New Zealand Tree Grower

Official journal of the New Zealand Farm Forestry Association

February 2017

The Australian Forest Growers Conference

Milling blackwood in the Marlborough Sounds

Manuka – a rapidly growing industry

More about the grower's levy

A harvest result to confound the experts

Stop the rot with durable wood

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From the President

Dean Satchell

As can be expected, with the end of year period and holiday season, things have been slower and with fewer matters coming to my attention. My tour of duty is also winding down with my term ending at the 2017 conference.

We held a mid-year Council meeting at Wellington airport during November with an excellent turnout from Councillors. The day was very worthwhile with plenty of time given to consideration of the future of our association, and in particular how we fit in with the growers' levy and our partnership with Forest Owners Association. There are some inefficiencies with how the levy is currently administered, with some inequities identified by the Council in terms of the structure and hierarchy, along with the role of the Secretariat. The conclusion was to task me with engaging with FOA and the Secretariat to consider ways of improving how our two bodies interact and oversee the levy and its administration. This will be an ongoing process and one inherited by the next president.

During November and December I travelled most of the country on a whirlwind tour measuring a series of cypress trials put in by Forest Research Institute 20 years ago. The past has many lessons to teach us growers, in this case an opportunity worth pursuing. With forestry, because of the long timeframes involved, we must make the most of historical research that could otherwise be lost to time. Lessons from research that we do now are usually a long time forthcoming, yet we face decisions now on what we plant and therefore require good information from the past. This is the conundrum we face. Are we doing the right thing and on what do we base or decisions? I hope to be presenting results at the conference, with a positive spin on cypress and how to do it right, or perhaps only how not to do it wrong!

Farm Forestry Timbers is undergoing a revival with a small amount of growers' levy funding to get the ball rolling on market development for our locally grown specialty timbers, beyond the voluntary efforts to date. Growers need to be aware that their participation is crucial. Supply and availability of quality logs is paramount to success.

The Small and Medium Enterprises committee met in December with a productive meeting and robust discussion on matters important for the small grower. Last year the NZFFA put together a survey of growers asking them what their needs were. Information on harvesting came out tops. The Small and Medium Enterprises committee are using the results to guide us in our activities, and in response to this need the NZFFA are putting together an information resource on smaller woodlot harvesting, to be hosted on our website. This resource is nearly complete and will be announced shortly in the *Tree Grower*. Graham West and I are also working on an article outlining the results of our survey. This committee will be the conduit for lots of positive activities supporting the small forest grower.

I look forward to seeing you at the conference in April at Feilding, Manawatu – The Challenge of Diverse Landforms. The organising committee have been very active in putting together a great conference with an emphasis on field days, one not to be missed.

Tas-Mania pre-conference tour and the Australian Forest Growers conference

Neil Cullen

Tasmania has a population of 600,000. In New Zealand terms, it is about the size of Otago and Southland and in latitude fits between Christchurch and Nelson. Half the land area – 3.35 million hectares – is in forest and of that, less than 10 per cent is plantation forest. The main plantation species are Eucalyptus nitens *at 67 per cent, radiata pine 25 per cent and* E. globulus *six per cent. Much of this is grown for chip or pulp.*

Milling native forest has been a controversial political issue in recent times, changing with new governments. Much of the native forest, especially in the west, is now protected in parks and reserves but Forestry Tasmania which oversees the state-owned forests has supply contracts with some mills. There are also considerable areas of native forest in private ownership. Native species such as *E. regnans, E. delegatensis* and *E. obliqua,* which are all marketed as Tasmanian oak, are relatively fast growing and the regrowth logs delivered to the mills are usually between 40 and 70 years old.

Starting the tour

Our group gathered in Hobart on Monday night for a get-to-know each other dinner. The next morning we set off with 28 farm foresters in total which included 10 Kiwis and several who had been on these trips before. The trans-Tasman banter soon began to flow as we drove through the picturesque harbour city of Hobart for a day trip to the south west corner of the island. As we travelled down the Huon Valley which is renowned for its orchards, evidence of the heavy rain and flooding experienced throughout the island was apparent everywhere. The soils were waterlogged and it was difficult to believe that cherries and apples could ripen in this location.

Showers threatened as we unloaded at the Tahune Forest Airwalk near Geeveston. Located on the edge of 1.6 million hectares of a World Heritage listed forest, this 620-metre long walkway offers spectacular views of the Huon and Picton rivers as well as a close up look at the eucalypt and rainforest species. The most valuable of the native softwoods is Huon pine, a slow growing and long lived species with a durable golden white timber. Availability is limited today to about 500 cubic metres a year, mainly salvaged from rivers and hydro lakes.

Saw mill and peeler mill

On the loop road back towards Hobart are two mills on the same site because they are close to their timber source. We first visited the Neville Smith Southwood sawmill which has an annual crown allocation of 40,000 cubic metres of regrowth eucalypt logs. It is claimed to be the most technically advanced hardwood mill in Australia. Most of the logs are quarter sawn into boards which are then further processed in Launceston from where 40 per cent end up in Bunnings stores. They achieve 33 per cent recovery and are planning to put in an automatic bin sorter.

Next door is Ta Ann peeler mill which puts 78,000 cubic metres of regrowth *E. regnans, E. delegatensis, E. obliqua* and *E. globulus* through its two rotary peelers.


Mixed species by the Huon River


The Tahune Forest Airwalk


Processor removing trees


Nitens logs waiting to be collected


Forwarder with pine thinnings

These are smaller diameter logs from Forestry Tasmania but plans are in place to get plantation grown logs in future from private owners. The veneers are quickly dried on site and have been mainly exported, although a new plywood mill constructed at a sister mill in Smithton in north Tasmania is now using a portion of production.

Enjoying the scenery

After a second night in Hobart we set off up the Derwent river valley. On the way we passed Norske Skog's paper mill which produces 20 per cent of Australia's newsprint and a third of its coated paper. It uses only radiata pine mainly from its own forests. For the rest of the day we travelled north west across the central highlands of the island enjoying the scenery which changed from semi-arid farmland to snow lined passes. Lunch was taken by Lake St Clair, Australia's deepest freshwater lake which forms the southern boundary of the Cradle Mountain National Park and is also the end point of the 85 km Overland Track.

As we had climbed in height the natural vegetation had changed from eucalypt dominated to rainforest. At one brief off-road visit to Nelson Waterfalls where we walked through tracks lined with tree ferns and the native beech *Nothofagus cunninghamii,* the New Zealand contingent remarked how similar it was to a New Zealand bush walk.

Once out of the highland passes there was more sign of human effect on the landscape in the form of the Indian owned Mt Lyell copper mine, closed until copper prices recover. The nearby town of Queenstown was showing the effects of the mining downturn and real estate appeared a bit more reasonably priced than its New Zealand counterpart. That night was spent at Tullah at a lodge overlooking the hydro constructed Lake Rosebery.

Timber from a hydro lake

Another hydro lake, Lake Pieman, was the focus of our next day. This 40 km long lake was created in 1987 by the construction of a 105 metre dam which flooded 2,270 hectares of native forest. Because of the steep narrow nature of the valley with limited access, little of the forest was cleared and so what was left was a lake with dead trees protruding from much of the surface.

For the past year, a locally owned company SFM has been harvesting these valuable and unique indigenous trees and clearing the lake of the ugly spectacle. Specialist equipment has been acquired in the form of a 55 tonne excavator with cutting head floating on a barge with accompanying log barge and tug boat. A specialised telescopic boom can reach down as far as 28 metres to cut the base of the dead trees and place them on the barge.

It is an expensive operation but with good returns because much of the end product ends up in the Sydney and Melbourne salvage or reclaim market. For two of the many species recovered, celery top pine *Phyllocladus asplenifolius* and black heart sassafras *Atherosperma moshatum,* this PEFC approved operation is the only legitimate source.

Chips, veneer and a nursery

On leaving the highland area we travelled north and soon were travelling down through the extensive *E. nitens* plantations now managed by a new firm Forico. Located within the 60,000 hectares of eucalypts is a chip mill which was mothballed for five years but is now back to consuming 160 truckloads of logs a day, reducing it to 4,500 tonnes of chip. Our last visit of the day was to the port at Burnie where we watched the chip trucks being hoisted up past 50 degrees on a hydraulic lift to be unloaded.

Two nights were spent at Burnie, a city of 27,000 that services forestry and farming with its port. It is also the birth town of rugby coach Eddie Jones. While there we visited the veneer mill and sawmill that process the hydro logs from Lake Pieman. It was interesting to see the sliced veneers from all the different species. These

Eucalypt logs at the mill

end up in the flooring, panel and furniture markets in mainland Australia.

The small sawmill at Wynyard has had a chequered career but now, with the contract to cut 4,000 cubic metres of hydro logs a year, has been able to invest in new equipment. A new industrial Woodmizer saw breaks the logs down and at the other end a $150,000 solar kiln slowly reduces the moisture content.

We also visited the Forico nursery which provides between seven and eight million container-grown seedlings a year for the company plantations and joint venture partners. This mainly automated process involves year-round seed planting and packing out for planting from August to November. Pests such as wallabies, possums and deer are a big threat to seedlings so some are protected with plastic netting.

Eucalypts for pulp

After travelling back inland we saw a recently planted block of *E. globulus* belonging to Forico, the third rotation on this site. It was originally planted in radiata for the pulp mill that used to be at Burnie then converted to *E. nitens* for the bleached pulp markets. The reason for the change to *E.globulus* is Forico's belief that it will provide the best return from the site due to current premiums in the fibre market mainly due to the superior basic density of the wood. Land preparation involved spot cultivation with a specialised attachment on an excavator. During the 12 to 18 year rotation the expected yield is 300 tonnes a hectare.

Another visit was to the Pentarch log export yard near Burnie port. This company, which also operates in New Zealand has been exporting *E. nitens* logs for sawing and peeling to China from trees which are only 13 to 14 years old. We saw the logs de-barked and stacked ready for shipping with very little end checking apparent. The company has tried the same process with New Zealand logs via Bluff but has found our logs to be much less stable.

Farm forestry

Day five after lunch saw us at Emu Valley rhododendron garden, then east along the coast and inland to the town of Wilmot. Here we visited the 170-hectare farm of Roger and Outhay Poltock who were later awarded the AFG Tree Farmer of the Year prize.

Roger, an exploration geologist, has over the last 34 years worked on creating a sustainable forest estate. He has mainly grown radiata pine in plantations and shelterbelts with smaller areas of Leylands and blackwoods. Earlier plantings have been harvested and replanted and Roger has resorted to wallaby proof fences to keep the native marsupials out of his seedlings and a well-tended example of farm forestry.

It only remained then for us to drive further east to Launceston, Tasmania's second city and the venue for the Australian Forest Growers conference. Thanks for the superb organisation of trip coordinator Robin Dickson were unanimous and heartfelt. His numerous contacts throughout the island gave us access to the forestry and tourist highlights of Tasmania. We got to our hotel just in time to see the All Blacks beat the Wallabies at Eden Park.

The conference

The Australian Forest Growers hold their conference every second year, alternating with the Institute of Foresters. Their emphasis is a bit different from that of an NZFFA conference so the forum was interesting to observe. It began with a welcome function on the Sunday evening where the keynote speaker was an MP and Minister in Tasmanian government.

Monday started with a business breakfast followed by an official welcome and opening by a national politician. This was followed by a local university professor with a rather bland address. For the rest of the day, and again on Wednesday morning, there was a comprehensive programme of speakers and workshops with more than 40 contributors. This was organised in four streams


Twin bandsaws for quarter sawing


White nitens and Tasmanian oak

under the headings

- Forestry futures and investment rationale
- Sustainability and environment
- Growth and productivity
- Research innovation and commercialisation.

We could chop and change between the streams but could only attend a quarter of the presentations. The speakers were a mixture of academics, government agency employees, commercial operators and farm foresters. There is much more government involvement in forestry in Tasmania than in New Zealand, with the main sponsor being Private Forests Tasmania, an agency which promotes private forestry in the state. Of the 200 to 250 attendees perhaps 40 per cent were representatives of government or commercial operations.

More farm forestry

Tuesday was set aside for field trips and there was a choice of five with another two half-day tours available on Wednesday morning for those who had their fill of speakers. The trip I chose involved a 40-minute bus trip east of Launceston to the impressive 2,570-hectare farm of Ian Dickenson.

Ian who has an extensive record of service to agriculture and forestry in Tasmania has successfully integrated the two activities on his property in a balanced and productive manner. A total of 63 per cent of the farm is dedicated to sheep, beef and cropping which is is drought insured by several centre pivots. These are gravity fed with water from a couple of large storage ponds. Reserves cover 16 per cent of the land area, mainly native forest on higher hill country and stream side protection. The remaining 512 hectares are dedicated to forestry with the majority of that managed native forest and 122 hectares in radiata pine, *E.nitens* and macrocarpa. Ian has virtually written off the 10 hectares of 14-year-old cypress because of canker damage.

The pines and eucalypts are much healthier and we saw the production thin taking place on 13 to 14-year-old radiata. A lively discussion ensued between the consultants and New Zealand farm foresters over the economics of this production thin system as the rotation length was projected to be pushed out to between 35 and 37 years.

Management of the native forests has evolved from a relatively crude regime of clear fell and leave to selective thinning of less desirable species for chip, leaving the best formed *E. delegatensis* to grow into large saw logs. Although in his seventies, Ian impressed with his energy and vision and he emphasised the importance of a comprehensive property management plan.

A mill too far

Back in Launceston we visited one of many smaller mills which processes native logs from private owners. The owner of the mill, Graeme Barber, was like many saw millers, rather downbeat about his industry, complaining about the competition from imported American white oak.

Although the mill had some modern equipment in the form of a twin bandsaw for quarter sawing the logs, it appeared fairly labour intensive, lacking in safety procedures, and a bit messy given its location not far from the city centre. With much of its production going to lower value products such as pallets you would have to question how long it might survive.

Recommended for 2018

The conference wrapped up after lunch on Wednesday with another address from an academic. This one was more thought-provoking and was a skilful summation of the issues discussed at the sessions and the role that foresters might play in future Australia. The next conference in two years will be based in either ACT or Victoria and I would recommend both it and the pre-conference tour as a good way to view parts of Australia, learn about their forestry and meet some of the friendly inhabitants.

Milling some blackwood in the Marlborough Sounds

Paul Millen

My brother and I recently milled eight blackwood trees extracted from our Marlborough Sounds property. The sawmiller was Martin Douglass from Motuere, using a Woodmizer mobile sawmill.

Pruned butt log and upper logs of 30 year old tree before sawing

The trees were over 30 years old and diameters ranged from 30 to 60 cm. All had been pruned to between four and six metres. Three to four logs a tree were milled, at lengths between 2.4 metres and 3.6 metres. This included unpruned logs from above the pruning lift that were targeted to produce decorative knotty flooring. Trees were being felled as sawmilling progressed, so felling was only between 24 and 48 hours before sawing.

Smaller logs had any sapwood slabbed off then one or two flat sawn boards taken off both sides to leave a 170 mm wide cant. This was then cut along the pith into two halves which were then flat sawn. All the boards were then edged to a width of 157 mm

Slabbing off the sapwood to produce a cant

Removing sapwood before sawing cant through pith


Sawing through the pith releases the growth stresses within the core of the log


Flat sawing a cant half

to ensure they were straight. Larger pruned logs were quarter sawn and to do this successfully most of the sapwood was also removed before quartering.

The timber was custom sawn to 157 mm by 27 mm and supplied green for a new house. It was delivered to a Marlborough-based specialist wood processor to be seasoned, square dressed and then run through to produce tongue-and-groove flooring with a 135 mm face.

Do the dollars stack up?

We sold 3.75 sawn cubic metres for $1,800 a cubic metre. However, the sawmilling process was only producing one cubic metre a day. We set aside some quarter sawn high grade clears cut from the best butt logs that we can sell for $4,000 a cubic metre. Therefore, in the future this decorative mixed knotty grade we will price at $2,500 a cubic metre if green sawn and $3,000 if filleted and seasoned before sale.

Pinot noir of timber

Blackwood is a niche timber that I suggest is like the pinot noir variety of New Zealand exotic timbers. The timber has some incredible colour and diversity, and it is a relatively easy hardwood to saw and season. There is a lot of satisfaction in producing a really top notch product. I know there is some excellent mature well-managed farm forestry stands and these growers deserve to receive a high return given the demanding silviculture required to manage these early plantations. We just need to get a marketing campaign under way.

In terms of future management of the blackwood stand, we have erred towards developing a continuous cover management system with high initial stocking enabling gradual removal of trees when they reach millable size. No new planting is needed as blackwood coppices and seeds freely, so it is a case of simply managing the regrowth and regeneration as it develops.


Some stunning colour in blackwood timber


Ash Millen straps up packs of blackwood boards

Forests take little from the soil

Wink Sutton

Particularly since the conversion or trashing of second or third rotation radiata stands to make room for dairy farming, we no longer hear claims along the lines that stands of radiata deplete the soil and therefore limit the future growth of the site. Such a claim was challenged by Alfred Hyde Cockayne, son of the better known Leonard Cockayne, over 100 years ago. In an article 'Pinus radiata – effect on soil fertility' published in the 1914 *New Zealand Journal of Agriculture* Cockayne concludes that '....it is evident that the growing of *Pinus radiata*, instead of weakening the soil fertility has a very opposite effect.'

Even fast-growing radiata takes very little from the soil. Over a rotation, radiata takes similar amounts of chemicals from the soil as many agricultural crops, such as grains and potatoes but not pasture, take in just one year.

Some tree species, notably black walnut *Juglans nigra* and possibly our own kauri, release through their roots and falling leaves an allelochemical which inhibits the growth of competing vegetation. It is a biological phenomenon called allelopathy. There appears to be no record of pines using allelopathy.

On some New Zealand sites we are into our fourth or fifth rotation of radiata pine. On almost all sites there have been no reports of site decline. In Chile they have also replanted radiata at least four times on the same site and have reported an increasing growth. An increasing growth rate is very difficult to quantify as all growth influences must remain the same, especially tree genetics, silviculture, climate and competing vegetation. In the past, 30 to 40 years ago, local Chilean farmers were known to plant clear felled sites with wheat crops before the radiata replanting. The farmers knew that these sites were very productive. Stumps of the harvested mature trees were not a problem as the grain was harvested with hand tools rather than heavy machinery.

Extensive global reviews, especially those of Julian Evans, have failed to find unexplained examples of soil nutrient depletions in subsequent rotations of plantations. Where there have been reports of site decline the soil was very infertile to start with or continual leaf or needle litter removal has been the cause.

For a more complete review of plantations and the soil deterioration question see chapter six of Piers Maclaren's excellent 1996 publication *Environmental Effects of Planted Forests in New Zealand* – FRI Bulletin No 198.

That growing forests, including plantations of pines or other non-indigenous tree species, do not deteriorate the soil is not surprising. Forests have dominated the surface of the earth for at least several hundred million years. How often do we hear the claim that if a site has been exhausted by agricultural cropping let the site convert back to forest or be planted?

NZFFA Middle Districts Conference

Feilding
From 6 to 9 April 2017

This is a reminder to book your attendance at the conference in April next year hosted by the Middle Districts. As usual there is a registration form enclosed with this issue of *Tree Grower*. You can also book using the registration form on the NZFFA website.

If you have not booked already and intend to be there, fill out the form and send it as soon as possible so that the organisers have the information in good time. The sooner you book, the happier the conference organisers will be. Some last minute bookings are inevitable, but booking now is the best option.

Manuka – a rapidly growing industry

Stuart Orme

There was a time when the government paid farmers to clear manuka from their land. This article aims to help unravel some of the issues surrounding the source of New Zealand's current liquid gold in the form of manuka honey.

Global demand for high value manuka products is increasing. New Zealand's marginal land owners are well placed to take advantage of this, but developing a sustainable venture based on manuka is not necessarily straightforward. There are many practical and economic aspects to consider.

The market for manuka

A main product of the manuka tree *Leptospermum scoparium* is, of course, nectar which bees make into honey. New Zealand honey exports have experienced an exponential compound growth rate in excess of 20 per cent a year over the last 10 years. This makes it one of the fastest growing land-based industries, with the main driving factor being the increasing prices and demand for manuka honey.

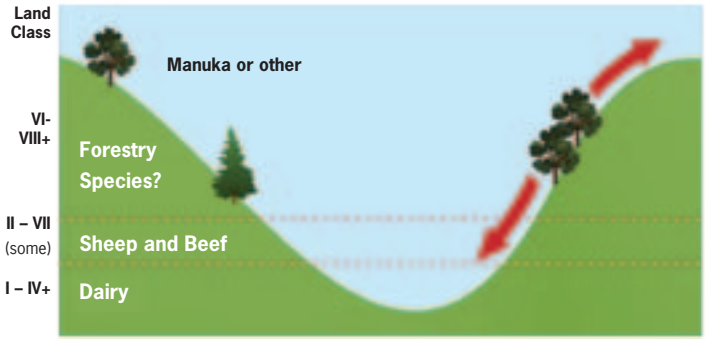
With international acceptance and understanding of the medical opportunities which manuka has, there is a justifiable expectation that the growth limits are sustainable, if managed well, for some time yet. Prices for the honey range from $18 to over $130 a kilogram, depending on the activity rating of the honey.

The term activity as it relates to manuka is used to describe its antibacterial activity. In the case of manuka this varies in scale with higher rated activity levels being used for medicinal products and have an increased price premium in the marketplace.

There is a wide range of products that use manuka honey including –

- Food and beverages
- Skincare, soaps and lotions
- Natural health products such as throat lozenges and cough medicines
- Medicinal products used to treat wounds and infections with the special anti-bacterial quality of manuka honey which been scientifically proven, mainly due to the research efforts of the late Dr Peter Molan and associates.

Tea tree oil, also well known for its medicinal and therapeutic properties, can be derived from manuka foliage. An average manuka stand could potentially produce two to four tonnes a year per hectare on a bi-



Land class use opportunities

annual managed basis. Gross income can be in excess of $100 a tonne for foliage. If the foliage is harvested after flowering, a stand may take advantage of honey and oil crops.

Understanding the value chain

Most apiarists place hives on land owned by someone else and compensate the land owners by paying for the number of hives or on the amount of honey produced. Gone are the days where the beekeeper just dropped off a pot of honey as compensation. Examples of current agreements between the apiarist and landowner vary and may be based on a percentage of profit, a dollar value per kilogram of honey harvested, payment per hive for a season, or a mixture of all these arrangements.

If you are a land owner considering a working arrangement with a bee keeper it is wise to get independent advice before entering into any agreement. Once happy with the operator you are going to work with, it is best to give the bee keeper at least two years of access before judging the results because variations due to climate, flowering and eventual volume can be outside the apiarist's control. When happy with the partnership, a long-term contract should then be considered which allows both sides to manage it and the joint returns to get the best result.

What is the best land use?

The underlying question for any production opportunity has to be what the best land use is. There will be a variety of solutions depending on land suitability and productivity, economic factors such as harvest costs and the distance to market, along with land owner aspirations.

The diagram on the left illustrates the perception that good land can and should be used to produce food. This then leads to the question of what the best marginal land use will be, which is invariably some form of vegetation. This article is not meant as an incentive to rush out and change current land use just because the return on investment looks better than the current options. It simply provides information for consideration of manuka as a crop, whether managed by stopping regular clearing of regenerating manuka, or by planting.

For best bee performance

Honey returns from manuka depend on the ability of bees to harvest the nectar and process it in the hive. The easier it is for the bee to operate the more likely the crop will be maximised. An ideal hive site may –

- Have a basin with an all-around aspect, with a sheltered hive location in the bottom by a water source that can be easily accessed and kept secure
- Have a native manuka population with high activity nearby, if a planted crop, which can add initial cash flow as young plants gets established. The native trees could be managed out and replaced with better material over time
- Not have any neighbouring bee hive operators or vegetation that might attract the bees elsewhere
- Be located in a position where bees need to fly over manuka to get to other more appealing sources of nectar further away, which will prompt the bees to choose the manuka.

The above factors are common to naturally regenerating manuka as well as to the planted manuka crop. The benefits and challenges for manuka as the vegetation of choice are summarised in the table below.

Benefits	Challenges
• Effective erosion control • Biodiversity enhancement • Commercial opportunities • In some cases, manuka is a resident species as part of the natural regeneration process, which can be an advantage • Improved water quality • Proven demand for products • Increased returns on current land use • Riparian planting can provide supplementary bee fodder plants	• Manuka is a primary species in that it naturally dies out when larger trees over-grow the canopy. Unless a significant area of manuka is established or managed there may not be a manuka industry in 50 years. • The land owner has no influence on climate and associated flowering success leading to annual variability • Lack of clarity of information within the industry • Market challenges include integrity in the rating and labelling of manuka honey and potential growing pains in the exponential growth of this sector

Existing resource

By far the most profitable option for a land owner is to receive income from an existing manuka resource on their property. With existing manuka there is an opportunity to effectively use it for manuka honey at no initial additional cost, other than perhaps establishing new access. This income can exist until the seedlings growing beneath the manuka break through the canopy and replace the manuka nurse crop.

Improved honey returns for an existing and emerging manuka are potentially available from –

- Active management by removing competing pollen sources
- Additional planting improved material of a higher activity rating
- Removing transition species to suspend the reversion process and retain the manuka crop on the site
- Planting support species which can feed bees outside the manuka season, which provides an opportunity for hives to stay on the site all year. This ensures a robust healthy bee population capable of maximum honey collection in what is normally the short time available to it.

A working example

The quality and quantity of honey available annually is not guaranteed, more so from a natural resource where the plant parentage will be variable and often exposed to honey dilution from other plants that attract bees. Having a good relationship and trust in a competent beekeeper is invaluable as a commercial arrangement that benefits everyone can be developed.

The table below shows what is possible from a 100-hectare example using the following assumptions –

- The land owner spends $100 a hectare in the first year on access establishment or upgrade and $40 a hectare each year on land costs such as rates and administration
- The site has 100 hives at one hive per hectare
- It models three different activity levels and associated dollars per kilogram of honey, currently or close to those being paid in the market
- Hive production averages 25 kg a year over a 30-year period which is below the average production noted by the Ministry for Primary Industries of 31.7 kg per hive, and possibly well below or above any New Zealand site at any given time

- The dollars per hive back to the land owner and the internal rate of return from that land use investment is based on three different percentage shares of gross hive revenue.

The figures in red show where the bee keeper has most probably lost money on the arrangement, which in the long term is not good for the land owner. It becomes evident that with trust and good records there is room to come to an arrangement which rewards a land owner for managing a native crop of manuka to maximum production.

There is also strong evidence to support planting manuka as a forest crop for honey, carbon and biodiversity. This is especially the case when compared to internal rates of return of between two and four per cent for the average sheep and beef and dairy farm, excluding current market returns.

Planted manuka

Costs associated with planting manuka are higher than managing an existing resource. Therefore, the expected internal rates of return available will be lower, but will still appear to be better than mainstream returns if looking for an alternative or supplementary land use. It costs the same amount of effort and resources to establish a manuka crop with a poor activity rating for the honey produced as it does a high activity crop.

Return to land owner from an existing manuka resource

Manuka activity	Dollars per kilogram	10 per cent share		20 per cent share		30 per cent share	
		Dollars per hive	Internal rate of return	Dollars per hive	Internal rate of return	Dollars per hive	Internal rate of return
5	$18	$5	0.45%	$45	36%	$90	68%
10	$35	$43	34%	$130	96%	$218	159%
15	$55	$93	70%	$230	168%	$368	266%

Return to landowner from establishing a manuka resource

Manuka activity	Dollars per kilogram	10 per cent share		20 per cent share		30 per cent share	
		Dollars per hive	Internal rate of return	Dollars per hive	Internal rate of return	Dollars per hive	Internal rate of return
5	$18	$5	-13.8%	$50	-4.3%	$95	-1.15%
10	$35	$48	-4.5%	$135	0.66%	$223	3.39%
15	$55	$98	-1.02%	$235	3.71%	$373	6.45%
20	$95	$198	2.72%	$435	7.41%	$673	10.27%

Proven genetics are therefore important when selecting which manuka crop to plant.

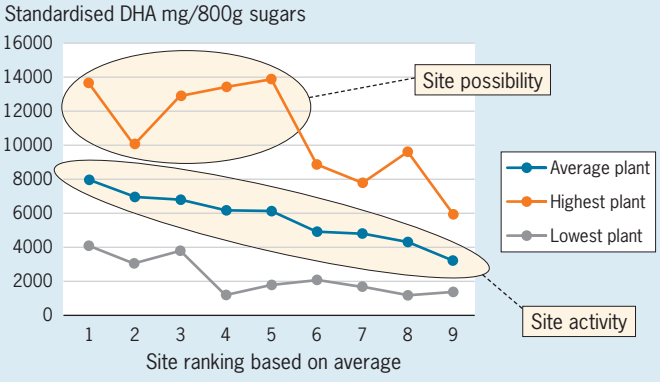
Costs can range between $1,650 a hectare to $2,500 a hectare depending on –

- Land preparation
- Pest control which is critical if goats are present
- Tree stock purchased
- Planting costs which are normally not very different from those of planting normal forestry species
- Weed control
- Pest and weed control to get the crop successfully established.

The diagram summarises some work that Midlands Apiaries completed recently showing the range of activity in several manuka populations.

The main point to understand from the diagram is that the current manuka honey activity is made up of the average activity in the manuka crop, less whatever contamination comes into the crop by way of foreign nectar from plants competing for the attention of the bees. By establishing plants which have a history of high activity, or the offspring of them, in the right site, a honey crop with a high activity is more likely to be produced.

Site activity compared to site possibility



The table at the top of the page takes the same examples as the first table and assumes an additional $2,000 a hectare to plant a manuka crop which does not start producing in full for 10 years. Given what a good plant breeding programme is capable of, it also models the return from a higher activity level that currently commands a top price in New Zealand from the hive.

The figures in red again show that the landowner is out of pocket. If we add potential carbon returns, assuming $15 a unit from the Emissions Trading Scheme based on the carbon sequestration tables, the internal rate of return increase from minus 13.8 per cent in the first example to plus 3.2 per cent. In the last example it rises from 10.27 per cent to 12.5 per cent. This is an average carbon income, assuming $15 a unit, of $142 a hectare each year once growth variances are accounted for. Incidentally, some manuka blocks we have measured exceed the Ministry for Primary Industries indigenous carbon sequestration tables for their region.

Summary

Some land owners are spending upwards of $2,000 a hectare to clear manuka, apply fertiliser and try to bring back naturally reverting land into grass production. Others may already have sectioned off similar land which is receiving a diminishing grazing return, but a climbing carbon and honey return. Neither method is necessarily wrong, but the values obtained in the environmental, biodiversity and long-term economic sustainability areas will be quite different.

What the best land use is will be different for everyone and more than likely the best option will be a matrix of possibilities. However, the common thread is that whatever the best use is – whether driven by history, core skills, aspiration or cash flow – the decisions around it need to be made and reviewed from time-to-time in an informed manner and with a medium to long-term view.

With a growing community expectation to improve environmental standards, planting the right species on the right land has gained acceptance within the agricultural community. It is further supported by agencies which provide funding, allowing landowners to make considered land use changes. At one time in the past, around 66 cents in the dollar were available to clear scrub and indigenous forest for pasture. Now up to $1,500 a hectare is available to re-establish it.

Stuart Orme is a Registered Forestry Consultant based in Masterton.

Just around the corner
NZFFA Middle Districts Conference
6 to 9 April 2017

This is the final reminder for booking your attendance at the conference in April next year hosted by the Middle Districts. As usual there is a registration form enclosed with this issue of Tree Grower. *If you have not booked already and intend to be there, fill out the form and send it as soon as possible so that the organisers have the information in good time.*

Conference opening – Meetings, speakers and welcome dinner

The morning of the first day on 6 April will be devoted to meetings – Branch Management, Council and AGM – with a garden-focussed field trip as an alternative option. The industry speakers' session in the afternoon leads off with keynote speaker Ian Proudfoot. Ian is Global Head of Agribusiness at KPMG. He writes the KPMG Agribusiness Agenda Reports and edits their weekly field notes.

Ian will be followed by Professor James Trappe, a scientist of international standing who is the author of numerous publications on soil fungi and has a special fascination with truffles. His career has included stints with the USDA Forest Service, Oregon State University and CSIRO in Canberra.

Warren Parker, the retiring CEO of Scion, will present what may be a valedictory address to the NZFFA, but who knows what the future has in store for someone with Warren's drive and vision. Before joining Scion in 2011, Warren was head of Landcare Research. David Rhodes, CEO of the Forest Growers Levy Trust Secretariat, will impart his usual words of wisdom on the issues of the day confronting the forest industry. Other topics will include the background to the regional landforms, and a pragmatic response following the damaging weather of 2004, in the form of Horizons Regional Councils' Sustainable land use Initiative.

Days two to five – Not forgetting the trees

After Action Group meetings on Friday morning, we will see at the Williamson's Longridge a great variety of trees – radiata, cypresses, eucalypts, redwood, cedars, cryptomeria, oaks larch and native amenity plantings – married into a broken terrace landscape. Later at Waipiko we will see trees integrated with cropping and livestock farming. John Dermer's mantra is that if he cannot drive a tractor on the land, it should be in trees. The exception would be the extensive wetlands he has developed for wildlife and environmental enhancement.

On Saturday we begin with the corporate radiata forestry operation of Ernslaw One at Santoft, the special feature being the coastal setting. The day concludes at Denis Hocking's Rangitoto farm with classic sand country farm forestry, growing trees on the dunes while reserving the inter-dune flats for farming. Typically at Rangitoto, Denis's radiata is the 'bread and butter' species but there are plenty of others – eucalypts, cypresses and blackwoods are only the beginning of an extensive list.

On Sunday we will see a panorama of commercial forestry, woodlots and soil conservation planting on erodible hill country and discuss initiatives to increase planting for on-site and off-site benefits. Monday is the optional additional day, and those who choose steep land harvesting will see the critical operation of converting radiata forest to saleable products. Those who elect for the Bushy Park option will see native trees in a setting of other native plants, birdlife, wetland and historic homestead.

Husqvarna Awards dinner

The Husqvarna Awards dinner is on Friday evening. The NZFFA's premier awards are the Husqvarna Farm Foresters of the Year Awards for the North Island and the South Island. Husqvarna have generously sponsored these awards for many years. Besides donating the chainsaw prizes, Husqvarna covers the costs of judging and helps fund the industry-good information we disseminate to all forest growers.

The NZ Landcare Trust Award for Innovation in Sustainable Farm Forestry is judged by the NZFFA but presented by at the ceremony by a representative of the Landcare Trust. The Michael Hay Memorial Award to a younger forester is judged by a special panel separate from NZFFA's judges, with the winner announced at the conference.

Two smaller awards are made by the local branch in conjunction with the conference. One is the Neil Barr Award for Agroforestry and the other, the Peter Smail Award for Shelter. For more information about the awards see the *Tree Grower*, August 2016.

Forest nursery innovation

On Sunday afternoon at Murrays Nursery in Woodville we will see innovation in forest nursery operations, adding up to cost savings and planting stock adapted for improved early establishment and growth in the field. The nursery was originally established by Maurice Murray in 1961 and is now operated by his son Patrick. On the day of the visit, Patrick will reveal why a rotary hoe which was designed to be rear-mounted on a tractor, has instead been adapted to being front-mounted.

Simeon Smail from Scion will discuss research which provides a scientific basis for Patrick's innovation and we will hear more of James Trappe's observations about soil fungi. We will also look at manuka propagation and discuss the potential and realities of the so-called manuka boom.

Wind turbines in the landscape

On the route to Murrays Nursery on Sunday we will travel via Saddle Road north of the Manawatu Gorge and stop at Meridian Energy's Te Apiti wind farm lookout. The 55-turbine farm can generate up to 90 megawatts of electricity. Year-round generation is sufficient to supply about 39,000 average New Zealand homes. Te Apiti was the first wind farm built by Meridian and also the first to supply electricity for the national grid. The wind farm is on 1,150 hectares of farmland owned by four separate land owners, including Meridian.

The strong winds from the Tasman Sea and the funnel effect of the Manawatu Gorge make this siting nearly perfect for a wind farm. Optimal generation capacity is achieved when winds are between 50 and 90 kilometres an hour. .

Conference host town Feilding

Feilding was the first township on the Manchester block developed by the London-based Emigrant and Colonist's Aid Corporation. Purchase of the block was negotiated from the New Zealand government by corporation director Colonel (later General) William Feilding, in December 1871. The deal included the government providing free passage for 2,000 emigrants. The area was 106,000 acres and the price to be paid in three instalments from 1877 to 1882 was 15 shillings an acre. The block was initially covered in dense bush except for 12,000 acres on the southern boundary, and it was there that the corporation's agent, Arthur Halcombe, decided to establish the first settlement which was named after William Feilding.

The first European immigrants arrived on the 22 January 1874 and by 1879, a total of 1,700 had arrived under the corporation's scheme. However, not all the settlers came under that scheme. Assisted immigrants arriving in New Zealand under other schemes, or else already in here or in Australia, gravitated to this newly opened up area for settlement.

Steady growth into a town, rather than into a city, has given Feilding a special heritage. A number of turn-of-the-century buildings remain. The Mainstreet Programme, established in 1993, encouraged property owners to restore and preserve the late Victorian and Edwardian styles. The 1902 town clock was restored and placed in a new heritage-style tower for the millennium celebrations after being in storage for over 56 years.

The rural atmosphere is exemplified just 100 metres from the shopping centre by the sale yards, one of the biggest in the southern hemisphere. Sellers and buyers are attracted from all over New Zealand. Tours of the sale yards are offered every Friday.

Another local feature is Manfeild Park, the home of the internationally recognised Manfeild Autocourse with its 4.5 km race track and indoor stadium. As well as motor sports events, the venue hosts the annual Central Districts Field Days, Manawatu Garden Festival and Fireworks Spectacular, the Manawatu and Feilding A & P Shows, and many other events with an equestrian or agriculture focus. Nearby Kowhai Park offers flower gardens, walks, aviaries, barbeque and play areas, large native trees and a stream next to its cricket fields. Feilding has been voted New Zealand's most beautiful town 14 times, and is promoted as having affordable housing, a relaxed and friendly lifestyle, no traffic lights and free parking while you shop.

Conference main venue in Feilding Civic Centre

In 1936 a deputation to the Feilding Borough Council requested them to consider building a town hall. The following year a referendum was held to choose between two possible sites. However, the Council did not consider plans for the building, now known as the Civic Centre, until 1951, and in 1954 fund-raising began. A poll in 1955 approved raising a loan for the balance of the funds required and the foundation stone was laid. The complex was completed early in 1957.

There are three activity areas –the stadium, the concert chamber and Cedar Room. The stadium has a high quality tawa floor marked out for basketball, volleyball and badminton courts. Our two main conference dinners will be held in the stadium. The concert chamber with stage, tiered theatre-style seating will be our main formal meeting area. The upstairs Cedar Room can hold meetings for groups of up to 50 and will be our daily registration base for Saturday to Monday.

Stop the rot – durable wood

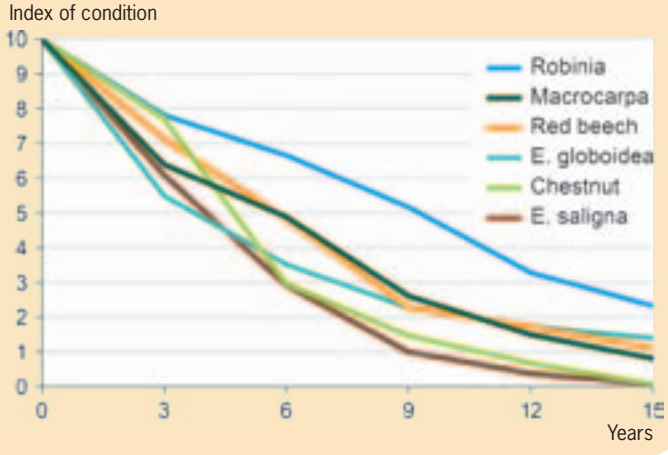
Michelle Harnett, Dave Page and Nick Ledgard

Every good forestry research institute needs a graveyard. The wooden stakes in Scion's graveyard are not marking the last resting place of ancient foresters. They are part of long running tests to evaluate wood durability.

Examples of wooden stakes, poles, posts, cladding and decking have been buried in the ground, propped up on bearers and exposed to the elements at the Whakarewarewa site since about 1940. The graveyard allows wood and wood products to be field tested where there is a high decay-hazard over a long time.

The Whakarewarewa graveyard is one of four around the country. Each of the sites poses different environmental challenges. Rotorua air is acidic and full of sulphur. The soil at Glenbervie near Whangarei is wet clay. The site near Waiterere Beach close to Levin is wet and sandy while the Hanmer site is dry and stony. The last three are ex-Forestry Service sites now in private hands.

Graveyard testing is the ultimate test of durability, according to Tripti Singh, a scientist who specialises in wood preservation research at Scion. The long-term effectiveness of a new timber treatment, or the performance of natural durable species such as totara, can be gauged after long term contact with soil. Many of the current wood preservatives and New Zealand-grown naturally durable timbers have been tested in Scion's graveyard and are now included in New Zealand standards for the chemical preservation of timber and for timber used in building.



The graph shows example of results obtained from stakes, which are only 20 by 20 mm in size, from different species tested together in the Scion Rotorua graveyard. The durability different index of condition is the average rating for all of the specimens in a group where 10 means the timber is sound and zero means a failure.

What rot

Wood decay is a natural process which allows the nutrients contained in wood to be recycled. While this is desirable in a forest, it is not so good when a fence post fails, or your barbeque guest falls through the deck.

Rot is caused by fungi which secrete enzymes and other chemicals that destroy different components of wood. White rots break down lignin and cellulose resulting in white, moist and spongy looking wood. Brown rots break down cellulose and hemicellulose. This process also produces hydrogen peroxide which diffuses through the wood leading to decay not directly related to the fungus. The decay caused by the hydrogen peroxide causes the wood to shrink and crack into rough cubes. Dry, crumbly-looking brown rot is sometimes wrongly called dry rot, but this is a misnomer – all rot is caused by the presence of moisture.

Insects also pose a threat to wood. New Zealand is fortunately free of termite species which chew their way through houses. Species of native termites are very rarely found outside forests.

Defining durability

Living trees have several lines of defence against fungi – bark, sapwood then the heartwood. Stem decay fungi cannot infect a tree through intact bark. Sapwood cells can respond to an invasion via a 'doomsday' response in which some cells kill themselves in the presence of fungi resulting in conditions which are unfavourable to fungal growth. In conifers, resin can be piped in to seal off an infected area. The xylem can also react to wall-off an invader.

Durability classes average in ground and above-ground life expectancy and some commonly grown New Zealand examples

Natural durability class	1 Very durable	2 Durable	3 Moderately durable	4 Non-durable
In the ground	Over 25 years	15 to 25 years	5 to 15 years	Less than 5 years
Above ground	Over 40 years	15 to 40 years	7 to 15 years	Less than 7 years
New Zealand grown timber examples	Totara, silver pine, *Eucalyptus cladocalyx*	*E. globulus*, *E. pilularis*, red beech, hard beech, mountain beech, oak	Black beech, rimu, matai, kauri, macrocarpa, redwood, *E. fastigata*, *E. dobliqua*	Poplar, tawa, Corsican pine

Heartwood is different. As a tree grows, chemical compounds, called extractives, are deposited into the cells in the centre of the stem. Many extractives are bioactive, with antimicrobial, antifungal or insect repelling or killing properties. When these cells die and form heartwood the extractives contribute to an environment which is inhospitable to fungi.

When it comes to timber, only the heartwood is durable – sapwood, regardless of tree species, is not durable. Natural durability is rated on timber performance in contact with the ground and above-ground. Durability in New Zealand is measured using the Australasian classification AS 5604-2003, which classifies timber into the four classes shown in the table above.

There can be considerable variability within species, with durability affected by genetics, growing conditions, climate and wood age. In-service conditions vary too, which is where the value of having graveyards with different soil and climatic conditions comes in.

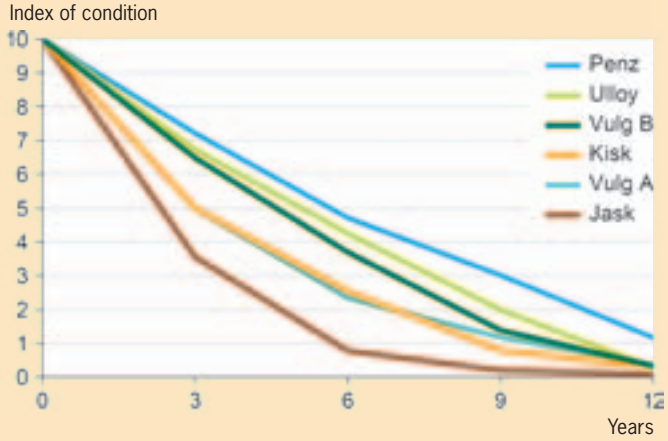
Proving and improving wood durability

The solid wood processing team at Scion focuses on assessing and improving the durability of timber. Tripti Singh and her team work with industry locally and internationally, testing the durability of wood products and setting and reviewing standards for good building practices. They are also investigating ways to expand opportunities for using wood products by improving durability. This includes developing new preservative systems and new wood processing technologies.

An active area of research is looking at alternative treatments that could replace current preservatives such as chromated copper arsenic, known as CCA, which is used extensively to increase the durability of radiata pine. The chromium binds the copper, which protects against decay and bacteria, and the insecticidal arsenic component, to the wood cellulose and lignin. CCA is very effective, but disposing of CCA-treated wood in New Zealand means either sending it to controlled landfill sites or incineration in an appropriate facility. In many countries, the use of CCA-treated timber is restricted due to the toxic elements involved, particularly for residential applications. A preservative to replace CCA would benefit the environment and help ensure market access for exports.

Heartwood hints

Extractives from durable heartwood are known to protect the timber from fungal and insect attack. Black locust or *Robinia pseudoacacia* is an excellent example of this. Researchers from Mendel University in the Czech Republic extracted a range of compounds from black locust heartwood. After non-durable European beech was impregnated with the extracts the wood's durability class increased to moderately durable.



The Scion team have looked at heartwood extractives as part of their search for effective new preservatives with low or no toxicity. They have also considered bioactive extractives from other sources, including agricultural and horticultural waste, essential oils, medicinal and native plant extracts, natural biocides and compounds generally recognised as safe, such as food preservatives.

The extensive screening programme has identified a number of potential compounds. The process starts in the laboratory in petri dishes where the inhibition or not of fungal growth in the presence of different materials is observed. More than 20 compounds with anti-fungal properties have been identified.

Screening extractives for bioactivity

Two possibilities

Identifying active compounds is the first step in the process. This is followed by the development of a water-based formulation containing the active compound which subsequently has to impregnate timber and, most importantly, not leach out again.

To date, two compounds have successfully passed through the series of laboratory trials. The most promising is now being evaluated in cladding, decking and exterior joinery in long-term field trials in the Whakarewarewa graveyard and the Oregon State University's graveyard in Hawaii where termites are present. The field trials are being assessed yearly. The team have also come up with a method of quantifying the novel bioactive in treated wood for quality assurance purposes.

The screening work has taken around five years. Identifying new wood preservation candidates is likely to be much faster in the future. Genome sequencing is becoming more and more common as costs decrease and the available computing power which is needed increases. Genomes can be 'mined' or searched for DNA sequences known to code for enzymes associated with particular bioactive compounds.

Investigating technology such as supercritical carbon dioxide extraction to remove water and impregnate wood with potential preservatives is also part of the research programme. Introducing new compounds into wood cells is comparatively easy – the hard part is ensuring they do not leach out when the wood gets wet. Possible solutions to the problem include binding the preservative directly to cellulose or lignin, or attaching a second chemical or polymer to the preservative that can bind to wood components.

Moving from adding active components to wood, an alternative approach to increase wood durability is to modify the structure of the wood. This can be done simply by heating wood in the absence of oxygen. This causes permanent physical changes that prevent the wood cell walls and interiors from absorbing and holding water. Other chemical-based ways to modify wood structure were outlined in the November 2016 issue of *Tree Grower*.

Naturally durable woods in New Zealand

A number of native and exotic timbers grown in New Zealand are naturally durable. A classic example is totara, which was widely used by early European settlers for piles and fence posts, many of which are just beginning to fail now after more than 100 years of service.

Naturally durable timbers can be an alternative to preservative treated timbers such as radiata pine. An obvious group to explore are the eucalypts, some of which fall into durability class 1 or 2. The New Zealand Dryland Forests Initiative is working to identify and develop ground-durable eucalypt species for dry regions. They have selected the following as their focus for tree improvement work –

- *Eucalyptus argophloia* – western white gum
- *Eucalyptus bosistoana* – coast grey box
- *Eucalyptus globoidea* – white stringybark
- *Eucalyptus tricarpa* – red ironbark
- *Eucalyptus quadrangulata* – white-topped box gum.

These species were chosen for their durability, fast growth, stiffness and strength properties, resistance to drought, frost tolerance and established timber potential based on Australian experience. A number of alternative species are included in New Zealand building standards. They provide niche opportunities not open to radiata.

Along with natural durability comes attractive appearance and good regional or heritage stories, especially with indigenous species. With wider potential applications and options leading to more certain markets, planting other species is likely to be more financially attractive to owners of small to medium forests as well as larger forestry concerns.

The new preservation and other technology that Scion is developing will allow the wood processing industry to move to manufacturing and exporting technologically differentiated and high-value materials. New research on naturally durable timbers will also help develop niche markets for alternative species, making planting and growing them more attractive. None of the work would be possible without graveyards, suggesting we should look at them with new eyes – not dead history but the future of the timber industry.

A harvest result to confound the experts

Malcolm Mackenzie

Ready for harvest

Harvested at the end of March

Replanted in July

Many forestry experts frequently speak or write of the need for scale to create good returns. They emphasise that to cover the costs of roading, skid preparation, and harvesting we need to have stands with scale and preferably larger than 10 hectares. While this is certainly the case in many circumstances, the following example of a recent harvest in the north King Country defies that conventional wisdom. It may also provide some comfort to farm foresters who have worked away pruning their pine trees.

Ian and Heather Wilson have been long-term farm foresters following on from Ian's parents Lyn and Keith at Otewa near Otorohanga. They have had the faith and discipline to plant one hectare on each of their two farms every year for the past 27 years. This has allowed family labour to maintain a high standard of silviculture including timely pruning.

They recently harvested one hectare of 26-year-old high pruned radiata pine which were planted at six metre by six metre final spacings. Grazing throughout the life of the pines with sheep provided a valuable source of feed and maintained a weed free block. The block was chosen to use existing tracks which meant roading and skid preparation costs were nil.

The logging gang consisted of two men and one digger which cost less than $500 to transport as they were working nearby. Harvest management fees and levy came to $3,550 which meant the final nett return after the deduction of these fees and the forest growers' levy is $54,119. This equates to an average of $94.71 a tonne. The proportion of nett return attributable to the pruned logs is 78 per cent.

The Wilsons were pleased with all aspects of their first harvest especially dealing with Wood Marketing Services and their logging gang who made the whole process very easy and worthwhile. And the high pruning paid off.

Malcolm Mackenzie is a member of the Waitomo Branch of the NZFFA.

Grade	Production in tonnes	Price per tonne	Gross income	Nett income before harvest management
Pruned	318	$179	$56,945	$44,284
A	187	$118	$22,066	$10,910
K	42	$105	$4,394	$1,888
KIS	25	$84	$2,101	$587
Total	**573**		**$85,506**	**$57,669**

A view from the other side of insurance

Jo McIntosh

Over recent years, I have been writing about how important it is to carefully consider your standing timber policy values, the perils you choose to insure against, such as fire, wind and earthquakes, and the policy limits. In preparation for this article I thought it would be helpful to spend some time talking to a couple of people who have had real experience in claims and, given their practical perspective, get their views on what they think is important and why. I have presented that feedback below.

The first person I spoke to was Richard Mandeno who is a Director of Arbor Forestry and has an extensive involvement in the forestry industry. Arbor Forestry manage a group of plantation forests around New Zealand and as part of their risk management, they have purchased standing timber insurance from Aon for many years.

Richard remarked that it seems the climate is definitely changing and, after several claim-free years, Arbor has noticed an increase in extreme weather which has led to claims under its standing timber policy. 'We have had three claims in the last two years, with two wind losses and extreme rain that caused loss of timber through weather landslip. We were pleased with the insurance result of these claims and happy that we decided to take some of the additional cover on offer as these proved to be very valuable'.

The experience of making claims

Apart from confirming how important it is that the nominated insurance values are correct, Richard made the following comments.

> We also learned a few lessons – our values included carbon and an element of profit and investment return and it re-confirmed our process to have a regular review of these values. We also realised that a review of the insured mapped areas is important especially for trees aged 10 or more years as there often is tree mortality and shifts in areas and these should be reflected on our schedule.
>
> We were thankful that we had a generous re-establishment limit. This is a flexible cover and can be used for removal of debris, as well as replanting. We also made good decisions in opting for some of the more unusual extensions such as weather landslip.
>
> The weather landslip claim was quite dramatic. The region had such a large rainfall that areas of the forest simply slipped away. There were numerous small pockets affected and, while in isolation none were particularly large, there were so many slips that over the total forest area it was a significant event.
>
> The claims took several months to finalise. This was due to challenges with access at that time of the year and weather effect on replanting and re-establishing tracks. It is important to understand that if you have a claim you should expect it will take some time to settle. It also took a lot of time for our team to collate the required information. Nevertheless, had we not been insured we would still have had to deal with the mess but not have the benefit of an insurance pay-out at the end of it all.

As noted above, Richard commented specifically on a few areas of cover that proved particularly valuable – the re-establishment limit is one. This is a very flexible optional benefit and the nominated policy limit can be applied to removal of debris, righting and replanting.

Land slips and carbon

The other cover that Richard found valuable was the 'weather landslip' cover. It is fair to say that not many New Zealand plantation owners take out this cover but perhaps more should, especially those in regions with challenging topography and steep country that may be prone to slipping. Apart from the immediate benefit

of having an insured value for the trees themselves by having this cover in place, it also triggers the 'removal of debris' and replanting costs benefit.

Arbor had included a limit for claim reparation and this was valuable as it allowed for costs such as aerial re-mapping and an allowance for their costs to prepare the claim. Many of these extra covers have only a nominal cost but are very valuable at the time the claim is made.

Richard also discussed carbon cover. For many forest owners, they have 'parked' carbon due to the historically low values. However, as the price of carbon climbs, more forest owners are considering the carbon risk in their estates and factoring that into insurance.

It is particularly important to consider carbon if you have entered into a carbon trade arrangement. Have you considered the implications of fire or wind that leads to a reduction on live trees and therefore carbon sequestration? How will that affect you?

Handling claims

Another person with some valuable feedback and significant experience on claims is Jim Russell, the Managing Director of an ARC Natural Risk Pty Ltd. ARC is one of the assessors appointed by Insurance Facilitators when a claim is notified.

Jim has a long-standing involvement in forestry. He grew up in the Green Triangle, which is situated between Victoria and South Australia, and has forestry in his blood. While Jim is based in Australia, he also works with local New Zealand forestry consultants.

I asked Jim what the process is that he follows when he receives a call on a claim? He said that generally the insurer will email him and send through a copy of the client's policy schedule and the policy wording. It is this document which forms the basis of the claim calculation. Jim then contacts the forest-owner to establish further details.

From his early discussions with the forest owner he will determine the capabilities of the forest owner to manage any salvage and replanting operation. For example, he will ask if you have a forest manager. If you do, it is likely that they will work with both of you to manage a claim. Some of the larger forest owners will have their own infrastructure and can therefore manage their own salvage operation. For smaller forest owners, who have not yet been through a harvest rotation and who do not have a forest manager, Jim will help them find a suitable harvester and give more assistance to see the process through.

I asked Jim what, in his opinion, were three key things that standing timber owners need to consider? His first was that forest owners need to think about why they are insuring. Are they looking to recoup the cost to date or do they want to recoup profit? The values they nominate are therefore very important as they are the value that he will use to calculate a claim.

Like Richard, Jim also commented that a claim can take time to be finalised. The length of time a claim takes to process varies greatly depending on matters such as tree age, market conditions, access and weather. If you have taken the re-establishment benefit and are replanting, this can also take a long time. You need to plant at the right time of the year. While some forest owners like the idea of being paid in advance on the basis of an agreed price per hectare, this is not always the recommended approach. The replanting process can throw up extra costs which you may not have considered, such as extra labour costs and weed spray.

Keep to right insurance limits

We have noticed that some forest owners opt to reduce their premium by lowering their sum insured or their limits and it is important to consider the effect of salvage in that option. If you set the per hectare value too low and salvage is possible, you may be very disappointed with the result as your claim is limited to the values stated on your policy schedule.

It is important to remind forest owners that a calculation at claim time is worked out in the following way. The area damaged is multiplied by the agreed value of the standing timber within the area damaged. This is the maximum amount that will be paid in the event of loss or damage during the period of insurance. All this is subject to the provisions of the deductible or insurance excess, salvage, optional benefits and any policy sub-limits and policy aggregates which are shown on the certificate of insurance.

An example of the calculation in a claim for 10 hectares of damage could be as follows –

The area damaged 10 hectares multiplied by the agreed value $10,000 a hectare	$100,000
Minus the value of the salvage	$50,000
The nett loss would therefore be	$50,000
Add the re-establishment and removal of debris costs	$7,500
Add claim preparation cost	$1,000
Less the excess or deductible which could be	$5,000
This means the nett claim paid would be	**$53,500**

The key message is that while no one wants to have to make a claim, they do happen and with apparently increasing frequency. Claims can be time-consuming and organisations such as Aon and Jim's business look to partner with forestry owners and managers to make the process as smooth as possible.

My thanks to Richard and Jim. I hope you found their practical insights as helpful as I did. I would also like to take this time to remind readers that Aon has a scheme for NZFFA members and pays a contribution to the organisation.

Jo McIntosh is an Executive Director for Aon and specialises in insurance for forestry and horticulture.

The Kapiti Proposed District Plan
It is not over until it is over

Don Wallace

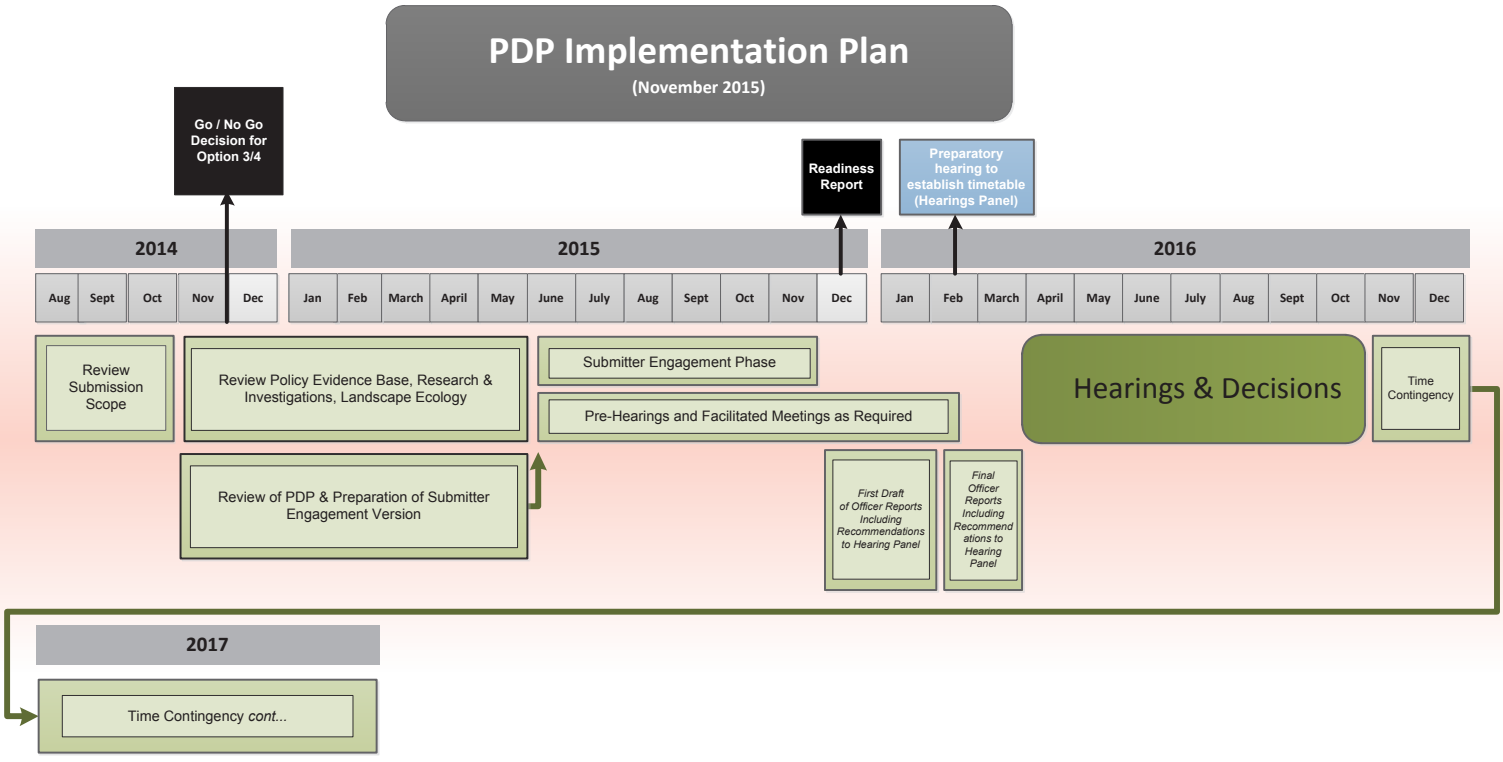
In a previous article in the Tree Grower *in November 2015, I described the process rural ratepayers in Kapiti have been following in trying to get the Proposed District Plan transformed into something that they can live with. I also provided others who were facing a District Plan change with some ideas of what they can do to influence happens in their district.*

We own 60 hectares of rural land in the Otaki Gorge, about 70 km north of Wellington, most of which is in forestry. In late 2012 the Kapiti Coast District Council notified its proposed District Plan. We innocently believed the misleading statement placed in the middle of the notification letter –

> For most residential areas, the Proposed District Plan is generally 'business as usual' with minor changes to rules such as new design controls to front fences and reduced permitted site coverage. The same is true for most rural areas, although a key proposal is to seek increased clustering of new buildings and lots.

Fortunately, we were alerted by a public-spirited rural landowner that this statement was incorrect. The plan – 2,500 pages split over four binders or a 300 megabyte download – would, if implemented in its original form, severely restrict forestry and other activities on our land. We decided that it was necessary to get involved and, as I noted in the previous article, we started down the process of studying the plan, lodging submissions and cross submissions and forming a Rural Issues Group with other rural landowners who were similarly affected by the plan.

In late 2013 the District Council members changed, and with this there was a change of attitude. This resulted in a number of new appointments in the planning area and a review of the plan. These officers were willing to work cooperatively with the Rural Issues Group to change the plan into one which works for all parties. This article provides an update on what has happened since September 2015 and the lessons we have learned in the process.



The timetable

We have now passed the fourth anniversary of the formal process to put in place a new District Plan for the Kapiti Coast District. The diagram on the previous page shows an outline of this process and the table below shows, in a bit more detail, the steps that a good plan process would follow and the dates that these occurred in Kapiti.

Step	Date
Consult with population	Before 29 November 2012 (minimal)
Publish Draft District Plan	Did not occur
Consult on Draft District Plan	Did not occur
Notify Proposed District Plan	29 November 2012
Submission Period	November 2012 to March 2013
Further Submission Period	April to September 2013
Pre-hearing meetings with submitters	June to December 2013
Independent Review of Proposed District Plan	November 2013 to June 2014
Council decides to proceed	24 July 2014
Produce Submitter Engagement Version	August 2014 to May 2015
Engagement with Submitters	June 2015 to November 2015
Pre-hearing Meetings	August 2015 to February 2016
Commissioners Appointed	December 2014 to October 2015
Section 42a Reports prepared	April to November 2016
Commissioners hear submitters	April to December 2016
Officers' responses	April to December 2016?
Commissioners' recommendations to Council	??
Council decision	??
Appeals to Environment Court	??
Plan in place	??

As you will see, there was minimal consultation with the rural population in the plan preparation process and the Council decided not to publish a draft plan. It has now been acknowledged that these were significant mistakes and that the process would have been simpler and quicker if there had been better consultation up front and a draft had been published for comment before formal notification. In contrast, the Wellington Regional Council did publish a draft of its Proposed Regional Plan and this has meant that the issues could be discussed and resolved before the proposed plan was notified.

Involving submitters

At the time of writing the previous article in late 2015 we were nearing the end of the pre-hearing process. In preparation for this, Council officers had prepared a Submitter Engagement Version of the plan. This was a document which suggested how the Council planned to address some of the problems which had been identified with the proposed plan.

This considerably speeded up the process as it meant that the pre-hearing meetings could ignore the issues that submitters and the Council had agreed upon and the meetings could concentrate on those which were still outstanding. At the end of this process, proposed solutions had been identified to many of the controversial aspects of the proposed plan. However, there were a number still outstanding – in particular, the identification of, and rules related to, ecological sites.

The hearing process and the Section 42a report

The first formal phase of the hearing process is the appointment of the Commissioners to hear submissions on the Proposed District Plan. This was carried out progressively by the Council and resulted in a panel comprising three independent commissioners, one of whom was an iwi commissioner, and two councillors.

The next phase was the preparation by staff of what are known as Section 42a reports. The hearing process was organised around the various chapters of the plan and Council officers prepared a Section 42a report for each chapter. According to the quality planning website, the purpose of a such a report is to –

> … advise the decision-maker(s) (the hearings panel or commissioner(s), or if no hearing was held, the person with delegated authority), on the matters to be considered. This ensures that an informed judgement on the application can be made.

Each report was based on the original proposed plan wording because the Submitter Engagement Version has no legal standing in the district plan process and was a very lengthy document. As an example, the Rural Environment report was 457 pages in length, excluding the introductory section, rezoning requests and the 23 appendices.

The reports attempted, for each of the up to 100 sections in each chapter of the proposed plan, to summarise all the submissions made and discuss them under the following headings –

- **Matters raised by submitters** – summarising the issues raised in the submissions and further submissions and the relief sought
- **Assessment** – consideration of the issues raised
- **Recommendations** – outlining recommendations

to accept, accept in part or reject each point of the submissions and further submissions.
- **Recommended amendments** – outlining recommended amendments to the proposed plan text in response to the submissions and further submissions.

Please note the use of the word 'attempted' above. It is an extremely complex process summarising submissions and proposing solutions and, even with the best will in the world, mistakes can occur. As an example, one of our submission points had the potential to fit into two chapters and because each report author thought the other was handling it, it did not appear in either of them.

Preparation and evaluation

In preparation for the hearings it is vital that submitters study the reports that cover the matters they are interested in with a view to –
- Identifying whether any of their submission points that have been missed or misinterpreted
- Understanding the assessments and recommendations
- Evaluating the substance and wording of each proposed amendment to see whether it provides a practicable solution to the problems that they face.

In our evaluation of the Section 42a reports, we carefully studied each part of the report. We prepared a response which stated, with reasons where appropriate, that we either supported the recommendation, opposed the recommendation or had no comment. It is important to provide a response, even just support, for every proposal that affects you or your property. Other submitters may be opposing the proposal and the Commissioners need to be able to judge the level of support for each of the recommendations.

In some cases, we could only support some parts of a proposal and were opposed to others and therefore our response was a mixture of the two. As an example, in commenting on the proposed rules for forestry planting boundary setbacks, we –
- Supported the general direction of the proposed changes
- Opposed parts of the wording that placed un-needed restriction on forestry
- Recommended changes to the wording of the clause.

We provided our commentary on the report to the Commissioners well in advance of the hearing so that they had time to digest its contents before our verbal submission. We also used text formatting and colour, and followed the organisation used in the report to make it as easy as possible for the Commissioners to see our view on a particular topic.

The hearing itself

Every submitter should be given the opportunity to present their submission in person to the Commissioners. An overview of this process can be found in *An everyday guide: Appearing at a council plan or plan change hearing* which can be found on the Ministry for the Environment website. As the guide says, it is important that you plan your verbal submission carefully and make best use of the time you have been allotted. Try to attend as much of the hearing as possible as in this way you get a flavour of other submissions and can tailor or alter your verbal submission to counter the points raised. It also shows the Commissioners that you are interested in the process which may count in your favour.

The hearing process will typically start with a presentation from a Council officer of a summary of the report. You should get a good feeling from this presentation of the general direction that the Council is proposing and the parts which they think are most important and it should help you in tailoring your presentation. This will also give you some clues as to the best way to present your evidence in the venue that has been selected for the hearings.

Our initial intention was to use PowerPoint slides as part of our presentation as this allows pictures and text to be used. It quickly became obvious that this would be inappropriate in the venue selected for our hearings in the Council chamber as the positioning of the monitors required the commissioners to turn away from the presenter to see the screen. While we still used PowerPoint to prepare our presentation, we opted for printed material only as that allowed us to communicate better with the Commissioners.

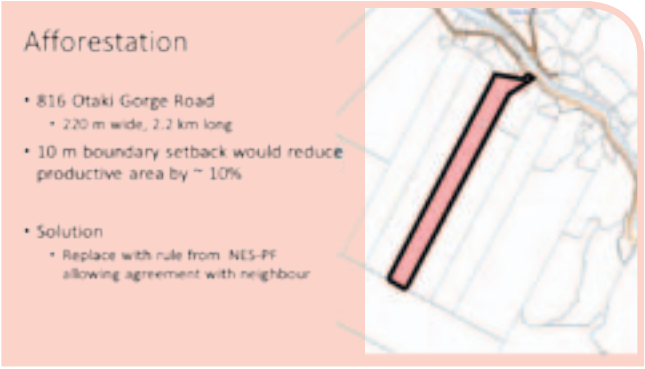
You will have a limited amount of time, usually up to an hour, to put your points across so you will probably need to concentrate on just those topics that are most important to you. In our case we decided structure our presentation as follows –
- A background slide that talked about ourselves, our interests in the land and our involvement in the planning process
- A summary slide that said what we were going to talk about as in the diagram below
- A slide providing general comments on the report
- Ten slides commenting on individual topics covered in the report.

This document
- Comments on the general flavour of the changes to the PDP in the S42 report
- Explains some of the matters in our S42 report response (Rural Hearing Background Document Lyndon Enterprises.pdf
  - Forestry in the rural environment
  - On-site processing
  - Cut and fill rules
  - Proposed NES for Plantation Forestry, Afforestation and Harvesting rules
  - Sub-division and the 20-hectare average rule
  - 100 m^3 quarry exemption

Example of one of the slides used

Remember that the whole point of your presentation is to persuade the Commissioners that what you are proposing is the best solution, so you need to think carefully for each of the points you intend making. On the topic of boundary setbacks, for example, we needed to illustrate the problem and provide a solution.

To achieve the first of these points, we needed the Commissioners to understand what effect the rule would have on us. The long narrow nature of our block, which is sandwiched between two similar forestry blocks, means that over 10 per cent of our land area would be lost if the rule was agreed to. The method we used was to include a calculation and a diagram, shown below, which used a broad black line to illustrate the effect of the proposed rule on the area that could or could not be planted.



The thick black line shows the proposed 10 metre setback

There is, of course, little point in describing a problem if you do not have a solution. In our case, we were fortunate that this topic had already been considered, and solved, in the draft National Environmental Standard for Plantation Forestry. The solution we put forward, as shown in the slide, was to have a 10 metre setback except where approval of the adjoining owner has been obtained. This provides protection where it is required without imposing it where, as in our case, it is not needed.

Another thing we observed during the presentations was that real-life pictures could help in getting points across. In a later presentation, we wanted to make the point that it should be the nature of a building, rather than its floor area or height, that determines whether it should be allowed in an Outstanding Natural Landscape. To illustrate this, we included a photograph of our house as part of our presentation.

House hidden by the trees

This turned out to be an ideal way of getting across the message that arbitrary building area and height rules will not ensure that a building blends into the environment. The fact that the Commissioners had difficulty spotting our house among the trees illustrated the point we were trying to make that a small noticeable building situated in the wrong place is far worse that a large building that blends into the environment.

Officers' response

The final part of the hearing process which takes place after the hearings have been completed, is the so-called Officer's response. This provides the Council officer with the opportunity to respond to matters raised at the hearings. You should take the time to read these reports as they should give you an indication as to whether the officer has taken note of the points you have made and what they plan to do about them.

As an example, one of the topics we presented upon was whether our land contained an ecological site. While the officer's report did not agree with all the points we made, it did recommend that if a review was to be undertaken, then our land should be included in the review.

Current situation

At the time of writing in December 2016, the hearings on the individual chapters have been completed and the final 'integration' hearing is about to begin. This last hearing relates to the first chapter of the plan and issues related to how the various parts of the plan fit together and is aimed at making the plan as workable as possible.

Following this hearing, the Commissioners will complete their report and it is expected that the revised Proposed District Plan will be presented to the Council some in early 2017. The Council then needs to consider the recommendations and decide whether to accept them as they stand, which is the normal course of events, or amend them. There will then be a 30-day period for lodging appeals and, with the exception of any areas being appealed against, the proposed plan, as amended, will become the Operative District Plan.

It is at this point that we will be able to determine if all the work we and other members of the Rural Issues Group have put in – at least 50 days for us so far – was worthwhile. In other words, will we be able to carry out forestry and other activities on our land without undue restrictions?

Don Wallace is a member of the Wellington Branch and is also on the NZFFA Executive.

Managing riparian areas for timber and carbon How to get the most from fencing streams

Roger May

This article follows on from the article in the August 2016 Tree Grower. *This was about government proposals to make stream fencing mandatory on farms and how planting extended riparian or stream-side areas in trees can earn carbon credits and therefore offset the cost of the fencing. The article is about managing those trees for timber while maintaining carbon sequestration and revenues from carbon credits.*

In most farming situations, streamside soils are higher quality and have higher and more consistent soil moisture levels than the surrounding land. However, on flatter land, these areas may be saturated at times and prone to flooding. Generally, they are prime sites for growing high value timber trees.

There are a number of high value species which are suited to these conditions. The August *Tree Grower* article pointed out that the Ministry for Primary Industries carbon calculation tables for exotic hardwoods contained the greatest carbon sequestration values of all the tables. Therefore, choosing exotic hardwood species for riparian planting has clear advantages.

Choosing the right species

In choosing species it is important to consider their potential to become weeds by self-propagation either by seeding or suckering. Species such as willow, many poplar species, cherry, wattles, sycamore and robinia all have this potential and are best left off the shortlist.

Those that can be recommended include red alder, red oak, English oak, London plane, tulip tree, pin oak, European beech, elm which is Dutch elm disease resistant, Linden lime and a handful of eucalypt species. All produce high quality timber and, with the exception of the eucalypts, are deciduous.

My favourite is red alder. It is easy to establish, nitrogen fixing and relatively quick growing reaching 40 cm diameter at breast height in about 25 years. Its roots will not clog waterways like willow does, and yet still stabilises stream banks. It also serves as a useful nurse for native understorey. It is easy to mill and season, and produces a stable, medium density, light brown timber suitable for panelling, joinery and furniture. I have used New Zealand-grown red alder for cupboard doors. It grows naturally in the Pacific north west and clear boards retail in the United States for over $2,000 a cubic metre.

Careful harvesting

One of the great benefits of growing higher value timber trees is that they can stand the cost of more sensitive harvesting methods such as single tree or shelter wood systems. It should be obvious that clear cutting a riparian area would be counter-productive given the inevitable effects on soil, water and habitat values. The key to managing these riparian areas is to retain canopy cover and just select individual trees and small groups for a periodic harvest.

As in our sustainably managed native forests, felling requires care and skill to avoid damaging the retained stems. Using the right equipment for extraction is also important. I use a purpose-built winch imported from Europe mounted on a 70hp four wheel-drive tractor. It has a 6.5 tonne pull with 110 metres of rope. It is radio controlled which lets me walk up with the log as it is being extracted and halt the drag where I need to flick the rope out of bush blocks as it zigzags up through standing trees.

The winch also has a power feed to help with pulling the rope out. These winches are ideal for shelter wood harvesting where the majority of the stand is retained and cost about $10,000 to $15,000 new.

Milling it yourself

Another important point is that it is nearly always better for the grower to retain ownership of the logs. Converting logs to timber takes considerable effort but significantly improves profitability of growing these higher value species.

I have found it best to engage a portable sawmiller, usually with a thin kerf Woodmiser bandsaw mill, and with some experience in milling hardwoods. I generally get logs sawn into 40 or 50 mm planks before fillet stacking and drying under cover. While I have found that it is often easier to sell the timber once it has


Six logs ready for the drag


Using a 6.5 tonne Typhoon winch


The remote for operating the Typhoon winch


Pulling blackwood thinnings from a gully

been machined for a specific end-use such as flooring, tongue and groove panelling or furniture blanks, some customers are more interested in dry rough-sawn planks.

Under the Emissions Trading Scheme, sequestration from the growth of trees planted after 1989 can earn carbon credits if entered into the scheme. However, a large proportion, but not all, the credits must be 'surrendered' to account for the loss of carbon by harvesting. In a shelter wood, the growth in the remainder of the stand will usually offset this liability, certainly until such time as the planted area reaches full maturity.

For more information, you can contact Tomorrows Forests Ltd on info@tomorrowsforests.co.nz or phone 03 526 8719.

NZFFA Middle Districts Conference

Feilding from 6 to 9 April 2017

This is the final reminder for booking your attendance at the conference in April next year hosted by the Middle Districts. As usual there is a registration form enclosed with this issue of *Tree Grower*. You can also book using the registration form on the NZFFA website.

If you have not booked already and intend to be there, fill out the form and send it as soon as possible so that the organisers have the information in good time. The sooner you book, the happier the conference organisers will be. Some last minute bookings are inevitable, but booking now is the best option.

supported by forestgrowers commodity levy

Helping owners of small-scale forests know more about the forest growers' levy

Glenn Tims and Bruce Bulloch

The NZFFA receives some funding from the Forest Growers Levy Trust to communicate with all small-scale forest owners on matters to do with the levy. I am sure that most of you know the levy, introduced at the beginning of 2014, is 27 cents a tonne on all harvested wood. It is important to get information directly to a wider audience of small-scale forest owners about –

- How the levy is collected
- How much the levy is
- What the levy is used for
- What forest owners would like to see the levy used for in the future.

Of the estimated 14,600 owners of small forests only just under 2,000 of these are NZFFA members. Many, if not most, of the owners who are not NZFFA members will probably know little or nothing about the levy until they harvest and see the 27 cents deducted from their returns on log sales.

Fortunately, the NZFFA has a solution in the form of a database of the 14,600 owners of small-scale forests. This database has been developed over the past five years, starting with financial help from a Sustainable Farming Fund grant and then funded by the NZFFA.

It was decided that an effective way to communicate with owners was to write to them, as we had their postal address, send an information pack about the levy and invite them to regional information sessions. We would also ask them for their current email address so that we could send more regular communication which would not cost as much. Maintaining this is partly paid for by levy funds.

Roadshows begin

In 2015 the three-year programme of information sessions or roadshows began. The aim was to cover as much of the country as possible with roadshows over three years. The invitations were sent out to approximately 1,000 owners for each roadshow, although the number varied, aiming for those who had forests within about 150 km of each venue. The first roadshows in 2015 were in Whangarei, New Plymouth, Christchurch and Dunedin. They were followed in 2016 by roadshows in Hokitika, Hastings, Gisborne, Feilding, Nelson and Blenheim.

At each roadshow, presentations from various speakers outlined how the levy was collected and what it was being spent on. There were some local speakers who presented topics we hoped were of value to the attendees such as health and safety in forestry, as well as research projects funded by the levy. We also gave the small-scale growers an opportunity to present feedback on how they might like levy funds to be spent in the future.

A typical roadshow

At a typical roadshow there were five speakers. The main topic, of course, was the levy on harvested wood and how it is administered. The presenter was usually David Rhodes or another member of the Levy Secretariat. Health and safety featured at most roadshows because it is important to the forestry industry, because the Forest Industry Safety Council is funded by the levy and because many forest owners are concerned about what their obligations are under the new legislation. Fiona Ewing, Director of the Forest Industries Safety Council, was our main presenter at earlier roadshows. At later events presenters were local Worksafe inspectors who have the practical responsibility for administering the legislation in the field. The table on the next page outlines the programmes and speakers at all the events.

We endeavoured to involve the local Wood Council wherever we could as they represent forestry interests banding together for the benefit of the industry in their area. A substantial portion of the levy funds go to support research and Russell Dale of the Levy Secretariat was often a presenter.

Other topics included the Emissions Trading Scheme, local forest consultancy or nursery operations, district council forestry concerns, forest fire research and forest fire from an affected owner's perspective. In New Plymouth we combined the roadshow with a regional meeting of the Wood Processors and Manufacturers Association.

The outline programmes, speakers and attendees

Roadshow venue	Presenters	Topics	Attendees
2015			
Whangarei 4 November	Peter Davies-Colley, Mid North Branch – Chair David Rhodes, Levy Secretariat Russell Dale, Levy Secretariat Dean Satchell, NZFFA President Glenn Tims, NZFFA Association Manager Mark Montgomery, Worksafe	The levy and its administration Levy-funded research Marketing alternative Species Why join the NZFFA? Health and safety and the new Act	70
New Plymouth 5 November Wood Processors and Manufacturers Association	Hamish Levack, NZFFA Executive – Chair Glenn Tims, NZFFA Association Manager Russell Dale, Levy Secretariat Fiona Ewing, Forest Industry Safety Council Kelly Coghlan, Tree Awareness Ltd	Why join the NZFFA? The levy and research Forest Industry Safety Council Continuity of wood supply	75
Christchurch 10 November	Patrick Milne, NZFFA Executive – Chair Glen Mackie, Levy Secretariat Richard Parker, Scion Ian Jackson, Levy Trust Board Member Glenn Tims, NZFFA Association Manager Nick Ledgard, scientist and NZFFA member	The levy Forest fire research Health and safety Why join the NZFFA? The right tree in the right place	24
Dunedin 3 December	Neil Cullen, NZFFA Vice President – Chair Grant Dodson, Chair Southern Wood Council Ian Jackson, Levy Trust Board Member Glenn Tims, NZFFA Association Manager Fiona Ewing, Forest Industry Safety Council Denis Albert, Ministry for Primary Industries	The levy Representing small-scale grower Why join the NZFFA? Forest Industry Safety Council Forestry-related projects	50
2016			
Hokitika 20 April	David Rhodes, Levy Secretariat Russell Dale, Levy Secretariat Glenn Tims, NZFFA Association Manager Dean Boston, Pacific Plywood	The levy The levy research Why join the NZFFA? Timber to plywood	25
Havelock North 20 June	Rob Wilson, Hawkes Bay Branch – Chair Glenn Tims, NZFFA Association Manager Russell Dale, Levy Secretariat Doug Ducker, Pan Pac CEO Des Craig. Worksafe Chris Perley, ThoughtScape	Why join the NZFFA? The levy research Pan Pac background operations Health and safety and the new Act Environmental and economic benefits	35
Gisborne 21 June	Nick Seymour, Gisborne Branch – Chair Russell Dale, Levy Secretariat Glenn Tims, NZFFA Association Manager Prue Younger, CEO Eastland Wood Council Chirs Berry, PL Olsen Ltd Des Craig. Worksafe	The levy research Why join the NZFFA? Wood Council role Harvesting management Health and safety and the new Act	20
Feilding 23 September	Geoff Thompson, Levy Trust Chair John Turkington, John Turkington Ltd Glenn Tims, NZFFA Association Manager Hawea Kingi, Worksafe Hamish Levack, NZFFA Executive Pat Harwinkels, Ministry for Primary Industry	The levy Local harvesting and marketing Why join the NZFFA? Health and safety and the new Act Carbon trading Forestry-related projects	70
Nelson 5 October	Don Wallace, NZFFA Executive – Chair David Rhodes, Levy Secretariat Glenn Tims, NZFFA Association Manager Roger May, NZFFA member Eric Appleton, Appleton's Nursery Doug McLeod, Worksafe	The levy Why join the NZFFA? Emissions Trading Scheme Forestry nursery operations Health and safety and the new Act	50
Blenheim 6 October	Don Wallace, NZFFA Executive – Chair Glenn Tims, NZFFA Association Manager Glenn Tims Ket Bradshaw, NZFFA Member Roger May, NZFFA member Doug McLeod, Worksafe	The levy Why join the NZFFA? Forest fire owner's experience Emissions Trading Scheme Health and safety and the new Act	20

We hope to be able to finish our coverage of the country with roadshows during 2017 year. Regions we have not serviced so far are Auckland, Waikato, Bay of Plenty, Southland, South Otago, Wairarapa and Wellington. As the programme draws to a close we will evaluate the effectiveness of what we have been doing.

How many owners did we contact

As mentioned earlier, one of the main aims of this project was to directly contact owners of small-scale forests and give them more information about the levy. Over the first two years we have sent out over 7,000 letters, invitations and information packs and invited all 7,000 to the meetings. The number agreeing to attend the meetings was smaller than we would have liked. Just under 450 people attended but a similar number replied that they could not attend but gave email addresses asking us to keep in touch.

The process has meant that over 7,000 forest owners have been directly contacted and sent information about the levy. This is direct contact with about half of the estimated total. We have also been able to confirm that the database of forest owners is accurate as there were very few information packs being returned because the ownership had changed or the owners moved with no forwarding address. As with all such databases, it needs regular updating and this is being carried out to help improve communications about the levy to owners of small forests.

Portrait of a forest growers' levy information session

This is an edited version of a report by Denis Hocking about the Feilding event, first published in the Middle Districts Branch newsletter.

It was a good turnout of 70 at the Forest Growers' Levy Trust presentation in the St Johns Hall, Feilding in September last year. Invitations had been sent to all land owners with forests in the greater Manawatu region and those attending included a lot of unfamiliar faces and non-NZFFA members. Invitations had been backed up with a press release and limited advertising in local newspapers.

How the levy works

Geoff Thompson, the Forest Growers' Levy Trust Chairman, was the first speaker. He emphasised that the levy of 27 cents for every tonne of wood harvested, had to be used for whole industry good and the process is controlled under the Primary Industry Levy Trust legislation. At the 2013 referendum for a levy there had been 85 per cent support, but the Levy Trust Board has to ensure that owners of large and small forests see value in the arrangement for the next referendum in 2019.

The Trust Board is made up of four representatives of forest owners of over 1,000 hectares who pay the majority of the levy, two representatives of owners of small forests of less than 1,000 hectares, and one independent member, currently Chairman Geoff Thompson who happens to also be a small forest owner. Supporting the Board is a secretariat which is contracted to the Forest Owners Association.

The levy is collected by Levy Services Ltd which sits at arm's length from the Levy Trust Board to protect commercially sensitive information. Committees covering research; health, safety and training; biosecurity; promotion; fire: transport and environment advise the board on the development of an annual work programme. The NZFFA is represented on these committees and integrated into the process in a way it did not happen previously.

Year	Levy income	Levy expenditure
2014	$8 million	$5.7 million
2015	$8 million	$ 6.6 million
2016	$8.2 million (estimate)	$ 9.3 million (estimate)

Research takes 60 per cent of expenditure, biosecurity 18 per cent, health, safety and training 12.5 per cent, with the remaining amount covering transport, environment, promotion and administration. The NZFFA gets 1.7 per cent towards its communication contract.

The main research area relates to radiata pine productivity with steep land harvesting another major focus. The latter has made good progress with remote controlled harvesting now a technical reality. The Specialty Wood Product Partnership, with its focus on alternative species, is another area of interest for farm foresters. It is claiming $1.4 million a year of levy money for a period of seven years, matched by government funding, with other funds from Scion and industry.

The Forestry Industry Safety Council is another significant development and it was noted that deaths in the industry have dropped significantly, although another fatality had been reported the previous day. Forestry remains a dangerous industry and there is no room for complacency.

Local harvesting

John Turkington was the second speaker with a generally positive and upbeat presentation. John's company, John Turkington Ltd, harvests around 700,000 tonnes of logs a year and his confidence in the industry is demonstrated by over 1,000 hectares of forests he

and his family own. He discussed the rail hubs he had developed with KiwiRail and other partners at Palmerston North, Whanganui and Masterton. A total of 40 rail wagons of logs moving daily, mainly to Wellington wharves but some to Napier, means fewer trucks in urban areas and less downtime for trucks stuck in traffic or queues. Cartage costs to the wharves are reduced by two to three dollars a tonne.

Looking locally, building consents are rising but are still below 2004 levels. The wall of wood, the worry that all the plantings of the mid 1990s would arrive at once, is disappearing as many of these stands are being harvested early. John said that generally harvesting contract jobs are getting bigger and lasting longer. The biggest worry is shortage of manpower.

Health and safety

Hawea Kingi**,** a health and safety inspector from WorkSafe, spoke on the implications and requirements of the new Health and Safety at Work Act. He emphasised how devastating death or serious injury can be to colleagues, family and the whole industry. He illustrated cases he had been involved in, and how he worked to get acceptance of the need for safer practices. Among the requirements of the new Act are –

- Protecting workers and others regarding health, safety and welfare
- A functional workplace with representation, consultation, co-ordination and co-operation
- Promoting provisions for training, information, advice and education
- Securing compliance and accountability, sorting out who checks if the landowner is ignorant
- A framework to raise the importance of health and safety.

One point to note is that this Health and Safety Act covers only workplaces. The dangers of visiting a forest for non-work related reasons are not covered. There is a legal requirement for people conducting businesses or undertakings to understand their responsibilities. A paper trail, such as demonstrating a woodlot owner had discussed health and safety with the contractor and consultant and ensured appropriate policies were in place, would be very helpful in the unlikely event of court proceedings.

Hawea said they had had trouble with farmlots, a step down from woodlots. If deals were done directly with log buyers or contractors, there might be sub-standard gear and practices with no lines of responsibility. He showed some cases that clearly illustrated the problem. Typical safety problems to consider include –

- Oversize and dangerous trees
- Competency of contractors
- Uncertified mobile plant, usually skidders and excavators, without proper protective structures
- Evidence demonstrating safety procedures are being carried out
- Communicating new hazards
- Emergency procedures worked out in advance
- Accessing the work area
- Incident reporting
- Dealing safely with power lines
- Access roads where bridges may have to be certified.
- Regularly check agreed plans and be prepared to consult outside expertise.

MPI and new planting

Pat Harwinkels from the Ministry for Primary Industries was the final speaker. He pointed out that new planting has been declining over the last decade. MPI handles several programmes relevant to new planting

- **Afforestation Grant Scheme.** In the first round from 2011 to 2014, $22 million was invested in planting 12,000 hectares. The second round from 2015 to 2020 has a budget of $19.5 million with a flat rate of $1,300 a hectare. It is hoped that 15,000 hectares will be planted. In 2015, 2,900 hectares was contracted for planting in 2016 with a significant part of this is being manuka.
- **The Emissions Trading Scheme** has now resulted in a higher carbon price which should stimulate planting. Deforestation of pre-1990 forests is declining with more off-setting involving replanting another area after harvest and deforestation of a forest. Of the roughly 600,000 hectares of post-1989 forest, about half has been registered in the Emissions Trading Scheme. The Paris Climate Change Agreement means New Zealand has committed to a 30 per cent reduction in 2005 levels of greenhouse gas emissions by 2030 and this will need more trees
- **The Permanent Forest Sinks Initiative** was the first sequestration scheme brought in under the old Forestry Act. It will be moved to the Climate Change Reduction Act so it aligns with the ETS.
- **The National Environmental Standards** is an attempt to ensure consistent rules around the country while ensuring good environmental standards. It focuses on eight main areas and should be operative in early 2017. Patrick Murray pointed out that decisions made later in 2016 will be too late for nurseries to respond for the following year. There may not be sufficient stock to allow a significant increase in new planting in 2017.

The conclusion was that there was much to ponder and digest from the presentations.

Log prices slightly firm and conditions generally stable

Allan Laurie

My first report for the year continues the positive elements experienced in 2016. Prices are firm to stable throughout our fine nation and all players in this wonderful game called plantation forestry seem to be at peace with the world.

Currency exchange rates and over capacity in shipping, together with very strong demand across all segments, has seen the pricing planets remain in good alignment with demand generally just ahead of supply. And the really good news is, outside of the shenanigans promulgated by a certain Mr Trump, we do not see great change ahead.

Overall, in the last three months we have seen domestic prices remain unchanged in some regions while others have reported prices for structural logs up two to three dollars a tonne. In the export segment, wharf gate prices are up $8 to $10 a cubic metre and pruned logs up by $5 to $7 across all ports.

India has experienced a rocky period with the government removing the 500 and 1000 rupee notes from the currency. The removal of a large portion of the daily trade in the tax avoidance portion of the economy has caused some wailing and gnashing of teeth.

Stable China market

Softwood log usage across the eastern seaboard has continued to exceed expectations. Levels in December remained at 58,000 cubic metres a day and at the time of writing in mid-January it is trailing off to 47,000 cubic metres a day. This is not too shabby for the time of year and well up there on a year-on-year basis.

Usage will continue to decrease as workers return to their homelands in preparations for New Year celebrations. It will be mid-February before many return, with factory workers generally taking about a two-week break. Over this time we can expect to see inventory pick up significantly but the market appears to be already factoring this.

Small price rises

Log inventory across all China ports is approximately 3.7 million cubic metres for all softwood log volume. Of this, radiata pine from New Zealand and Australia consists of between 50 and 55 per cent.

The benchmark log grade for negotiations in China is A grade. This is a 3.8 metres long log with a minimum small end diameter of 30 cm and a maximum branch size of 10 to 12 cm. I noted in October 2016 that CNF settlements, that is landed on the wharf in China in US dollars per JAS cubic metre terms, were in the order of $121. In January this has climbed to $128.

Meanwhile shipping, in US dollars per JAS cubic metre terms, has risen one to two dollars a cubic metre. This still has shipping in a historically low $20 to $23 range depending on the number of port calls and whether it is North or South Island. This, together with currency movements, has seen the average price rise in New Zealand dollars at the wharf gate by $8 to $12 over the same period.

Pruned log prices appear to have topped out at US$156 to $158 a cubic metre reflecting a market adequately supplied at present. We are also seeing higher level scrutiny of pruned log quality by buyers and claims being made where clear grade recovery is not up to par. Although we see expansion in the furniture and mouldings segment for radiata pine in China, we continue to believe the growth opportunity for New Zealand and China will be lost unless we can resolve the blue stain or sap stain problem.

We also monitor domestic prices for timber in China as this affects log price negotiations. Over the same period domestic timber has been falling by about 80RMB a cubic metre, the equivalent of $15 to $20. This, together with increases in compliance and labour costs for Chinese sawmillers, suggests to me that prices are at a high under the current conditions.

India market interesting

The tax avoidance segment of the India economy

Radiata pine log sales

Dollars per tonne	Northern North Island	Central North Island	Southern North Island	Northern South Island	Central South Island	Southern South Island
P1 (P36-P38)	172 - 192	175 - 190	170 - 180	172 - 180	167 - 175	168 - 180
S30	114 - 118	115 - 125	108 - 116	112 - 120	105 - 111	115 - 120
S20	105 - 110	105 - 112	-	101 - 113	90 - 96	-
L30/A30	101 - 110	-	-	-	95 - 105	80 - 90
Postwood	75 - 85	80 - 85	75 - 85	65 - 80	80 - 95	75 - 85
Chip	50 - 55	48 - 52	40 - 45	38 - 40	43 - 46	43 - 47
Dollars per JAS						
Pruned (P40)	166 - 171	171 - 176	160 - 165	162 - 167	156 - 161	160 - 165
Pruned (P30)	129 - 134	133 - 138	126 - 131	127 - 133	123 - 128	139 - 144
A grade	131 - 136	134 - 139	121 - 126	124 - 129	118 - 123	123 - 128
CS/KS	124 - 129	128 - 133	116 - 121	118 - 123	111 - 116	117 - 122
CI/KI	113 - 118	116 - 121	109 - 114	110 - 115	105 - 110	112 - 117
Pulp (CIS/KIS)	107 - 111	112 - 116	102 - 106	101 - 105	96 - 100	102 - 106

referred to earlier includes what is referred to as black money or number two money which in turn normally involved 500 and 1000 rupee denominations. Many transactions across all sectors involve the normal banking system which the government know about. However, a percentage of transactions may be conducted via a briefcase and trust me, they are not full of how-to guides. An immediate loss in value of black money has materially affected the log trade with letters of credit difficult to establish and everyone scrambling to exchange their cash.

However, there is also a consensus that Prime Minister Modi dragging India by the hair towards a modern economy is not all bad. Indeed, the need for growth in India is compromised by the lack of infrastructure. If the tax take does not reflect a high percentage of transactions, then growth is stymied. Therefore, we expect the log trade to recover quickly and the general word on the street suggests further growth in this market can be expected if more ports for log trade can be opened up.

Domestic market demand very strong

All regions have reported strong demand and prices under some pressure, at least to match export comparatives. Most sawmills appear to be getting the logs they require but some are very much hand to mouth.

A bright spot for forest owners includes a revitalised dynamic in pruned logs with prices now on a par with export and demand excellent. Some better pricing has been experienced for those forest owners with above average pruned log quality. A combination of improved markets in the US and Asia, including China, together with a favourable exchange rate is helping.

Macrocarpa log sales

Macrocarpa logs	South Island
Pruned minimum SED 40 cm	350 - 375
Pruned minimum SED 30 cm	170 - 190
Small branch minimum SED 30 cm	145 - 150
Small branch minimum SED 20 cm	115 - 125
Large branch/boxing/sleeper	100 - 110
Firewood logs	65 - 75

Across New Zealand we are continuing to see a gap between North and South Island structural log prices with a $20 a tonne difference on average. This is the direct result of larger more efficient mills in the north and higher strength, better quality logs. There are some exceptions to the rule with the Marlborough and Nelson regions sawmills paying prices closer to those seen in the North Island.

So the message of a solid and reliable higher earning industry continues to be under-sung, indeed it is almost New Zealand's best kept secret. New planting rates are improving but have a long way to go to reflect the true earning potential of our plantation forests. It has never been more important, the only way forward for climate, country and the planet is to get out there and plant more trees.

Allan Laurie is the managing director of Laurie Forestry Ltd with over 28 years of experience in marketing logs for small to medium growers.

ETS matters

Looking on the bright side of the Field Measurement Approach

Stuart Orme

The end of December 2017 marks the end of the Emissions Trading Scheme's Commitment Period 2. All owners of ETS-registered forests planted after 1989, along with Permanent Forest Sink Initiative forests, are required to submit an emissions return by the end of June 2018. The emissions returns will be based on the change in carbon stocks between the last emissions return and the end of December 2017.

Owners of forests which are less than 100 hectares have to use the MPI's look-up tables when completing their emissions return. These tables provide average data which is based on forest type, age, and in the case of radiata pine, the growing region. Submitting an emissions return using the look-up tables is almost always a desk-based, on-line exercise, and should not be too onerous, although accuracy is required to avoid over claiming and subsequent penalties.

However, owners of forests over 100 hectares, are required to use the Field Measurement Approach (FMA) to estimate changes in their carbon stocks. This is a multi-stage process, and involves measuring a series of sample plots across the forest, the exact location of which is pre-determined by MPI. The plot data is then used to provide individual owners with their own specific tables, and the emissions return must be completed using these tables.

For most small-scale foresters in this category, the FMA will involve employing a consultant and forest inventory crew to carry out the field work and submit the return. This can, at first glance, seem to be an expensive exercise, especially for owners with forests in the low hundreds of hectares because of the high intensity of plotting in smaller areas of forest. The plotting intensity is worked out according to statistical formulae provided and shown in the tables below.

	Size of forest in hectares			
	100	500	1000	2000
Number of plots	30	50	64	84

Inventory minimum number of plots required for different forest sizes

	Size of forest in hectares			
	100	500	1000	2000
Indicative costs per hectare	$80 to $100	$25 to $35	$15 to $25	$10 to $15

Indicative costs by forest size

Therefore, a forest owner with 120 hectares of forest could be faced with a bill of over $10,000 for the work of estimating the carbon stocks. However, it is not all bad news.

Looking on the bright side

If you are facing the prospect and expense of FMA work in 2017 we can reassure you that, in our experience, many forest owners have been pleased they have had to go through the process. This is because the MPI data is general, and using measuring plots is the only way to accurately gauge the total carbon stored and the variation between different compartments or woodlots.

Of more immediate benefit to forest owners, in the lower North Island at least, is that we have found that many small forests are performing well above the MPI look-up table standards. Owners have far more carbon in their forests than they may realise.

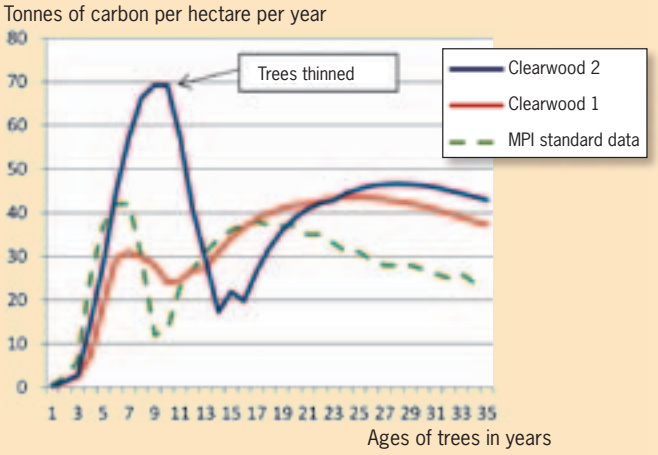
Comparing examples

Woodnet is involved in regular FMA forest inventory work. The two graphs below use data taken from what we would consider to be typical radiata pine forests in the southern North Island. They provide a useful illustration of the rates of carbon sequestration per hectare each year in different forests and with different growing regimes.

The graph above illustrates a number of items of interest to forest owners –

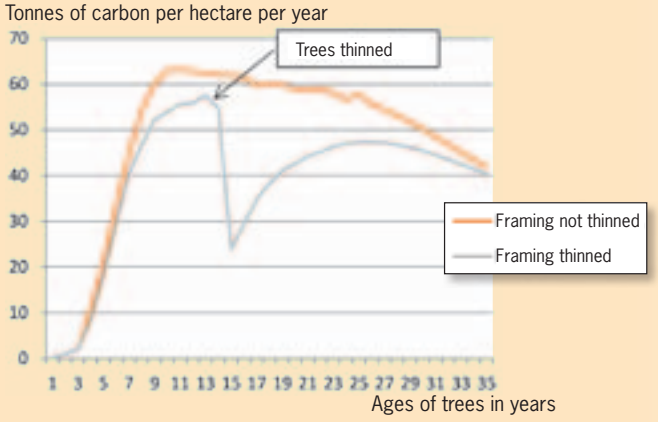
- How carbon capture or sequestration profiles and total quantities of carbon stored can vary between sites. The two clearwood regimes have different profiles which are a result of site and management differences including higher rainfall and later thinning
- How rapidly sequestration rates increase after establishment, and peak at around 10 to 14 years
- How thinning causes a significant dip in sequestration rates
- The low standard values produced by MPI and the value of owners undertaking their own inventory
- With the understanding of how carbon is sequestered and accounted for, we can implement silviculture regimes which maximise the amount of carbon that a forest owner can benefit from.

Comparison of carbon capture rates in two lower North Island radiata pine forests



The graph above illustrates clearwood production in which trees are pruned and thinned. However, the graph below shows the growth and carbon capture profile of two forests grown under a no prune regime, and gives a good illustration of the effect of thinning on carbon capture sequestration rates.

Carbon capture rates in two lower North Island forests growing structural timber



The data also provide us with a picture of the total carbon, and the average carbon being sequestered by the trees over typical 25 to 35 year rotations. It is summarised in the table below.

Regime	Forest type	Total tonnes carbon per hectare		Average tonnes carbon per hectare per year	
		Age 25	Age 30	Age 25	Age 30
Framing no thinning	Dry coastal	1,193	1,458	47.7	48.6
Framing no thinning	Hill country inland	1,217	1,730	48.7	57.6
Framing with thinning	Dry coastal	916	1,149	36.6	38.3
Clearwood	Hill country inland	729	1,344	29.2	44.8
Clearwood	Hill country inland, thinned late	890	1,136	35.6	37.9
MPI standards	Hawkes Bay and southern North Island	712	978	28.5	32.6

Total carbon and average carbon for five lower North Island forests

The value for a forest after 25 years

Extra carbon over and above MPI standard	729 minus 712 = 17 tonnes per hectare
Total extra carbon in 120 hectares	17 times 120 hectares = 2,040 tonnes
Total value of extra carbon at current price of $17.25 a tonne	2,040 times $17.25 = **$35,190**

The table also confirms that –

- All of our example typical forests out-perform the MPI standards
- Framing regimes, especially if they are left un-thinned, are likely to be the highest performing in terms of carbon yields.

As an aside, the data also suggests that growers should look at the timing of carbon benefits as well as timber yields when planning harvesting age. Older forests continue to sequester significant amounts of carbon.

Happy to pay

Going back to our 120-hectare forest owner, unhappy about the cost of the mandatory exercise of having to select and measure sample plots. Even in the lowest performing of our example forests the cost of the work is easily covered by the extra value of carbon discovered by the FMA process.

By understanding the ETS, and with judicious management of New Zealand Unit balances, the forest owner should happily be able to pay for the forest measurement work by selling carbon he never knew he had before the process was undertaken. As we always say, having carbon in your account does give you options. You should also have a plan in place to manage the corresponding obligations which are associated with carbon sequestered by forests planted after 1989.

In summary

Forest owners with over 100 hectares of ETS registered forest have no choice but to undertake FMA plotting if they want to submit a return. We advise you get the process under way as soon as possible as it is likely that, as the year progresses, inventory crews may be fully booked. The field work should be completed, and acceptable data submitted to MPI, by 31 December although an extension may be allowed by MPI into the first two quarters of 2018.

31 December 2017	FMA plotting work must be completed and data submitted to MPI at an acceptable standard.
1 January to 30 June 2018	All Mandatory Emissions Returns must be completed and submitted to MPI during this period.

Critical dates

For owners who took the opportunity to leave the ETS a few years ago and who, in the light of improving carbon prices, may now be considering re-entry, it is not too late to do this. Carbon in the tress can be claimed up to the end of December by when re-entry applications need to be with MPI. For forests over 100 hectares we advise you begin this process immediately to get both the registration and the measurement process completed before to the cut-off date.

supported by forestgrowers commodity levy

Levy funded research conference

Julian Bateson

In mid-October last year, the Forest Growers Research Conference was held in Napier. It was a two-day event with the first day devoted to talks and presentations and a field trip on the second day. The aim of the conference was to present information about the various research projects being undertaken which have some funding from the forest growers' levy. The majority of the levy income for each of the two years it has been in operation is put towards forestry research. In 2015 this figure was just over $3.2 million and in 2016 a total of $4.3 million.

The conference presentations outlined a raft of projects which used levy funding as well as one or two funded from a variety of sources. The first session concentrated on productivity and looked at the conflict between increasing productivity and wood quality as well as what we may have learned from silviculture breeds trials.

Later in the morning forestry biosecurity was the theme. The reduction in use of methyl bromide as a fumigant for export logs, along with its eventual phasing out, is very much a target. Heat treatment by the use of an electrical current is a possible option, and at the moment the price could compare favourably with the current cost of fumigation at around four dollars a cubic metre. A significant amount of research on the different insect species which may be on the logs, and when they are flying around, is a significant part of this continuing project.

The poster session provided some exercise as we had to move around in groups for the various presentations on health and safety, DiscBot scanner for mapping wood property, growing tree seedlings better with less fertiliser and fungicide, and another forecaster model for radiata pine and Douglas-fir. On the forecaster project I was not impressed with a few of the jargon ridden phrases such as 'deliver calculator-like functionality'. However, when I asked, I was told that the software system could be used by anyone, even me. Overall the sessions were enjoyable and worth attending.

The presentations reached an end with those on research into steep land harvesting, specialty wood products and perspectives on the China log market, followed by a panel discussion. Later in the day there was a dinner at which a number of awards were presented for various research projects and individuals.

Some highlights of the field trip

The drylands eucalypt trials

Some of the radiata pine clonal trials

The RESI PowerDrill for testing wood quality

supported by forestgrowers commodity levy

The Forest Industry Safety Council report

Allan Laurie

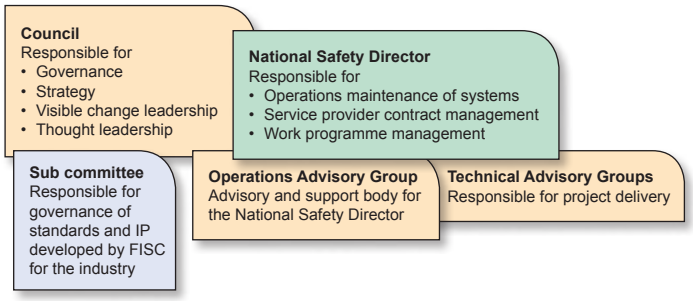
The work of the Forestry Industry Safety Council (FISC) continues to gain momentum under the Chairmanship of Dame Alison Paterson and the management of National Safety Director, Fiona Ewing. I am the NZFFA representative on the Operations Advisory Group of the Council which is chaired by Fiona. I am impressed with the commitment and work she and her small management team do.

This is my first report back to the NZFFA following the first full year of the work of the Operations Advisory Group and I am delighted to say that I consider the work of FISC to be important and extremely effective in guiding the forest industry, via FISC, with the motto – Together Towards Zero.

The most important message in this report relates to www.safetree.co.nz. If you are in any way involved in the forest industry you should be registered on Safetree. This is the communications medium for FISC. If you are not already registered, please do so. You will then receive regular updates on available resources and useful information about the work within the broader health and safety space in the forestry industry

To quote directly from the home page 'Safetree is an injury prevention programme for the forestry sector – from forestry owners and bosses, right down to individual crew members.'

This website is part of the results of the work we do in the Operations Advisory Group. The resources you can find here are extensive and set out in a way that is easy to research and read.



I am also very impressed by the commitment clearly evident around the table. We are represented by industry training providers, corporate managers, health and safety managers, contractors, union representatives, WorkSafe NZ and of course small growers. The structure of the Forest Industry Safety Council consists of three layers of industry representation and involvement as shown in the chart above.

There are several projects within FISC receiving the most attention. There are many more but the table below summarises the current focus areas.

Our work will continue through 2017 with haste and purpose. With the recent announcement of further funding from the Forest Growers Levy Trust we can proceed with confidence knowing current programmes can be continued and others developed.

Allan Laurie is the NZFFA representative on the Operations Advisory Group of the Forest Industry Safety Council.

Programme area	Background	Focus
Individual competency and certification	People working in high risk tasks have the skills and knowledge to work in a safe manner. Recognition of professional growth and celebrating success is promoted.	Designing and structuring competency regimes for individuals, initially focussing on highest risk areas.
Contractor company certification	Safe, professional and sustainable contracting companies	Setting up a programme of certification for companies with a focus on compliance, culture and consistency.
Industry wide training	A professional industry attracting and retaining capable people who are ready for work and have essential, as well as technical skills.	Structuring a review of training resources and capability to ensure easy access and total involvement.
Growing a safety culture	Companies operate in a mature learning safety culture with involvement across all parties.	Continuing an industry wide programme of engagement and holistic involvement.
Incident learning review	A true learning culture is established in the industry and progress to analysing and reviewing successful work.	A multi faceted programme of receiving information then disseminating this back to industry in a way to generate maximum learning.
Risk management	Move from hazard identification to promote control of critical risk areas.	Working closely with Worksafe to ensure a clear understand of risks.

What you could do to improve safety in your forest

Julian Bateson

I thought that in this article it would be useful to have a look at individual safety. For health and safety in the forestry industry in general, the big picture is important and the Forest Industry Safety Council is progressing well. However, most members of the NZFFA are owners of small forests and many of us carry out some of the silviculture ourselves. It is our responsibility to keep safe and healthy.

I hope that most of you follow the rules and wear the right equipment when carrying out work which is risky – it is silly not to do so. However, as time goes on and more safety gear is needed, making sure I have all the right gear has become a bit of a chore as well as making simple tasks more difficult. I am much more comfortable when I do work which does not mean I have to wear the heavy boots, the protective chaps, helmet and ear protection that chainsaw work requires. I get a lot more weary after a day of wearing all this gear on top of normal clothes, but it has to be done.

If you are a professional and working eight or more hours every day in forestry the safety protection has to be worn all the time and no doubt most of the workers are younger and fitter so are more able to cope with the extra demands. However, I am sure safety equipment does take its toll, although I have not seen any research which says this is the case.

Improved chainsaw chaps

I looked at a few examples of what I do to keep relatively safe and healthy when at work around my property. I wear gloves when handling treated timber or corrugated iron sheets, but this is no hardship and is usually easier than handling the materials with bare hands. I wear eye protection when using tools such as an angle grinder, and again, this does not add to the energy I have to use, although when the visor mists up on a cold day it can be irritating.

A few weeks ago, as the weather warmed up I considered the effects of wearing other protective safety gear in connection with silviculture. I thought about what I could do to make life a little easier for myself, without compromising safety, resulting in being less tired after a day with the chainsaw.

Using a chainsaw takes a fair bit of effort and also requires protective boots, chaps for the legs as well as a helmet with visor and ear protectors. What improvements could I make? The chaps are Husqvarna ones. I bought them six or seven years ago, so they are getting on a bit, but are still in good condition and still tough enough to prevent an accidental chainsaw touch from inflicting injury, or so I hope. They fit quite snugly but need six clips for each leg which means they are quite constraining when walking up steep inclines as well as being a bit of a fiddle to put on and remove. The process involves 13 clips, including the one on the belt, to fasten or unfasten.

The chaps are also quite heavy and cumbersome, which I notice more in the warmer weather. At first I used to wear them all day, but realised they were quite an impediment. I now remove them when I do less risky activities in between the chainsaw work, such as when I mark the trees to be cut or clearing pruned material out of the way. Could I make life easier but just as safe?

I visited various specialist suppliers and discovered that some of the newer chainsaw chaps are significantly lighter that the ones I had, and used zips instead of clips. I bought a new pair with zip fasteners and which, as far as I can determine, are at least the same safety standard as my heavier ones. However, being lighter and fastened with zips, they are much less effort to walk around in, and much simpler to remove and put back on. They have definitely reduced the effort I have to put into a day's work with the chainsaw.

Good vibrations

The next concern was the noise, vibration and fumes from the chainsaw. Petrol chainsaws are significantly better than they used to be with much less vibration, as well as being lighter and with more safety features than a few years ago. However, it would be better if they vibrated even less, or not at all, were not as noisy and produced no fumes.

I thought I would take the plunge and invest in a

battery powered chainsaw – the same model which Husqvarna gave to winners of the Farm Forester of the Year Awards in 2016. I was told it had the torque or power equivalent of a 38 cc petrol model. This made it similar to one of their smaller two-stroke versions and would therefore suit a lot of the work I do. In addition, as my property only has solar powered electricity, the cost of running a rechargeable saw is close to zero, with only chain oil as a regular consumable.

I have now been using this chainsaw for a few weeks and so far I have been impressed. The quiet is amazing, the vibration hardly noticeable and it cuts surprisingly well with its 14-inch bar. It is definitely a lot less effort to use. The only problem is how short a time the battery lasts and I will need at least a couple of spares when the bank manager lets me.

Being smarter

The aim of this exercise was to look at how I could reduce the effort to do the same work but be as safe. With light chaps and a saw producing less noise, virtually no vibration and no fumes, I can prune and fell smaller trees feeling a lot less weary at the end of the day. In addition, there is virtually no risk of starting a fire from a faulty spark arrestor or from putting a hot saw down on dry pine needles. In the dry summer weather this is quite an advantage. My next step to make my life in the forest even less of a chore is to get lighter boots which provide the same protection as my current ones.

Those of you reading this may consider that I just want an easier life with lighter or less noisy equipment, which is true. However, I am working just as safely, but using less energy – being smarter is what I would call it.

The new stuff from Worksafe

It did happen – Worksafe has finally produced *Managing a Safe and Healthy Small Forest Harvest*. I know I was pessimistic recently that it would ever appear after over six years of effort. It started with the NZFFA and ACC in August 2010 and has gone through many stops and starts as well as organisational and staff changes.

I found out about the publication via an email in November and it took me a considerable amount of time to discover how to directly access a copy on the WorkSafe website, which is the only place it is currently available. You need to go to www.worksafe.govt.nz and hunt around a bit, or a lot as I discovered.

I had hoped that a printed copy would be made available as it is inconvenient to have to print off over 40 pages and then staple them together. Trying to read it all on screen is the usual pain in the part of the body we do not talk about. I am trying to get access to the original version so we could get copies printed, but so far have had no response.

As mentioned above, the full set of guidelines occupies over 40 pages of A4 so there is a lot to read but

does it do what we want? Overall the booklet, guidelines or however you describe it is reasonably comprehensive and takes the owner of a small forest through the requirements of safe harvest planning, why it is important to contract competent professionals and what is required in managing the risks involved in harvesting.

It is what we have wanted for a long time, and although it does not answer every question, it is very useful. I recommend you have a look at a copy and I will continue to see if we can get it printed in a proper booklet so it becomes a handy reference.

Experienced farmers in death toll

WorkSafe's data from 2015, which is the most up-to-date for a full year, shows that experienced farmers carrying out routine jobs with vehicles are getting caught out. In 2015, there were 19 fatal injuries on farms – 16 of those involved vehicles.

In over 50 per cent of the incidents those involved were aged over 55 and driving vehicles on sloping or uneven ground. In other words, they were not the young, inexperienced workers behaving the way young people often do. They were people typical of the age of most of the members of the NZFFA. The incidents had some common factors like operators or others being hit by the vehicle, or being killed during a rollover.

These figures show it is not just younger, less experience workers who have serious accidents. Being older does not, it seems, always mean wiser. We all need to remember that even if we have been carrying out the same work for many years, we need to take extra care to avoid being complacent.

Julian Bateson is the NZFFA health and safety representative.

Naturally durable strainer posts producing an income

Paul Millen

The potential for naturally durable hardwood vineyard posts continues to expand in Marlborough, with many hundreds of hectares of new vineyard being planted last winter.

Meanwhile the large harvesting machines continued to knock posts over, with some grape growers reporting five to 10 per cent breakage during last year's harvest. Between June and August I received a number of enquiries from growers wanting to acquire hundreds of durable eucalypt posts that I could not supply. However, there were also some growers wanting strainers posts.

This provided the opportunity for my brother Ash and I to thin some of the early trials planted at our property, Tai Tane, here in the Marlborough Sounds. We had planted a mix of species in small stands between 2003 and 2007 from which thinned stems could be extracted. About 50 trees were felled and 2.4 metre-long strainer posts cut to length, with most trees producing two posts from each tree, followed by de-barking and strapping both ends with a nail plate.

Trees felled included *Eucalyptus bosistoana* and *E. globoidea* which are both species in the NZ Dryland Forest Initiative's breeding programme. Other stringybark species of interest to farm forestry including *E. muelleriana, E. laevopinea, E. macrorhyncha, E. microcorys* and *E. pilularis*.

While taking no measurements, the species that had the least splitting, in some cases no split, and had the narrowest sapwood band were *E. globoidea* and *E. macrorhyncha*. *E. bosistoana* also had little end splitting as did *E. microcorys*. However, these two species had a wider more variable sapwood band which was too wide in some logs to be sold for strainers. But it made excellent firewood.

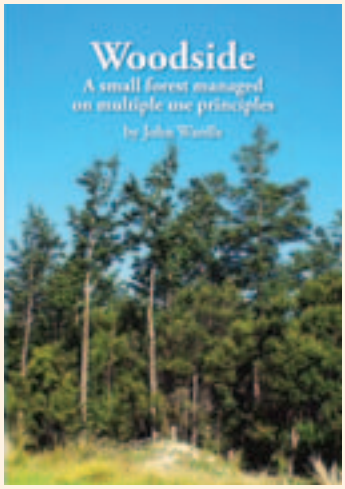
All other three species, *E. muelleriana, E. laevopinea* and *E. pilularis,* generally had a narrow sapwood band but with most logs end splitting due to high growth strain. There were some which split so severely that they could not be sold for strainer posts – more firewood.

While the species sold were a range of durability from class one to three, our sale price was based on prices for similar size treated pine strainers at $30 to $40 plus GST.

The grape growers who purchased the posts were keen to give them a go and expressed how much they liked to support our research. This exercise reinforced the need for the NZ Dryland Forest Initiative's research programme to be screening to select for breeding trees which have low growth strain, a narrow sapwood band and highly durable heartwood.

A batch of freshly cut and peeled 10-year-old *E. globoidea* strainer posts

Seresin Estate vineyard manager taking *E. globoidea* strainer posts with nail plated ends



Woodside: A small forest managed on multiple use principles

by John Wardle
Published by the Indigenous Forest Section of the New Zealand Farm Forestry Association 2016
Review by John Purey-Cust

This is a remarkable book. A noted forest ecologist, a specialist in the New Zealand southern beeches, decides in mid-career to put his knowledge into practice, buys a piece of derelict beech forest which has suffered all the evils that God and man could throw at it and sets about putting it right. Forty years on he writes about how it turned out and in doing so produces New Zealand's first manual of forest management.

Over the years I have heard Woodside forest discussed from many angles. Is it farm forestry, because if so, where is the farm? A leading forestry academic pronounced its management methods unsuited to radiata pine, and the general consensus seemed to be that it would all, the radiata in particular, blow down.

It was when I attended a field day trip to Woodside as a part of the 2008 North Canterbury Farm Forestry Conference that I began to understand a little better what was going on. I was not alone in my interest. The day was very well attended and the sun shone, but field days can be deceptive. There is only time to see and discuss a part of things, and if they are complicated as they usually are, it is easy to miss key points. So *Woodside* the book comes to me as the final step in understanding, pulling all those threads together into one logical whole.

Woodside forest

In 1973 John Wardle and his wife Rosalie bought 121 hectares of abandoned land in North Canterbury which was providing summer grazing for about 80 sheep and reverting back to its former black beech forest cover. The land sits on the foothills of the Southern Alps with an altitude range of 400 to 500 metres above sea level. The temperature is described as mild and the rainfall well distributed, but there are regular hazards of heavy wet snow and violent northwest winds.

Woodside is an account of how John and Rosalie turned it back into a living and sustainably managed production forest, giving them a home and income along the way. The over-riding objective from the beginning is ecological improvement. Beneath that, the production objective is top quality saw logs.

For the 84 hectares of black beech which must be retained, and the 27.5 hectares of radiata pine there is too much site variation to allow for a consistent yield based on area or age, so a continuous canopy, single stem management system has been devised. The system has the added advantage of yielding a continuous flow of high quality logs.

Final crop trees are felled at a diameter breast height of 45 centimetres for the beech and 60 centimetres for the radiata pine. The approximate felling age for the beech works out at about 60 years and for the radiata pine 30 to 35 years, with annual allowable cuts of 780 cubic metres for the beech and 935 cubic metres of pine. There being no market for beech logs, they are sawn on the property and sold as sawn timber.

Both species are regenerated naturally, supplemented by planting where needed. Pruning and thinning are both practised, the schedules being described in the book.

Another arm of income is beech honeydew, the waste product of insects which feed on the beech trunk. Domestic honey bees collect this, so the forest owner has the opportunity to have their own hives or to rent the collection to others.

Five hectares remains in pasture for a small flock of sheep, given permanent residence for weed control.

The book closes with a final economic analysis of the fruits of the Wardle's labours and finds them profitable. Surprisingly to me, the largest contributor is sawn black beech at $3,364 per hectare per year, versus $707 if sold as logs.

Where too now?

Single tree selection forest management evolved more than a century ago in the communally owned conifer forests of the French Jura. We were told, when I visited

the area as a forestry student in the 1950s, that the prime reason was economic – the local industry was musical instruments and the quality of wood from small group clear felling, which was the conventional practice, had not produced sufficient logs of the quality required.

From memory of that distant visit our juvenile arguments eerily mirrored those of the 2008 visit to Woodside – too expensive, impractically complicated, and it will all blow down anyway.

Woodside the book sees things differently. For the radiata pine it finds a higher effective stocking rate, a good growth response by second tier trees after the felling of dominants, an increased yield with a larger share in higher grade logs, and abundant regeneration. Even the threatened wind blow is seen to be within the conventional risk to the forest – and because of the permanent roading system it is all salvageable.

How small?

So the system works, but where else in New Zealand is there a case for its use? Our existing system of plant and clear fell works well enough for the largest forest owners, and we seek to simplify it further by dropping any practice in between such as pruning. There is no search for quality. Indeed, the present system dilutes it.

Therefore, a market gap opens for smaller growers who cannot do much about volume. Quality and consistency of supply is their niche and high grade saw logs their opportunity. But how small is small?

As *Woodside* shows it can start off pretty small – 27.5 hectares of radiata pine, and 67 hectares of an alternative species, in this case black beech, with no log market but sawing yourself to create one. Continuity of supply is needed and given.

We have communal forests as well – think Dunedin City Corporation and plenty of others, where the citizens might withhold their mandate for all or part of the estate if it involves management practices they disagree with, or where sites of special interest intrude.

Much was made recently of the harvest problems at Glendhu forest in Otago where planting had overlapped the water distribution systems built to supply the Gabriels Gully gold field, an important archaeological site. Continuous canopy single tree management might well be the way to manage that.

Clear felling is the Achilles heel of the plantation forestry system, widely disliked. The forestry profession cries 'there is no alternative' but the whistle has blown, now everyone knows that there is. Single stem closed canopy management is not the answer to every situation but, as this book shows, it is time for the profession and the Forestry School to sit up and take notice.

Farm foresters and others alike will welcome this book, and not only because it offers a better way ecologically and a pathway to greater profit for the small grower. It also offers an interest and challenge which the corporate model totally fails to offer.

Long live Woodside.

Buying a copy of *Woodside*

Use the form below, or a copy, to order your copy of *Woodside*

Order form for *Woodside – A small forest managed on multiple use principles*

To order a copy of the book send this form or a copy to NZFFA, C/o BPL, PO Box 2002, Wellington or telephone your order to 04 385 9705 or 04 472 0432.

☐ **Please send me** _____ copies of the book *Woodside – A small forest managed on multiple use principles*
Price $35 including post and packing.

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Branch and special interest group contacts

All the branches and special interest groups now fall into the same category in the NZFFA rules. This should not make a lot of difference but it does make it easier to set up new special interest groups. All the contact names listed below for branches and groups are the relevant secretaries.

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Are you a member of the NZFFA?

The New Zealand Farm Forestry Association has been around for over 50 years and has around 2000 members. There are 32 active branches and special interest groups.
If you are reading this issue of the *Tree Grower* you are probably already a member, but could well just be a casual reader or subscriber. If you are a member of the NZFAA, you could make a gift membership to a friend or relative.
The cost of joining if you have less than 10 hectares of trees is only $85 a year.

Why join the NZFFA?

Tree Grower

You will get four copies a year of the *Tree Grower* – the best source of information about growing trees in New Zealand.

Field days

Your branch will hold regular field days where you can see what other farm foresters have grown, where they may have made mistakes, and what trees grow well. This is an opportunity to mix with other like-minded tree growers.

Special interest groups

If you want to know more about cypress, eucalypts, redwood, blackwood or indigenous trees, then you can have the opportunity to join one or more of these groups. Some have their own magazines, such as *Indigena* for the indigenous group. Many are involved in field trials that you can join and help with.

Annual conference

This is held in a different region every year. The conference is mainly field days and gives attendees the chance to visit farm forestry properties, QEII Trust covenanted areas, logging sites or other places of interest. It is also an opportunity to attend the AGM, meet up with over 200 other members of the NZFFA and have a good time.

How to join

Joining is very simple. Copy the form below, complete the details and send it to NZFFA, PO Box 10 349, The Terrace, Wellington.
You will get some free back issues of *Tree Grower* and all your membership privileges.
If you have less than 10 hectares of trees the membership cost is only $85
For 10 to 40 hectares the cost is $135 a year.
For over 40 hectares of trees the cost is $205 a year.

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