewer jobs – not more. The NZ Institute of Economic Research has concluded that if the Bill introduces the constraints the Minister has in mind, the impact on GDP will be a net loss.

MPI has not provided any analysis of this contradiction. Its regulatory impact assessment is embarrassingly scant. There is no critical examination of WPMA’s claims of what prices local mills actually do pay for their logs. There is no evaluation of what the effect of a forced subsidy will have on the newfound investor confidence for forest planting and yet the Bill has already caused several investment plans to be parked.

There is moreover no consideration of where an increase of timber production might find a market. It seems to be a belief in some mantra that, if you produce it – they will buy it.

If there was a miraculous and instant capacity to process all of our logs in New Zealand, and a pop-up market for those products, that might bring another \$1b in export earnings. Harvesting less than ten thousand extra hectares a year gives us that same return.

There would also be less risk of trade retaliation.

That is why we want a Select Committee Inquiry into the log supply chain and international market options.

The current fact remains that without a government lead in construction policy the New Zealand market is already satiated.

The rising tide of protection overseas is most likely to make the already highly subsidised overseas timber markets even more difficult to access. Our industry’s present market risk is not with logs but rather with lumber.

“WITHOUT A GOVERNMENT LEAD IN CONSTRUCTION POLICY THE NEW ZEALAND MARKET IS ALREADY SATIATED.”

The New Zealand answer to protection in the pastoral sector has been to be more efficient in producing goods for the less protected commodity markets. Of course, our industry should chart a long-term course of added value. But that value can often be inserted in the tree, rather than only thinking of the log.

And it should be commercially, not politically, driven. It should be driven by science and innovation, not by regulations and new layers of expensive bureaucracy. Small wonder that we have other primary sector industries backing our concerns and labelling this poor trade policy.



DAVID RHODES
CHIEF EXECUTIVE, FOA



March 24, rush to load with one day to lockdown at Port of Wellington

Past government interventions have arisen from market collapse (meat industry in the 1980s and kiwifruit in the 1990s) demands from producers (dairy in the 1990s), or, ironically to have the domestic industry assist with growing exports (wool industry).

If the government is intent on targeting overseas ownership it would need to be consistent in aiming its guns at such other targets as Silver Fern Farms and Synlait. Let's see what that would do for investor confidence, employment, production and local communities.

Government intervention should be more thought through than populist slogans and the aim to target a presumed benefit for one segment of the supply chain.

That is not to say the government can and should have a totally hands-off approach in these extraordinary times.

Indeed, we have a number of ways we're suggesting government might help our contribution to New Zealand even bigger and also use this opportunity to create a stronger and more sustainable economy in the future – see page 4.

Whatever we or the government does, it can't guarantee processing facilities will stay open. As with forest owners, individual financial circumstances vary widely, and, even with additional support, the COVID-19 impact, combined with a competitive domestic market constantly striving for efficiency, may prove too much to sustain for some.

In the meantime, the pre-COVID-19 world seems a lifetime away and particularly so for those in forestry. We had an impact

foretaste when China went into lockdown weeks before we went into Alert Level 4 here. Our export and domestic production was already falling markedly back in February.

Then we were declared a non-essential industry. The FOA welcomed that decision – it kept our workforce safe.

During our lockdown, we did some excellent work across the industry on COVID-19 protocols, spearheaded by our Safety Council, so that we can now help with the recovery without risking the sacrifices made.

But we can't downplay the seriousness of the situation yet to come. We don't know yet what the demand will be, in either our domestic or international markets in the next six months. It is an ominous sign that the Australian forest industry is calling for a rescue package because they are expecting construction to be hit very hard.

The coronavirus pandemic illustrated that despite attempts to foster diversification into such areas as tourism, the New Zealand economy is still strongly reliant on its food and fibre foundation.

The government is quite rightly relying on the primary sectors for recovery in this time of need. Fortunately, we grow way more food and fibre than we can consume ourselves and the world values what we can deliver.

Our Minister of Forestry, and indeed all of the New Zealand government, are seriously concerned about looming job losses and business failures. They have every right to be. It is understandable that in some cases extraordinary measures will need to be taken.

The forestry value chain together with government have a mutual interest in

maintaining confidence and jobs through supporting each other. It is reassuring to note, for example, that the Forest Growers Levy board has signalled its intention to use reserves and borrowing if required, to maintain its funding commitment to the industry-wide programme of work.

COVID-19 has presented us with an opportunity to reset, and jump forward, in a number of areas. *The Forestry Roadmap for Aotearoa New Zealand 2020 – 2050* spells out ambitious plans for what tomorrow's forestry world could, and should, look like.

Despite the dreadful health and economic toll of the pandemic worldwide, and the dangerous Log Bill, not everything in the aftermath of COVID-19 will turn out bad. We may yet look back on this shakedown period as a bold and crucial step in our punctuated industry evolution.





A forest industry opportunity starter for 16

The government has given a clear message to the primary sector that it expects food and fibre to lead the economic recovery after the COVID-19 crisis.

Government ministers are talking of a \$17 billion economic hole from the tourist sector, and targeting New Zealand's farms, fisheries and forests to refill the hole.

Much of the news media attention is on how, in these extraordinary times, our Forestry Minister believes exporters are obligated to assist domestic processing.

But there are ways too where the government can actually assist the forest sector in achieving some of the government's economic and employment goals.

Here are some starters in no particular order of urgency or importance.

1. Deliver the promised wood preference construction procurement for more domestic construction and jobs as well as less carbon emissions
2. Use the Provincial Growth Fund for the introduction and proving of new wood processing technologies as markets are opened
3. Consider an import levy for imported timber products to assist domestic processing
4. Conduct a thorough economic and social regional analysis of land-use change to inform government policies
5. Advise farmers and other land owners about how they can integrate trees into their business
6. Lead international market development to diversify our wood product exports and open new destinations for existing products
7. Remove obstructions to gene-editing in HSNO to allow us to compete in markets which use and accept this technology
8. Reform the Resource Management Act to restore balance between utility of a resource and protection of the environment
9. Ensure methyl bromide can still be used as an export log fumigant after October 2020 and until a viable replacement is approved (see page 11)
10. Develop Joule heating technology to give us a chemical free log disinfection process and other benefits (see page 8 & 9)
11. Accelerate *Pinus radiata* breeding to build on the foundation work which Scion especially has done over the past few years
12. Add value to *Pinus radiata* timber. We haven't captured all the advances made in the past, and there are a wealth of opportunities
13. Promote alternative timber species for diversity and market resilience
14. Establish a clear programme and timetable for the area of plantation forestry needed for sequestering carbon up to 2050 for a carbon zero economy
15. Work on the bioeconomy which uses trees as a renewable resource to reduce the impact of fossil fuels and other high greenhouse gas emission materials
16. Make all industries pay for their full carbon emissions under the ETS, and include harvested timber as a carbon store



Good sign that *Pinus radiata* is not infected by *Phytophthora ramorum* in FGLT funded Californian study

In 1995 a new tree disease appeared. A previously unknown pathogen was rapidly killing oak trees in Southern California.

The oomycete, *Phytophthora ramorum* was soon also to be killing trees throughout forests in Oregon and Europe.

Symptoms of Sudden Oak Death vary among species, but include bleeding bole cankers, cambial lesions, wilting shoots, and rapid browning and subsequent death. Leaves on similarly infected understory plants frequently show necrotic lesions, shoot dieback, and vascular discoloration.

There are four clonal lineages of *P. ramorum*; NA1, NA2, EU1, and EU2, depending on whether the lineage came from North America or from Europe.

Wind and rain spread *P. ramorum* through forest canopies, and especially in nurseries. There are more than 100 hosts, most of which

are foliar hosts, including Douglas-fir. In oak species, tanoak, and larch, the *P. ramorum* infections are under the bark.

The pathogen has never been discovered in New Zealand, but there is a risk that if it were introduced *P. ramorum* could use radiata pine as a host.

It is known that when small radiata pines are artificially inoculated, the branches can develop large lesions and branch girdling cankers, and the foliage can also develop symptoms.

The New Zealand Forest Growers Levy funded project was to determine if the disease could occur in pine logs during forest harvest.

Radiata pine bolts were collected from a state park in California. Two trees measuring 15-20 cm DBH were felled, delimbed, and cut into 60 cm lengths and the ends sealed with latex paint.

Three bolts were left for four weeks on styrofoam panels at four sites in Oregon, with heavy and measured infections of either NA

or EU lineages of *P. ramorum*.

Subsequent laboratory testing for *P. ramorum* found that only two bolts of tanoak, used as a control, were infected.

The conclusion is that radiata pine logs are not susceptible to colonisation by *P. ramorum* under these conditions, while the positive isolations from the tanoak logs indicate that the conditions were conducive for infection of other species.



Three bolts each of *Pseudotsuga menziesii*, *Pinus radiata*, and *Notholithocarpus densiflorus* were placed at each field site. Bolts were elevated off the ground with styrofoam panels to avoid soil contact.

Forest Road Engineering Manual and Road Engineering Manual Operators' Guides online

The 2020 edition of the Forest Road Engineering Manual incorporates the 2018 National Environmental Standards for Plantation Forestry (NES-PF).

It is a reference for forest roading supervisors, harvest planners, forest roading engineers, and forest managers and owners, and introduces new materials and methods, and updated construction techniques.

The Manual and associated Operators' Guide should be used in conjunction with other FOA publications, including the recently released suite of Forest Practice Guides.

Copies of the Manual, Operators' Guide and Forest Practice Guides can be downloaded for free from the FOA website.

Roading Manual:

STATIC PDF version

http://www.nzfoa.org.nz/images/NZ_Road_Engineering_Manual_Web_Feb_2020_compressed_New_Page_46.pdf

Website

<https://docs.nzfoa.org.nz/live/nz-forest-road-engineering-manual/>

Operators' Guide:

STATIC PDF version

<https://www.nzfoa.org.nz/resources/>

<file-libraries-resources/transport-and-roading/844-nz-forest-road-engineering-manual-operators-guide-2020/file>

Website

<https://docs.nzfoa.org.nz/live/nz-forest-road-engineering-manual-operators-guide/>

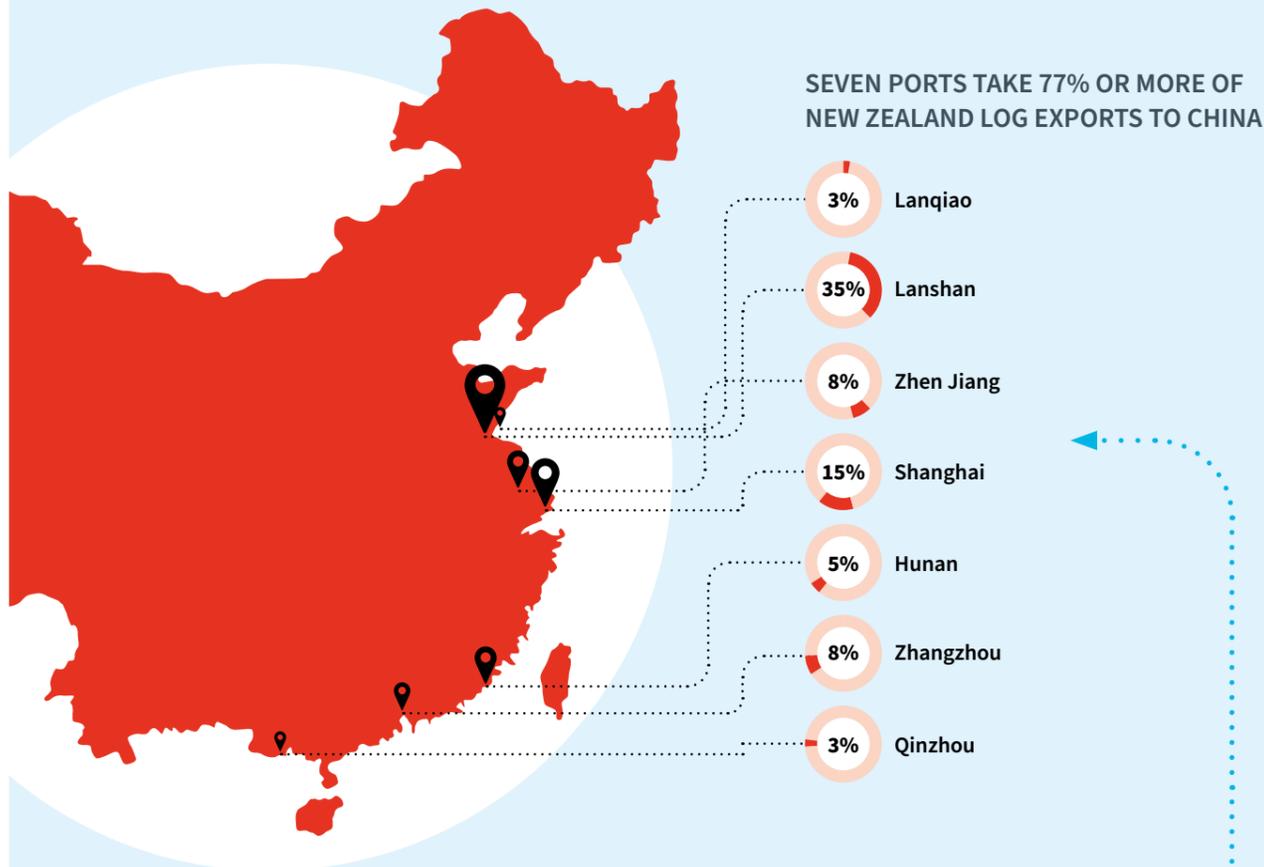
Forest Practice Guides:

<https://docs.nzfoa.org.nz/forest-practice-guides/>

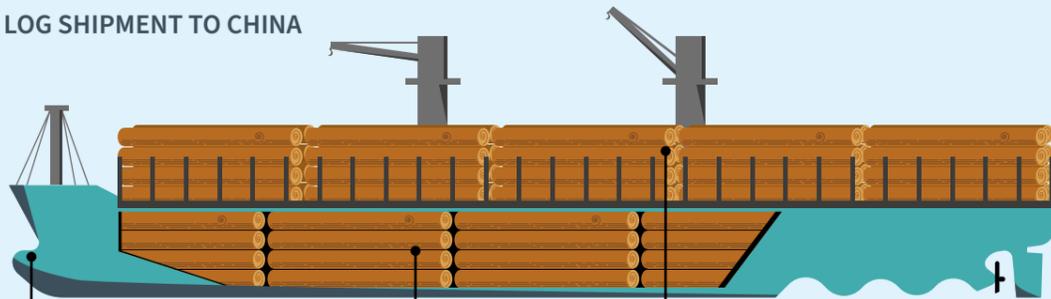


Our forest exports to China

China is our main market for forest products. It is dominated by the log trade. We are China's main log supplier. Here is a snapshot of where these exports originate and go to, the recent history of our log trade and comparisons with other export industries and countries.



LOG FUMIGATION ON A TYPICAL LOG SHIPMENT TO CHINA



More than **500** shipments per year supply our log market in China, with frequency declining during the New Zealand Christmas/New Year and then Lunar New Year holidays in China

In 2019, **76%** of the logs on average were stored below-deck and treated en-route with phosphine

The remaining **24%** of the cargo was stored above deck. This comprised **16%** of the shipment total treated with methyl bromide in New Zealand, and the remaining **8%** was debarked in New Zealand.

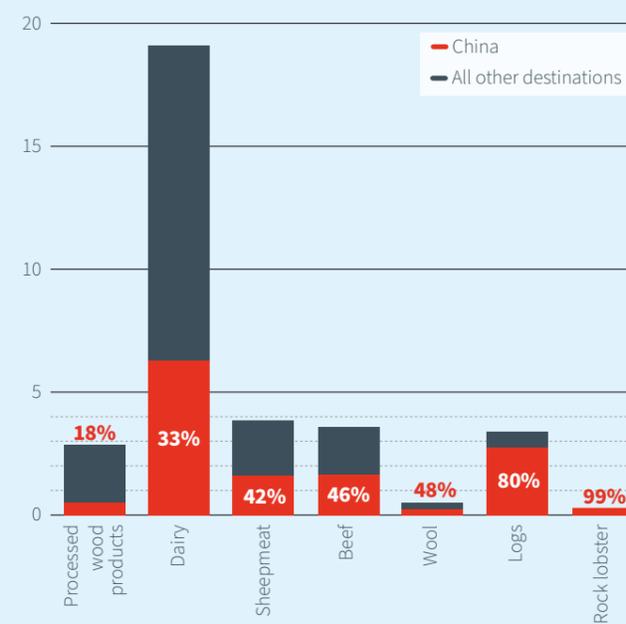
NEW ZEALAND LOG MARKETS SINCE 2004 (NZ \$BILLION)



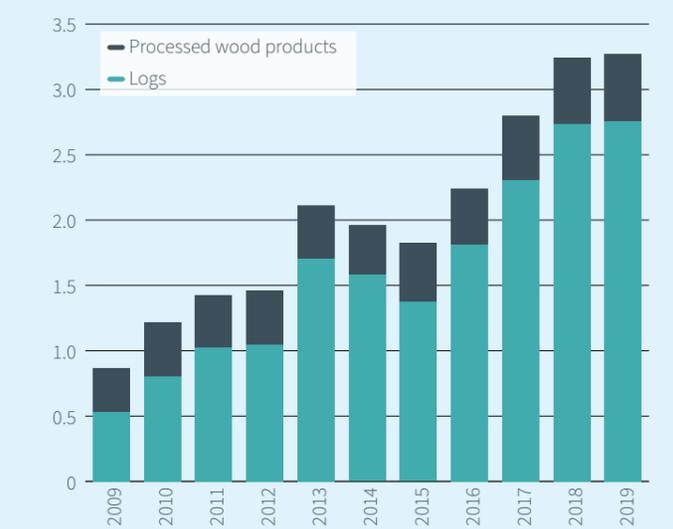
NEW ZEALAND AND EUROPE SOFTWOOD LOG EXPORTS TO CHINA 2019 (MILLION M³)



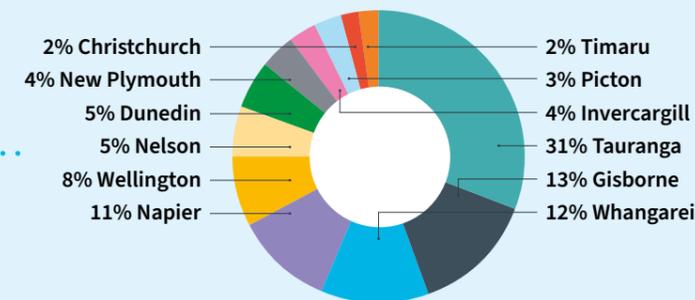
SELECTED NZ PRIMARY SECTOR TOTAL EXPORTS AND % TO CHINA (NZ \$BILLION) 2019



NZ FOREST PRODUCT EXPORTS TO CHINA 2019 (NZ \$BILLION)



LOG EXPORTS FROM NEW ZEALAND ARE FROM MANY PORTS





Electrocuting logs to kill bugs

Joule heating, a new world-first technology developed right here in New Zealand, could be a sustainable alternative to methyl bromide fumigation for the treatment of export logs. It is now ready to move a step closer to commercialisation.

A team from the University of Canterbury's Electric Power Engineering Centre (EPECentre), led by Dr Bill Heffernan, has been working on the Joule heating project since 2007.

Electricity is fed through logs to heat them long enough to kill bark beetles and other pests in the sapwood.

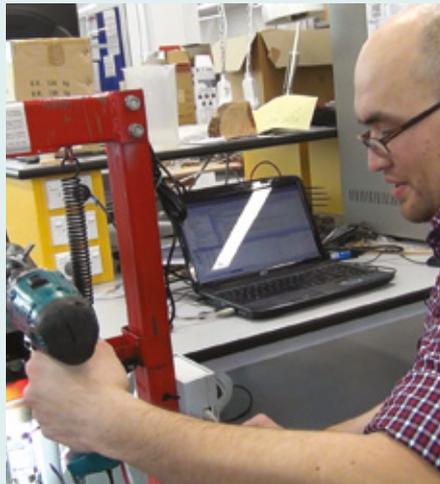
But there is another potential use as a pre-treatment for veneer peeling.

The phytosanitary use of ozone depleting methyl bromide for logs under the current process runs out in October. An alternative is needed.

A question from Grant Knight, who was then employed by the Ministry for Primary Industries – “What would happen if you put some electrical current through a pine log?” – started the team on its voyage of discovery.

The development of Joule heating has been on a very tight budget – just under \$1.1 million up to 2019. Initial testing was funded by EPECentre itself, augmented by a \$30,000 grant from MPI in 2009. In 2012, this was followed by another grant of \$30,000 from the Stakeholders in Methyl Bromide Reduction (STIMBR) and MPI Primary Growth Partnership. This led to a \$1m contract from 2013 to 2017, as part of the MBIE/STIMBR-funded Market Access Programme (MAP) study. The EPECentre was subcontracted to Scion.

During the research period, Dr Heffernan identified electrical engineering work on veneer peeling by the US Forest Service in the 1950s. While that work had not progressed, luckily the information had been archived. This knowledge helped to add the second dimension to the team's research.



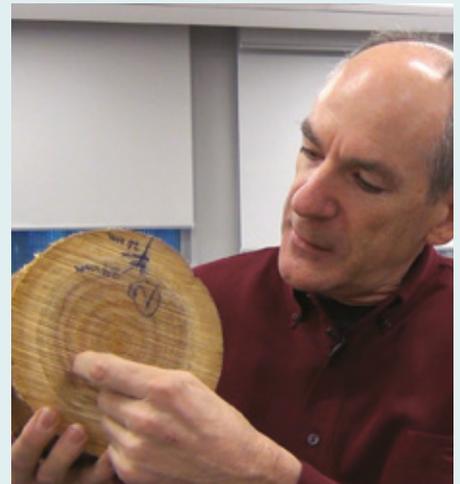
Dr Nurzhan Nursultanov

“Later on, we realised we needed to do computational modelling to be able to fully understand the process, as well as measure the heating,” he says.

Nurzhan Nursultanov – then a PhD student from Kazakhstan – was brought into the UC team to help develop a computer model to study the behaviour of the electric current as it passed through a log. The modelling was vital to enable it to work reliably, says Heffernan: “Which it now does.”

Commercially, the advantage is that the log can be treated and assessed simultaneously, with vital statistics being harvested at the same time. This gives processors real-time feedback, he explains. The supplier can attach some very detailed information for the customer for every single log: size, length, shape of log ends, how much is heartwood or sapwood, and even what treatment temperature was achieved. This gives the receiving country's biosecurity agents excellent traceability and also adds value for the end users, he says.

Further down the track it might be possible to actually alter the properties of the wood – not just measure it.



Dr Bill Heffernan

Nursultanov's “outstanding work”, which he subsequently tested and proved on 50 radiata pine logs, is a “world first,” says Heffernan.

The team's MBIE/STIMBR work, with Crown Research Institutes Scion and Plant & Food, resulted in four peer-reviewed papers, including the 2019 paper which appeared in *Applied Thermal Engineering* – ‘Computational calculation of temperature and electrical resistance to control Joule heating of green *Pinus radiata* logs’. It also involved multi-disciplinary work with UC forestry, chemical and process and the electrical and computer engineering departments.

The work earned the team High Commendations in UC's Sustainability Awards in 2018 and 2019. It also won now Dr Nursultanov the 2018 Research Award for a Young Scientist in the Forest Growers Research Awards, which he recalls, “was a very big surprise!”



Why Joule heating?

The Joule heating process is non-toxic, does not use any harmful chemicals and is also fast.

In addition, conditioning before peeling and slicing logs for veneer sheets currently uses hot water baths or steam tunnels to heat the logs from the outside. This process is relatively cheap, if wood waste is used, but it is time-consuming and energy inefficient.

“Big logs need to be treated for up to 20 hours to reach peeling conditions. If Joule heating is applied, the same temperature conditions can be reached within minutes in the sapwood and right through to the pith in at most two to three hours,” notes Dr Nursultanov.

The forest industry has invested in the research to date, through STIMBR. Russell Dale, New Zealand Forest Owners Association research and development manager has been “pretty impressed” by the innovation and technical skills from the UC team.

“They have overcome all of the technical issues to get the logs up to the correct temperature to meet phytosanitary standard ISPM 15. No one else in the world has done that through the direct application of electric current to logs,” he says.

Bill Heffernan explains ISPM 15 requires the entire log temperature to reach and be held to at least 56°C for at least 30 minutes to kill all the pests and pathogens of concern in the sapwood. While other forms of treatment often only treat the outer sapwood portion of a log, Joule heating also treats the heartwood (with slightly greater energy use) as well as the sapwood.

Treatment right through to the core of the log may provide an answer to importing

 **15%**

of the annual electricity production of Tiwai Point is all that would be necessary to treat the 20 million m³ of our export logs

countries, such as Australia, with impending log shortages due to forest fires last summer. Australian authorities demand a log treatment which can kill fungal pathogens, which may exist far deeper in the log than insects of concern do.

The UC team’s work has also shown the average energy requirement of raising the temperature to 56°C from ambient was 38 kWh per cubic metre: “About the same energy as two average-sized hot-water cylinders,” Bill Heffernan says, adding most of the logs tested were smaller than one m³.

“If all of the 20 million m³ of logs exported each year were treated in this way, it would use about fifteen percent of the electricity used annually at the Tiwai Point Smelter – or one eighth of Manapouri’s output.”

Electricity costs would vary depending where in the national grid a processor was drawing power but would typically be between six and nine cents per kWh, he says.

Heffernan and Nursultanov have already had interest from Boise Cascade wood processors in the USA. The team also have been talking to the plywood and LVL industry about the rapid-pre-peel conditioning and turning the log electrodes into a tool to assess the structure and properties of logs before peeling, or milling.

Next steps

The forest industry is interested in the technology as a long-term investment as it offers an alternative to chemical fumigants, says Russell Dale.

“Because it is heat-based, it will also kill insects and pathogens and there is also potential for the plywood and LVL manufacturers for both domestic and export purposes.”

Capital cost has been the major barrier to progress to date, he notes, pointing to a desk-top study in 2017 by engineering consultants, which indicated a \$40-60 million price tag for a full production plant using the new technology. That would be prohibitive for a wood processing company unless it had a guaranteed supply contract.

However, the UC team was given approval late last year to move onto the next step: a \$360,000 project funded by STIMBR with support from AGMARDT to de-risk the building of a small-scale industrial pilot plant.

The \$2-8 million pilot plant will be transportable, enabling it to be moved around the country taking the treatment process to the logs – for example for companies to try out on the wharf, on the ship, or in an existing plywood mill, says Heffernan, acknowledging companies’ differing logistics.

Dale says: “There is strong interest from FOA members in approaching the Provincial Growth Fund to support the development of the pilot plant, which will require matching industry investment.”

While the technology will not be in operation in the immediate future, it is a way forward, says Heffernan.

Check out Forest Call on Facebook

<https://www.facebook.com/ForestCallNZ/>





Money doesn't just grow on trees - it grows under them too

Ginseng, touted as New Zealand's next potential \$1 billion export industry, has roots in ancient China and seems especially suited to New Zealand commercial pine forest plantations.

Ginseng is a traditional Chinese medicine, which has been consumed in China for more than 5000 years. Wild Chinese and Korean ginseng attracts premium prices due to scarcity, a wild (knotted) appearance and high levels of active ingredients – ginsenosides.

Global supply of wild ginseng is decreasing and the plant is near extinction due to over-harvesting and poaching.

Alternative farmed ginseng is grown in shade houses, but is a visibly inferior product with little of the desired wild type characteristics and low concentrations of active ingredients.

Simulated wild ginseng is grown under a forest canopy with little or no human input. It is almost identical to premium quality wild ginseng. Demand for ginseng is expected to increase in China as that country places greater emphasis on traditional Chinese medicines and the herb is classed as a food, instead of traditionally as a medicine.

In New Zealand, KiwiSeng grows ginseng at the same latitude south as wild ginseng grows in Northern China and North Korea. Because KiwiSeng's ginseng is grown naturally over 15 years with no chemical inputs and little human intervention, it can be classified as wild grown ginseng.

Managed pine forests aged from 10 to 28 years are proving to be an ideal environment.

Asian ginseng (*Panax ginseng*) seeds from Mt Changbai in China grow extremely well under radiata pine forest canopies older than 10 years in the Central North Island.



Glen Chen from KiwiSeng examines a freshly harvested 15-year old ginseng root grown in a Central North Island forest.

The plant thrives in locations with cold winters, dry summers, volcanic soils and a forest canopy providing 80% shade. New Zealand also has a high UV index sunlight and clean water.

Wild grown ginseng plants are typically harvested by hand at a minimum of 15 years and the whole roots must be dug carefully to not damage any root tips. At both sowing and harvesting, ginseng is a labour-intensive crop and can create new jobs in traditional forest growing areas.

KiwiSeng is the largest producer of wild grown ginseng in New Zealand with 80% of the national production, first planted in the early 2000's.

Massey University research has shown the ginsenoside content of KiwiSeng's *Panax ginseng* is 100% higher than the average of the same ginseng grown in China and Korea, due, it suggests, to volcanic soils.

Besides the traditional fresh and dried ginseng roots, the ginseng range now includes capsules, liquid extracts and alcoholic drinks. In New Zealand it is blended with manuka honey and deer velvet.

Besides the Australasian market, ginseng products are exported to Hong Kong.

KiwiSeng says, depending on quality, wild-grown New Zealand ginseng will fetch at least \$2,000 per kg. This makes it one of the most valuable crops which can be grown in New Zealand. KiwiSeng says revenues over \$300,000 per hectare are possible. Total inputs are around \$100,000 per hectare including sowing and harvest.



See more at www.kiwiseng.com



Log exports at risk as MBr deadline looms

An industry application to the Environmental Protection Authority has been made as a last-ditch effort to stave off a shutdown in the log export trade.

If the six-month waiver request is successful methyl bromide fumigations will be permitted under current rules for export logs until April 2021.

If the waiver is not granted, the Indian export market, worth \$250 million annually, will end. Likewise, if approval to use the alternative fumigant EDN is not granted, all deck cargo to China will need to be debarked after 28 October 2020.

In 2010, regulations were introduced to reduce methyl bromide emissions to the atmosphere as part of New Zealand’s commitment to international agreements. The users of methyl bromide were given 10 years, until 28 October 2020, to find alternative fumigants or to recapture methyl bromide after the treatment.

A requirement of 5ppm remaining in the headspace after fumigation was imposed. Extensive work has failed to achieve this recapture level from log stacks and ship-holds.

An alternative fumigant, EDN, was identified and an application lodged with the EPA in July 2017, but three years later no decision has been made. Even if EDN it was EPA approved by the end of October, there is no time for importing country or port approvals.

The EPA has sought submissions on the six-month waiver application and the outcome should be known by the end of this month.



Western goes for paper wrap to replace plastic for FOA Bulletin

You will have noticed this edition of the FOA Bulletin is wrapped in paper. Our long-time mailing agency, Western (formerly known as Western Mailing), has discarded its traditional plastic wrap and gone for a forest product alternative.

Western says it acknowledges that resources are increasingly important, and believes it is essential to both its staff and clients that the company is seen to be proactively aware of the environment.

With this in mind, Western purchased a paper wrapping machine, the only one in the Southern Hemisphere that can provide a healthier alternative to wrapping in plastic and cello.

This machine utilises leading edge technology and allows for multiple documents to be collated automatically and efficiently. There are options for partially or fully printed paper, giving our

clients the perfect opportunity to showcase their brand, campaign message and/or environmental message.

“As a family business we are the guardians of our children’s and their children’s future; we will do everything that we can to make our industry sustainable and reduce our carbon footprint for the community and environment that sustains it.”

Western

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LOVE OUR FORESTS MORE THAN EVER

New Zealand's Post COVID-19 economy is going back to basics.

Food and fibre exports from our land and sea will lead the recovery.

- ✓ Forest products will be earning \$7 billion a year.
- ✓ 2020 is our highest planting rate for nearly 30 years – 100 million seedlings.
- ✓ The increase is driven by the confidence of New Zealand farmers and investors in our forest future.
- ✓ These trees will be a prime green engine to reduce our gross carbon emissions and great for regional economies too.



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