NEW ZEALAND
FOREST OWNERS ASSOCIATION

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Log truckers, take a bow

CAREER LOG TRUCKER RODNEY DAHM SAYS HIS INDUSTRY WELL DESERVES LAND TRANSPORT NEW ZEALAND'S PREMIER AWARD FOR ROAD SAFETY.

The Log Transport Safety Council (LTSC) earned the award last year for reducing log truck crashes during a time of rapid industry growth.

A 65% reduction in crashes and a 75% reduction in rollovers in seven years means log trucks are now one of the safest sectors in the transport industry.

Most of the improvements have been led by the LTSC, which comprises transport operators, forest owners, government agencies and researchers. Drivers have been better trained, reinforced by the '0800 LOGTRUCK' campaign that channels positive and negative feedback to drivers from other road users.

Dahm started driving log trucks in his father's Kinleith-based trucking business in 1978. These days he owns and drives a new Scania R Series 580 with a multi 2-packet trailer.

"As soon as I turned 18, I got my HT licence and have been driving ever since."

He says safety standards are definitely better, thanks to better driver training and the decision to allow 22 metre rigs which have a lower centre of gravity.

"These days log trucking companies have training courses for new drivers and refresher courses every couple of years. You also have to go through a safety induction before you drive into many mills."

Dahm says he had a couple of off-road rollovers in his early days, an experience that every new driver should not have to repeat.

"There's often only a 1 mph difference between being stable and rolling over, and good training can help you learn where that point lies."

A significant problem when travelling on the highway is the behaviour of other drivers, especially tourists.

"Every day you see people doing loopy things, like cars using turn-left lanes to overtake on the inside.

"Then there are those who are just inconsiderate, like not using their blinkers on roundabouts. They don't seem to realise that once we are into the roundabout it takes us quite a while to get out the other side."

But overall, he thinks other road users are much more accepting of log trucks than they once were. The trucks and trailers are better engineered, drivers are better trained and operators work together and with councils to solve potential problems.

"For example, they've worked with the district councils in places like Coromandel, to put mirrors on corners of narrow winding roads.

"Also, all trucking companies use a single radio channel, so we can let each other know when we are on difficult roads. One of us can pull over in a safe spot, so you don't have two rigs meeting on a tight corner where neither can back out."

He says he can go for a couple of years now without getting any feedback from 0800-LOGTRUCK calls.

Log trucker Rodney Dahm
A greatly improved safety record should stand truckers in good stead in the government review of weight and length concessions

"Then, out of the blue, you might get a couple of grumpies. People are far more likely to complain than they are to praise.

"Often it is for not pulling over on a hill. They don't realise that we often can't pull-off the road – the ground may not take the weight of the truck."

Based in Mount Maunganui, Dahm and his truck are contracted to Rotorua Forest Haulage, who in turn are contracted to forest owners. He can find himself anywhere from Wellsford to Napier on a working day. But nights are usually spent at home, often after delivering a load of logs to the port.

Dahm is hoping the government will allow heavier and longer trucks to be used on specific routes (see story page 3).

"Having a greater range of vehicle and trailer sizes will allow for loads to be better matched. Also modern vehicles are engineered to take the much bigger loads that are now carried in most countries overseas.

"It's in everyone's interest to make the best use of our vehicles. It will be more fuel-efficient and there won't be the same increase in log truck numbers that we would otherwise have."

IN THIS ISSUE

Let's swap – fair policies for more trees

By NZFOA executive director David Rhodes

THE BATTLES OVER PUBLIC ACCESS, THE UPGRADE OF THE NATIONAL GRID, THE FORESHORE & SEABED AND NOW CLIMATE CHANGE HAVE NOT HELPED THE GOVERNMENT'S REPUTATION.

New Zealanders have little time for policies that are unfair and lack commonsense.

For New Zealand to come out of the first Kyoto commitment period from 2008-2012 on the right side of the ledger the government needed to encourage land holders to increase tree planting and for emitters to adopt cleaner technology or to pay for their increased emissions.

This didn't happen. In 2001 the government backed away from its initial, logical, response that forest owners should get an income from the carbon crop they are growing for the nation.

Since then its focus has been on penalties for pre-Kyoto forest owners who want to change land-use, and retaining the carbon credits produced by privately-owned Kyoto forests.

Is this fair? Of course not. Particularly when the government proposes that the main sources of New Zealand's increased greenhouse gas emissions – livestock farming, energy and transport – will be sheltered.

Nor is it sensible, given that there is no practical way to separate the management of carbon from the ownership and management of the trees.

It doesn't help that we were told that signing up to the Kyoto Protocol was going to mean a giant cheque for the country - a costless exercise. With such expectations established, generating enthusiasm for any sort of emissions reduction action was always going to be much harder.

We now know, thanks partly to what's happened to forestry, that the reverse is true - there will be a giant cheque for the country – it's just that New Zealanders will be writing it.

Did people who planted between 1990 and now have carbon trading in mind? Well, some did, some didn't. But from the mid-1990s, most will have had an awareness of the value of carbon – an awareness that MAF officials and ministers of the Crown personally helped to build.

But, is any of that really relevant? As we all know, the winds of fortune blow every which way. The fact that you happen to benefit because a local authority amends a zoning boundary, or government signs an international free trade agreement, does not mean your gains are public property.

In our society, crops and their products belong to those who grow and harvest them. No Act of Parliament is needed to clarify who owns the flowers which have recently made manuka honey a surprisingly lucrative crop.

Of the protocol rules agreed to in Kyoto Japan in 1997 none are more strange and arbitrary than those for forestry.

Signing up to such arbitrariness in the national interest is one thing; to then subsequently impose a significant deforestation liability on people who planted trees well before the protocol was even thought of is retrospective law, and is unjust, particularly when Kyoto says that the carbon absorbed by those trees doesn't count.

So why is the government investing so much political capital and using fragile arguments to defend its forest climate policies? The only possible answer is that it decided that imposts on forest owners were politically more saleable than taxes on fossil fuel and farming emissions.

In so doing, its advisers clearly didn't reckon on the anger of the individual Mum and Dad investors who own most of our Kyoto forests. Their upset at the unfair treatment being meted out to them has been heard up and down the country.

These people don't like retrospective legislation, they don't like the government impinging on their property rights and they don't believe people who tell them it's neither of these things. As time goes by without change in policy, the risk grows that these people will completely turn off forestry as an investment. This threatens the government's own objectives.

So how does New Zealand find its way out of this nightmare?

What is needed is a commitment to ensuring change is initiated now. If New Zealand is to reduce its net greenhouse gas emissions, the cost of carbon needs to be factored into all business decisions.

On the credit side, owners of Kyoto-qualifying forests must be allowed to financially benefit from the value of the carbon their forests remove from the atmosphere from 2008-12 and beyond. On the debit side, industries which increase their emissions should be required to pay or offset them. Only then will competition for markets and resources, such as land, be fair.

One of the overwhelming messages the government will have received from submissions on its land-use climate change policy options has been that emitters must face the costs of the impacts. It is therefore encouraging that climate change minister David Parker has announced that the government is looking at an economy-wide response involving carbon-trading.

The wood processing sector also has a vital role to play in this. Alternatives to wood such as concrete, plastic and steel should have the environmental consequences, including carbon

Story continued on page 7

Welcome to our new look

We hope you like the *Forestry Bulletin*, now printed in full colour. Because it's taken a while coming, we've added four pages to this edition. With the winter edition we will return to being an 8-page quarterly, but the colour and the smart design will be here to stay.

Good policies are built on fairness and commonsense
But imposts on forest owners were an easier 'sell' than taxes on emissions

Safer, greener, heavier, longer

THE NZ FOREST OWNERS ASSOCIATION IS PROPOSING THAT BIGGER LOG TRANSPORT RIGS SHOULD BE USED ON SELECTED STATE HIGHWAYS.

By allowing heavier and longer logging trucks to be used, there will be fewer trucks on the road than otherwise and a big reduction in industry fuel consumption.

Each year, 31 million tonnes of logs, wood products and paper are transported by road, making forest products the largest road freight category in New Zealand, outside of general freight.

Because transport is costly and is a big source of greenhouse gas emissions, the government is looking at whether it can change heavy vehicle dimension and mass (VDM) rules to make the country's trucking fleet more efficient while at the same time capturing road safety and environmental benefits.

In a submission to a Ministry of Transport/Transit NZ review the association proposes a concession covering four new rig configurations. These are based on a study by Transport Engineering Research New Zealand Limited (TERNZ).

The new rigs will offer fuel savings of 3.5 million litres, a reduction in carbon dioxide emissions of more than 9000 tonnes a year, and significant improvements in productivity.

The heaviest rig would be 62 tonnes, for use on certain high volume high-spec roads. The other set-ups would allow vehicle lengths of up to 24 metres on other designated routes.

"Longer vehicles will be far more efficient, because of a mismatch between existing 20 and 22 metre vehicles and the 4.9-6 metre pruned and sawlog lengths which are common in the industry," says NZFOA chief executive David Rhodes.

"At present these logs can only be carried in single packet loads. If they could be carried as a double packet load on the trailer, it would be possible to carry increased loads with improved vehicle stability.

"The 6 m nominal log length also translates through to a preference for 6 m sawn lumber packets."

Rhodes says the concessions being sought match the new rigs with routes that will provide them with maximum potential for improving efficiency, safety and environmental impact.

Significant forest producing areas such as West Waikato, Taranaki/Wanganui/King Country, East Coast, Manawatu, West Coast and inland Canterbury/Otago are not included. However, if concessions on the proposed routes are approved and shown to be successful, it is hoped that the new rigs will be permitted to be used more widely in future.

"The concession routes represent about 40% of the industry's transport load - just over 1000 million tonne-kilometres – and involve the high quality state highways which serve most processing plants, metropolitan areas and export ports."

He says the industry expects any concessions to be accompanied by rules requiring the adoption of new technology that will improve vehicle safety and enable compliance to be monitored. Longer loads need to be combined with restrictions on load heights to improve vehicle stability and further reduce roll-overs.

At present, heavy vehicles are normally limited to a maximum weight of 44 tonnes and length of 20 metres. But in 2004 the forest industry won support for a concession allowing loads of up to 22 metres. This enabled multiple packets of 3.7-5 m logs to be transported, and was accompanied by a requirement to reduce load height.

"This concession has, along with other initiatives developed under the leadership of the Log Transport Safety Council (LTSC), helped transform log transport safety performance in New Zealand.

"There has been a 70% reduction in rollover crash rates of log trucks (per million km) since 2000 and log trucks now have comparable stability performance to the rest of the heavy vehicle fleet, despite operating on often difficult roads and in challenging off-road conditions."

He says the NZFOA and LTSC are determined to have any concessions implemented safely and efficiently.

"We are committed to the Log Transport Safety Accord and the Best Practice Guidelines for Transport and Roading, and will continue to keep these documents up-to-date and applied.

"The industy's excellent track record in improving vehicle safety in recent years, backed by an active programme of other safety and efficiency initiatives, provides confidence that any concessions will be responsibly applied and maintained."

The routes selected for the concessions have limited or no rail services available. The industry is a significant user of rail services where these are conveniently located, with rail carrying more than 80% of the products transported from Kinleith, Murupara and Kawerau.

Longer vehicles will be more efficient.
Fewer trucks, fewer accidents and a big reduction in industry fuel consumption

How do forests help?

SUN POWER: Using sunlight and photosynthesis, trees convert carbon dioxide from the air into plant material as they grow. About half the weight of a tree – including roots, stems, branches and leaves – is elemental carbon.

NATURAL: In a mature natural forest, aged trees die and release their stored carbon as they decompose. They in turn are replaced by young trees that store carbon. In this 'steady state', the forest neither adds to, nor removes, atmospheric carbon.

RESERVOIRS: When trees are planted into pasture or bare land, they add to the carbon already on the site. After 30 years, when a stand of radiata pine is ready to harvest, a forest carbon reservoir of about 112 tonnes/ha has been created.

STEADY-STATE: If trees in a plantation forest are harvested and replanted on a regular cycle, net carbon storage reaches a steady-state similar to a natural forest.

BUYING TIME: This means the carbon storage benefit from planting new forests is a one-off. However, it is important, because it buys time for the rest of the economy to reduce its emissions.

TREE-ROOM: Fortunately, plantation forest makes up only 7% of New Zealand's land area, so there is plenty of room to plant more trees. Landcare Research estimates New Zealand has 2.5 million ha of erosion-prone hill country pasture which would be better off in trees.

OFFSETS: New Zealand needs about 50,000 ha of new forests to be planted each year for the next 10 years to offset the extra greenhouse gases produced by farming and forestry since 1990, the baseline year for Kyoto accounting. This would increase the area in plantation forest by about 20%.

FUEL: Forestry also has important ongoing benefits in a world that is burning too much carbon. Harvest waste and mill offcuts, which make up about 50% of the plant material produced by a forest, are increasingly replacing fossil fuels as a carbon-neutral industrial energy source.

LONG-TERM: When a forest is harvested, much of the wood is then 'locked up' along with its carbon content in wood products for many decades. This long-term carbon storage is not allowed for in the current Kyoto rules, but it represents 10-20% of the carbon sequestered by a forest.

BIG BENEFITS: By far the biggest carbon benefits from forestry arise from the land uses replaced by forests, and the construction materials replaced by wood.

Cows and carbon

A STEADY-STATE FOREST IS CARBON NEUTRAL. IN CONTRAST, A DAIRY COW EMITS ABOUT 83 KG OF METHANE AND 112 KG OF NITROGEN A YEAR. NITROGEN IS ALSO EMITTED DIRECTLY FROM FERTILISER.

The global warming potential of 1 kg of methane is equivalent to 21 kg of carbon dioxide; 1 kg of nitrous oxide, is equivalent to 310 kg of CO2 (EEA figures).

To offset the total GHG emissions from a dairy farm would require about 25% of the farm to be planted in fast growing eucalpts, according to the Australian Greenhouse Office. When the forest matured and reached a steady-state it would need to be harvested and replanted and a new forest of equal area would need to be planted to offset the future farm emissions.

This scenario assumes that no emission reduction technologies – such as nitrogen inhibitors - are used on the farm in the meantime.

Offsetting your car?

How many trees do you have to plant to absorb the carbon emitted by your car?

If you drive 16,000 km a year for 40 years at a fuel efficiency of 11 km/litre of petrol, and your car emits 0.86 kg carbon/litre, you will need to compensate by removing 1.25 tonnes of carbon from the air each year.

Given that a steady-state radiata forest contains about 112 tonnes carbon/ha, you will need to plant half a hectare of pines to compensate for a life-time's driving. The trees would have to be planted on non-forested land and replanted after every harvest.

Permanent native forests contain more carbon – about 150 t/ha – so only one-third of a hectare would be needed if a permanent native forest sink was planted.

Adapted from *Trees in the Greenhouse*, by Piers Maclaren

What about your house?

Houses made predominantly from wood are much more environmentally friendly than houses made predominantly from concrete and steel.

The Canadian Wood Council says steel and concrete designs embody 26% and 57% more energy relative to a typical wood-based design, emit 34% and 81% more greenhouse gases, release 24% and 47% more pollutants into the air, discharge 400% and 350% more water pollution, produce 8% and 23% more solid waste, and use 11% and 81% more resources.

A Sydney University study by Joanna Glover calculates the embodied energy in a predominantly wood house at 232 gigajoules, concrete 393 GJ and steel 553 GJ.

A lifecycle analysis of floorings has estimated the global warming potential of PVC at 4.2 kg/m2, linoleum 1.6 kg/m2 ad wood only .42 kg/m2. Similar studies of aluminium versus wooden window frames and wooden versus steel furniture, show that products made from plantation-grown timber are the most environmentally friendly.

This is not surprising, kiln-dried softwood has a embodied energy content of 3.4 MJ/kg; mild steel 34 MJ/kg; and aluminium 170 MJ/kg.

Plantations are best harvested

THE GOVERNMENT'S PERMANENT FOREST SINK INITIATIVE (PFSI) HAS ENJOYED A MEASURE OF SUPPORT.

However, Professor Buchanan of Canterbury University points out that the planting of trees to offset carbon emissions elsewhere in the economy is only one of the environmental benefits of forestry.

"What is needed now is the right economic climate to encourage the planting of trees and the long-term management of forests for wood production and the recovery of solar energy," says Buchanan."

In an article in *The Press* he calls for a greater use of wood in building construction and for more wood to be used for energy generation. Sweden and Finland obtain more than 20 per cent of their national energy from burning wood and wood waste, which are carbon-neutral fuels.

"The carbon in timber building materials adds to the pool of stored carbon in the forests, and a much larger benefit comes from the substitution of wood for more energy-intensive materials such as concrete, steel and aluminium."

Buchanan explains that the financial benefit for the forest owner of planting trees on non-forested land is short-lived, because the land must remain forested in perpetuity, but no additional carbon is absorbed from the atmosphere after the forest matures in about 30 years.

"Far bigger economic and environmental benefits accrue if a forest is managed for perpetual wood production, to be used for building materials and for energy," he says.

Source: The Press, 22 February 2007, p 9

More than wood
Big potential benefits from bio-fuels

Land-use plan fails New Zealand

Forestry pays the initial price, but ultimately all New Zealanders will lose

NEW ZEALAND'S PROPOSED LAND-MANAGEMENT CLIMATE CHANGE PLAN OF ACTION IS TIMID AND WILL DO LITTLE TO HELP NEW ZEALAND MEET ITS KYOTO OBLIGATIONS.

"Quite apart from its unfairness to forestry, the plan fails to signal a path to a reduced carbon emission economy clearly or rapidly enough," says NZFOA president Peter Berg.

"This poses a real threat to New Zealand's continued trade with the EU, which is likely to insist on compliance with Kyoto targets from 2012 as a condition of market access."

He says simple, equitable, broad-based and transparent policies for transforming the economy should have been ready to go before New Zealand ratified the protocol in 2004.

"The situation we are facing is serious, but it's nothing new. Reducing New Zealand's carbon emissions to 1990 levels was always going to be a challenge."

Berg says the failings of the plan are best illustrated by comparing the approaches it takes to industries which compete with forestry for land and markets.

"Forestry is New Zealand's best hope for meeting its medium-term emission targets. Yet because agriculture is being quarantined from meeting its Kyoto obligations, it is better able to compete with forestry for land.

"Forest owners not only lose the income they had expected from their carbon crop, they will also see the value of their land reduced by rules designed to lock them into trees."

The net effect of this is deforestation on a scale never seen before and the lowest level of new forest planting in living memory. At the same, emissions from transport, energy and agriculture are growing rapidly above their 1990 baseline.

For ordinary New Zealand taxpayers, this means a disastrous blow-out in the country's greenhouse gas ledger, which will have to be paid for in 2012.

Berg says it is therefore crucial that a price is put on carbon emissions across the economy.

"This will provide a financial incentive for industries and individuals to reduce emissions and in the case of forestry, remove carbon from the atmosphere," he says.

"The country needs to know that Kyoto is real, with real costs attached to increased emissions. For example, from 2008 every time an architect or engineer specifies ferro-concrete, plastic or aluminium where wood could have done the job, there will be a carbon cost borne by New Zealand.

"Initially the government may decide for social or economic reasons to shelter a sector. But when this happens, the cost to the taxpayer should be fully transparent."

Berg says the government's plan is unfair, overly complicated and too timid.

In foregoing a carbon charge, it is missing out on revenue which could be recycled to fund payments for carbon sequestration and new forest plantings. It could also be used to help other industries, especially agriculture, to develop low emission technologies.

"A carbon charge would also alter the relative cost of construction materials in favour of wood. The result would be increased investment in forestry without the need for direct intervention by government," he says.

Deforestation is occurring because other industries, particularly dairying, are currently a more economic use of many classes of land.

The plan rejects any policies to reduce methane emissions from livestock because no technologies have been developed which achieve this. However, the costs of increased methane emissions have to be paid for by someone.

"Logic suggests that farmers, who benefit from those increased emissions, should offset them through forest sinks," Berg says.

If forest owners were paid for carbon storage and if farmers were required to plant trees or buy offsets for any growth in their livestock emissions, there would be no need to have a deforestation tax. Such a policy would also deliver the government's other goals, such as enhanced biodiversity, erosion control and improved water quality.

Berg says the contradictions in the government's policies are also reflected in the RMA Act, which is meant to be based on polluter pays principles.

"In virtually every district of New Zealand, farming is a permitted activity, while forestry – which has a superior environmental profile – has to abide by strict effects-based rules even to do routine management activities."

He says the NZFOA has raised major concerns about the government's proposed climate change policies over several years. Yet the core policies remain unmodified.

"We are unable to support any of the options offered in the government's land management climate change discussion paper. They are extremely unfair to those who have invested in forestry and if they are implemented, they will be unnecessarily costly for the taxpaper.

"New Zealand needs a long-term strategic climate change policy which is fair and lets all Kiwis know where they stand. The proposed options fall short of this by a country mile."

Forestry is our best hope for meeting our Kyoto targets
Yet agriculture is better able to compete for land because it is quarantined from meeting its Kyoto obligations

Turning waste wood into energy

THE ENERGY EFFICIENCY AND CONSERVATION AUTHORITY [EECA] IS DEVELOPING AN INTERNET-BASED BIOENERGY GATEWAY WHICH IS INTENDED TO MAKE FOREST OWNERS AND MANAGERS MORE AWARE OF THE FUEL VALUE OF HARVESTING RESIDUES.

However Noel Richmond, owner of Central Wood Recyclers (CWR), a business that collects and processes wood waste from skid sites and landings, says his main concern is a lack of customers for the hog fuel he produces.

"Forest owners are happy to have harvest trash removed, but we could do more business if we had more industrial users. Our Rippers are working eight hours, five days a week, but they should be doing double shifts seven days a week. They're expensive machines."

The Ripper shreds, grinds and screens everything from tree stumps to branches. It comes in tracked and stationary models, with a price tag of $750,000 or more. Trash has to be carted to both models while they are operating, but the tracked models are easier to move into skid or hauler sites on rough country.

Screening and Crushing Sales Ltd (SCS) of Christchurch, developed the Ripper in 2003 in consultation with CWR which purchased the prototype. SCS managing director Brian Court, says it was designed for the rugged terrain and conditions associated with grinding in New Zealand.

"There are competing machines produced in United States and Europe, but they are more expensive and some of them can't handle tree stumps and other heavy material you get here. Maintenance is always pretty high on any grinder, but we're achieving running costs up to two-thirds lower than our competitors."

Customers seem to be convinced. There have been 23 Rippers sold in New Zealand and Australia and CWR has three of them – two tracked versions and one stationary – which Richmond says he has operated from Kaitaia to Wellington.

"I'm servicing Carter Holt Harvey at Kinleith, PanPac and a few other businesses," says Richmond.

"When I started in 2003, Carter Holt could see the future of forestry waste as a bio-fuel and were very helpful getting me started. They were on the right track ... just look at the way the price of natural gas has gone. SCS was also very helpful."

The Ripper produces hog fuel (boiler fuel), an energy resource which is economically and environmentally better than burning coal and oil. Carter Holt's Trevor Gerken says the hog fuel is burned in the company's CoGen boiler, which produces steam for use in the mill. An embedded steam turbine also produces electricity for the plant.

EECA says forest residues are potentially a huge source of fuel for bioenergy plants. It has been estimated that up to 4 per cent of felled wood is normally left in and around skid sites following harvest.

Scion energy scientist Michael Jack says EECA has yet to set a timeline for the development of the forest growers portal in the gateway. At present, if you click on forestry in the bio-energy gateway you find the site is still under construction. Links from this page lead to the Bioenergy Knowledge Centre, which is serviced by Scion staff who can assist with the analysis of bioenergy opportunities.

More?

Central Wood Recyclers:
Noel Richmond, Tel 07 378 4310,
email noel.cwr@xtra.co.nz

Screening & Crushing Systems Limited, Tel 03 359 1891,
www.screeningandcrushing.co.nz

EECA Bioenergy Gateway:
www.bioenergy-gateway.org.nz

Ripping into it
The challenge is to find more customers for the hog-fuel

Let's swap – fair policies for more trees

Continued from page 2

emissions, fully factored in to their prices.

For social or economic reasons, the government may decide that some industries should be shielded from the full cost of their emissions until they have had time to adapt. But adapt they must, because the cost of carbon to New Zealand is real.

Only if climate change policies are fair, sensible and transparent will they stand the test of time. And time is what's needed when planting crops which take a generation or more to reach maturity.

The positive is that government recognises the multiple reasons why New Zealand needs more trees in the landscape, and that something has to change. Unfortunately, the options presented to date for consideration are not going to do the trick. The current offer to "pick a card, any card" isn't that attractive when there is only one card.

Put a pine tree in your tank

SCION AND AGRESEARCH ARE WORKING WITH THE US-BASED DIVERSA CORPORATION TO DEVELOP TRANSPORT BIOFUELS BASED ON CELLULOSIC ETHANOL. POTENTIAL FEEDSTOCKS INCLUDE AGRICULTURAL WASTE, FORESTRY PRUNINGS AND HARVEST TRASH.

Diversa is a developer of specialty enzymes used in industrial processes, based in San Diego, USA.

A preliminary study has shown that Diversa's enzymes have the potential to convert New Zealand-grown wood into sugars, which can then be fermented and refined into ethanol and other products.

Scion chief executive, Dr Tom Richardson, says the three organisations are studying the feasibility of developing a transport biofuel industry in New Zealand. If the results are positive, they will then work together to bring this vision to reality.

"New Zealand has 7% of its land mass in plantation forests. The developing energy and climate change policies should anticipate an ever expanding range of products and environmental services from these forest resources," he says.

Cellulosic ethanol has for several years been touted as having a huge potential to replace fossil fuels in vehicles.

Internationally there are several pilot plants in operation and in New Zealand, Genesis Research has demonstrated the viability of producing ethanol, lignin and xylose from shrubby willow. In collaboration with the Lake Taupo Development Company it is now doing field trials and is testing and optimising its refining process.

While cellulosic ethanol is chemically identical to ethanol produced by simple fermentation of the plant sugars in grain, fruit and other crops, the production process is very different. The technical challenge is to convert the complex carbohydrates in cellulose into simple sugars that can be easily fermented. This is complicated by the presence of lignin, which acts as a fermentation inhibitor.

However, the potential rewards are great. Many potential feedstocks are plant materials that at present have little or no value and would otherwise be burnt, left to rot, or ploughed into the soil.

In contrast, using farm crops to produce ethanol puts food and fuel production into competition, with big cost and social implications. 'Tortilla riots' protesting the dramatic increase in the price of maize meal have followed the US decision to use maize for ethanol production.

As a fuel, cellulosic ethanol is sustainable, and can easily be substituted for petrol. Lignin is also a high value industrial fuel and can be used to produce high value plastics.

It's also great for reducing greenhouse gas emissions. A lifecycle analysis at Argonne National Laboratories in the United States has found that cellulosic ethanol reduces greenhouse gas emissions by about 80% compared with gasoline. Corn ethanol showed 20-30% reductions.

One of the biggest barriers to the adoption of cellosic ethanol has been the cost of the enzymes used in production. However, this is no longer the case, thanks to US Government-funded research designed to make the processes more economic.

Fuel and plastics
The technology is available to create ethanol from cellulose and plastics from lignin

RATES INQUIRY

Fewer voters risk higher rates

THE NZFOA HAS TOLD THE LOCAL GOVERNMENT RATES INQUIRY THAT DIFFERENTIAL RATES ARE BEING MIS-USED BY MANY LOCAL BODIES TO UNFAIRLY EXTRACT EXTRA RATES FROM FOREST OWNERS.

"The supposed justification is the wear and tear caused by log trucks on district roads. But there is no evidence to substantiate this," says chief executive David Rhodes.

"The intense use made of some roads by log trucks during harvest may give the appearance that they are damaging the roads. But for decades following the establishment of a forest, forest owners make little use of district roads even though they are paying roading rates during this period.

"Over the full growth cycle of a forest, forestry makes a similar call on council roading services to other land-use industries.

"Indeed, the evidence is that differential rates are being applied to forest owners on an unprincipled basis because they are thinly represented at the ballot box."

The NZFOA submission argues that property value rating should be replaced or considerably supplemented with alternative forms of funding.

The rateable value of a property has little or no linkage with the value of services provided to the ratepayer by the local body. This is particularly true of ratepayers in remote areas who invariably make little call on council-funded services like street lighting, storm water drainage and libraries.

The Association believes many councils could also make greater use of user charges. Such charges help to balance the cost of providing the service against the benefits that users derive. The weighing up of the costs and benefits by users leads to a better use of society's resources. This is particularly appropriate in regards to roading.

Greater vigilance needed

But who will pay for it?

NEW THREATS TO FOREST BIOSECURITY ARE EMERGING FROM INSIDE AND OUTSIDE NEW ZEALAND.

That was a key take-home message delivered to the 70 or so industry, government, and research representatives who attended the 6th Annual Forest Biosecurity Workshop held in Rotorua on 8–9 March. NZFOA chief executive David Rhodes summed it up from a stakeholder perspective when he declared that "if we don't tackle these new threats together we'll be outflanked."

Outflanked not only by the new pests and diseases knocking on our border doors, but by emerging social and market threats.

Drs Jim Salinger (NIWA) and Ecki Brockerhoff (Ensis) presented possible climate scenarios of what we might expect in the next one or two rotations and the potential impact on pests. While increased temperatures and changing rainfall patters may be significant in some regions, and may increase the number of Australian pests that could thrive in New Zealand, in many ways these potential impacts are overshadowed by more immediate social and market threats.

Biosecurity New Zealand (MAF) was congratulated on its performance in dealing with serious insect incursions in recent years. But it was also highlighted that it is much more sensible to deal with pests at the border, or at an early establishment stage.

Social pressures make it increasingly difficult to spray urban populations and the likelihood of successful eradication decreases exponentially with the size of the pest population. Gum leaf skeletoniser (GLS), by example, was eradicated from the Tauranga area only to be newly discovered over a much larger area throughout Auckland. Steps are underway to try to develop a bio-control programme to limit the damage caused by this pest.

Similarly, Nectria flute canker has now spread north from Otago/Southland and research is focused on ways to minimise its impact rather than to eradicate it.

MAF too is talking about giving all industries a much greater say in how new pests and disease incursions are handled. While MAF is likely to maintain responsibility for dealing with new incursions under the Biosecurity Act, industry will not only have more say as to what needs to be done and when, but will also be asked to contribute more to the cost of eradication.

Gum leaf skeletoniser, an unwelcome migrant
Social pressures make it much harder to eradicate pests like this if they are established in urban areas

The title of the workshop was Emerging External Influences to Forest Biosecurity, but in almost all cases the 'influences' can be regarded as 'threats'. With the exception of some exciting new developments in research and diagnostics, there is little reason for forest owners to feel in any way complacent about forest biosecurity.

Market pressure to reduce the use of chemicals, as reflected in FSC certification rules, and talk of a new disease attacking radiata pine in Chile means that it has never been so important to be vigilant to stop new pests and diseases before they can get a foothold.

New forest ownership is bringing new thinking to forest biosecurity in New Zealand, and this is welcomed, but as NZFOA executive committee member Peter Clark made clear, "if industry is to be in a position to meet some share of the future costs of incursion control, as suggested by MAF, the only practical way to achieve that is by introducing a levy to raise the industry share."

Health in good hands

THE NEW ZEALAND DIRECTOR OF GMO RENEWABLE RESOURCES, IAN JOLLY, HAS BEEN ELECTED CHAIRPERSON OF THE NZFOA'S FOREST HEALTH COMMITTEE.

The important committee is responsible for the Forest Health Surveillence Programme, promotes policies to improve forest health and biosecurity, and provides funding for research in its activity area.

The committee works closely with the Forest Biosecurity Research Council (FBRC). The council prioritises and oversees forest biosecurity research funded by a voluntary levy paid by association members.

In addition, the research programmes receive public good funding from the Foundation for Research, Science & Technology and the government's Forest Industry Development Agenda. Most of the research is carried out by Scion and Lincoln CORE.

Fumigants essential for export access

Methyl bromide is needed until phosphine is accepted by all overseas markets

THE ENVIRONMENTAL RISK MANAGEMENT AUTHORITY HAS BEEN TOLD THAT CONTINUED USE OF METHYL BROMIDE TO FUMIGATE LOGS BEFORE EXPORT IS CRITICAL FOR THE ECONOMIC SURVIVAL OF THE NEW ZEALAND FOREST INDUSTRY.

The Montreal Protocol has banned the use of the gas in agriculture and horticulture in developed countries since January 2005 except for agreed critical uses. Its use for disinfestation of products before shipment and during quarantine is still permitted, although countries are encouraged to use other technologies where possible.

Like many other countries, New Zealand's use of methyl bromide has risen in recent years due an increase in trade with countries which require it to be used to disinfest imports. A large part of our increase is for the pre-export treatment of logs.

In a joint submission to ERMA, the NZFOA and the Wood Processors Association (WPA) say they are working to reduce both the industry's dependence on the gas as well as the emissions which occur when it is used. Methyl bromide is a highly effective fumigant but like other chlorinated halogens it takes a big toll on the earth's ozone layer.

NZFOA chief executive David Rhodes says the industry wants to be as environmentally friendly as possible and recognises that methyl bromide use may eventually be outlawed altogether.

The NZFOA, through the Forest Biosecurity Research Council, has therefore been driving research into more environmentally friendly quarantine treatment methods. This has been helped by a $410,000 3-year FIDA funding grant.

"Our research has identified a fumigant, phosphine, which is a 100 per cent replacement, is cheaper to use and doesn't deplete the ozone layer. But the challenge is to get it accepted by quarantine authorities overseas."

While phosphine is the world's most widely-used grain fumigant, it had not been used for logs and sawn timber until the NZ forest industry started researching the alternatives.

Wei-Young Wang, the NZFOA's phosphine research coordinator, says the biosecurity requirements of importing countries can be notoriously slow to change. With no international protocol for the use of phosphine, New Zealand has to strike deals with individual countries one at a time.

"The industry has pioneered the use of low dose phosphine fumigation for logs shipped to China in ships' holds. With help from trade officials, we are now negotiating with Indian quarantine authorities, and will shortly approach Malaysia to accept the same treatment," he says.

"However, there is still quite a long way to go. We have yet to get talks going with Korea, which takes more than half of all New Zealand's logs.

"We also have yet to find an alternative to methyl bromide for logs carried as deck cargo. Our research is exploring the potential of sulfuryl fluoride, light traps, heat treatment and gamma radiation."

Lumber exports and panel product exports to Australia are worth $295 million a year, and these are critically dependent on methyl bromide fumigation.

"When these products are exported during the summer flight season of the burnt pine longhorn beetle, Australian quarantine officials require fumigation with methyl bromide," says WPA chief executive Peter Bodeker.

"In 2005 we successfully convinced the Australians that a reduced dose rate of methyl bromide was effective and now we are negotiating for phosphine to be used as an alternative. However, we need to convince the Aussies that the five days it takes for a shipment to reach Australia is sufficient time for the phosphine to do its job."

He says the WPA is also working with others on the installation of gas capture technology at Port Nelson to significantly reduce gas emissions during fumigation.

Meanwhile the environment and economic development ministries, which are responsible for New Zealand's involvement in the Montreal Protocol, are working with the Ministry of Agriculture and Forestry to eventually phase out methyl bromide use completely.

In May last year MAF hosted a meeting in Wellington of government, industry and research stakeholders to develop a strategy for sustaining market access for forestry produce by the use of smarter phytosanitary treatment technologies. The stakeholders then appointed a steering committee, STIMBR (Stakeholders in Methyl Bromide Reduction), to advance strategy and to coordinate within the group.

STIMBR met in Palmerston North in late-March, timed to coincide with the opening of a new disinfestation facility at Crop & Food Research. NZFOA chief executive David Rhodes and STIMBR representatives met with science minister Steve Maharey to discuss concerns about funding for methyl bromide-related research.

More?

Wei-Young Wang, NZFOA phosphine research coordinator, PF Olsen & Co, Tel 07 921 1016, Mobile 021 609 305, email wei-young.wang@pfolsen.co.nz

Dr Sarah Adams-Linton, Ministry for the Environment, DDI 04 439 7650, Mob. 021 214 5783, email sarah.adams-linton@mfe.govt.nz

Methyl bromide fumigation on the wharf
Phosphine is a 100 per cent replacement, is cheaper to use and doesn't deplete the ozone layer, but the challenge is to get it accepted by overseas quarantine authorities

Carbon to be added to health monitoring

CARBON MONITORING IS LIKELY TO BE ADDED TO THE HEALTH CHECKS CARRIED OUT IN NZ FORESTS EACH YEAR.

Last year, 1.2 million hectares of plantation forest were surveyed by contractors Target Pest Limited as part of the NZFOA's Forest Health Surveillance Scheme. While a number of new organisms were detected, particularly in high-risk forest sites, none was considered a threat to radiata pine or other commercial tree species.

Suspicious symptoms in members' forests were systematically inspected, diagnosed by Ensis scientists, and resolved as non-threats. As a bonus, participation in the scheme has enabled members to declare 'Area of Freedom' for forests free of the fungi *Phytophthora kernoviae*. This provided advantages for NZFOA members involved in green lumber exports to Australia.

The scheme uses drive-through and aerial surveillance to look for unusual symptoms that could indicate a new pest or disease infection, and it also installs temporary health plots to conduct more detailed inspections – particularly where there has been something suspicious observed.

New to the scheme was the use of PVPs, or permanent viewpoint plots. As the name suggests, these plots are established at a fixed location, to provide an overview of a tract of forest, and health symptoms are recorded each year. Additionally a digital photo is taken and stored in a database.

The NZFOA Forest Health Committee has finalised the design of a more comprehensive condition monitoring scheme that will complement the PVPs, says NZFOA forest health administrator Bill Dyck.

"We have tried in the past to secure money from the Sustainable Farming Fund to help with the design and implementation of the scheme, and are trying again this year to attract money for plot establishment. The intention is to link the condition monitoring system with carbon monitoring plots, thus making more efficient use of limited resources and providing a link between productivity (carbon stocks) and health."

The 2006-07 survey is nearly complete, with no major issues reported to date. Target Pest recently introduced electronic field data capture and can now produce reports for forest owners much faster than in the past.

All forest owners are being encouraged to continue their participation in the scheme this year to ensure the protection of our valuable forest estate.

An independent audit of last year's FHS scheme returned a very positive endorsement of Target Pest's performance (see Table).

Target Pest Forest Health Surveillance Performance
Year ended 30 June 06

Component	Specification	Actual	% Achieved
Temporary health plots	3/1000 ha	2.91/1000 ha	100%
Permanent viewpoint plots	2.91/1000 ha	1.28/1000 ha	100%
High risk forest sites	39 total	38	97%
Drive through survey	15 M/ha	17.16 M/ha	114%
Aerial survey	100% coverage	99.5%	99.5%

Setting the standards

THE FOREST INDUSTRY'S LATEST ENVIRONMENTAL CODE OF PRACTICE WILL BE RELEASED IN MAY.

The first code, published in June 1993, has been totally rewritten and the result is a fully comprehensive working document covering all aspects of forest management from an environmental and safety point of view.

NZFOA chief executive David Rhodes says the code has had input from a team of authors and industry contributors, all with considerable expertise in their fields.

"They can take great pride in the work they have done, as can the industry, which is wholly supportive of the project. They have produced a world-class document.

"Few industries are as environmentally friendly as plantation forestry and even fewer have codes that ensure the highest standards are maintained."

NZFOA members are keen to see the new code underpin a move to a more supportive, consistent and 'arms-length' approach to environmental regulation of forestry activity around the country.

Rhodes says the industry is seeking a strong endorsement of the code from the government and its agencies, along with a clear directive that it should be increasingly used as the primary tool to achieve required environmental outcomes.

At present, each district and regional council sets it own compliance standards for forestry. Since forestry – unlike livestock farming – is not a permitted activity in most areas, this means forest owners are involved in time-consuming and often costly negotiations and hearings to carry out normal forest operations.

Rhodes says clear directives that made forestry a permitted activity, subject to compliance with the industry's code of practice, would be fairer and much more efficient.

Fuel storage needs checking

FOREST OWNERS AND CONTRACTORS WILL NEED TO CHECK THAT THEIR FUEL AND OIL STORAGE FACILITIES COMPLY WITH NEW REGULATIONS.

NZFOA safety committee member Wayne Dempster says new secondary containment requirements under the HSNO regulations kicked in from 1 April. They have been incorporated into the new Forest Industry Environmental Code of Practice.

"For forest growers and contractors the biggest impact will be for diesel tanks with a capacity of 1000 litres or more," he says.

For details:
www.ermanz.govt nz/resources/publications/pdfs/COP13-1.pdf

Feeling the heat


Photo: Bairnsdale Advertiser

KIWI FORESTRY FIRE FIGHTERS PLAYED AN IMPORTANT ROLE IN THE CONTROL OF WILD FIRES IN VICTORIA THIS SUMMER. MEMBERS OF TWO TASK FORCES (PICTURED) EACH WORKED FOR MORE THAN A MONTH IN TEMPERATURES UP IN THE 40s.

Kevin Ihaka of Forest Protection Services, Northland, led the first task force (with moustache, third row, third from the left). Task force 2 was mainly DoC staff.

He says tree species in Australian forests may be different to those found here, but once a fire is out of control the differences are minor. A fire in thinned radiata with a gorse understory can be just as dangerous as a fire in eucalypts.

"Forestry people are ideally suited, because it's mainly forestry-type work, wielding chainsaws, dropping trees and using heavy machinery to clear firebreaks. There's little of the work that people think of as fire-fighting, like rolling out hoses and pumping water," Ihaka says.

Aside from forestry skills, the firefighters need to be ultra-fit. Northland crews are again ideal, because they are used to humping chainsaws up steep hills in hot weather.

They're also used to fighting fires. FPS Northland staff had a busy year at home in the summer of 2005-06, with many of them clocking up 500-600 hours fighting fires for DoC, Juken Nishho and others.

But nothing at home compares to the sheer scale of fires in Australia. Unlike New Zealand, there are often few natural boundaries to stop a fire moving hundreds of kilometers.

Nor does the sticky heat of Northland compare with the dry furnace that's the Australian bush, even without the added heat of a fire. Working for a month in these conditions wearing overalls, chaps, boots, helmets and visors must be one of the most gruelling fitness programmes ever devised.

FSC bell ringer

TEMBEC INC, A CANADIAN FOREST PRODUCTS COMPANY, HAS RECEIVED FOREST STEWARDSHIP COUNCIL (FSC) CERTIFICATION FOR MORE THAN 1 MILLION HA OF NATURAL FOREST IN QUEBEC.

This means that 71% of the 7.4 million hectares of Canadian forest managed by Tembec are now FSC-certified, the highest level of certification in Canada.

In January 2001, Tembec and WWF-Canada signed an agreement to implement sustainable forest management practices that comply with FSC standards. The company now offers a growing range of FSC-certified products including lumber, hardwood flooring, newsprint, paperboard, northern bleached softwood kraft (NBSK) pulp and high-yield pulp.

Canada's 18.9 million ha of FSC-certified forests make it the world leader in FSC certification, followed by Russia (12.8 million ha), Sweden (10.4 million ha), USA (9.3 million ha), Poland (6.6 million ha) and Brazil 5.1 million ha.

New Zealand has about 900,000 ha which are FSC-certified. Australia has just joined the scheme, with more than 650,000 FSC-certified hectares.

More than 80 million ha have now been FSC-certified in 70 countries, and about 5000 companies are participating in the FSC chain of custody system.

'ForWood' promotion on track

GROUNDWORK IS WELL UNDERWAY FOR A MAJOR PROMOTION OF FORESTRY AND WOOD PRODUCTS.

ForWood is co-funded by the NZFOA, Wood Processors Association, Pine Manufacturers Association and the government to the tune of $2 million a year. Funding for the first three years has been confirmed, but it is intended that the campaign should run for at least 10 years.

A key aim is to increase the market share of wood, which has been declining. Wood has big environmental advantages over materials like concrete, steel, aluminium and plastics. Also the government and growers want to see more logs processed into added value products within New Zealand.

UMR Research has been hired to conduct a benchmark perceptions study to establish a baseline before the *ForWood* promotions begin. Perceptions, beliefs and attitudes towards wood are being measured.

The study will also identify the 'hot points' that will gain the buy-in of each target audience, and set realistic targets for attitude and perception changes.

A workshop for forest sector representatives was held in Wellington in late February and in early March, workshops for specifiers and industry brand leaders were held in Auckland.

During the workshops, advisory panels were appointed. They will advise the *ForWood* management team on the development and implementation of the promotional programme.

More?
Contact geoff.henley@networkpr.com

NEW ZEALAND FOREST OWNERS ASSOCIATION

The *New Zealand Forestry Bulletin* is published by the NZ Forest Owners Association, 85 The Terrace, P.O. Box 1208, Wellington. Tel 04 473 4769, fax 499 8893, email nzfoa@nzfoa.org.nz, web www.nzfoa.org.nz
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