



STRUCTURAL TIMBER - *stiffness matters!*

The new Standard NZS3622: 2004 Verification of Timber Properties introduced in early November 2004 means that all structural timber for use domestically will have to be verified for strength and stiffness. Most New Zealand sawmills produce visually graded structural (or framing) timber and will have to comply with the new NZS3622 requirements.

▲ Major Hurdle

“The implications for sawmillers are enormous”, says Paul Carpenter of Grade Right (NZ) Ltd. Already there are indications that some small sawmills, and even one or two medium-sized mills, will exit the New Zealand structural market. Installing a proof stiffness tester and a machine stress grader are beyond the means of most small sawmills. Even carrying out the initial evaluation, installing and using a proof tester and getting a suitably qualified organisation to carry out the independent auditing will be a major hurdle. For the forest industry in the medium and longer term this is likely to result in fewer mills cutting the higher quality structural logs (small branched logs with high stiffness).

▲ Maintaining Radiata as Timber of Choice

Measuring timber stiffness to improve its performance in-use is necessary to maintain and enhance radiata's reputation as the building material of choice in New Zealand. The focus on measured stiffness is also likely to affect the grading of logs. Logs differ in their stiffness, even within the same stand, and the proportion of structural grade timber that can be recovered varies accordingly.

▲ Tools to Identify Structural Wood

Using acoustic tools we can test and grade logs for stiffness. We can also use standing tree acoustic tools for assessing the suitability of a stand for the production of structural products. This leads to better marketing strategies and higher forest returns. Selecting stands and grading logs for their suitability to produce high quality structural wood products will provide the processor with a better recovery of high value produce and the grower with an opportunity to command a price premium for the logs.

▲ Achieving Price Premiums

Olsens has successfully negotiated price premiums for logs with high wood stiffness. For example Laminated Veneer Lumber (LVL) manufacturers in Gisborne and Whangarei and framing timber manufacturers in the Central North Island are paying higher prices for logs with tested high stiffness qualities.

Segregation of logs on the basis of stiffness measurements (using acoustic tools) will become more important with the new Standards. This will allow logs to be allocated to their highest and best use, thus improving the economies of wood production and processing while improving the quality of the final product. Olsens is well positioned to capitalise on this trend and ensure that the maximum value is extracted from the harvesting and marketing phase of forest management.

▲ Our Customers have a Choice!

While wood has many attractive characteristics, many of the competing substitute products are more uniform in both appearance and performance. To maintain and grow the share of New Zealand grown wood in many uses we need to improve the quality of wood products. Growing better quality trees and segregating logs and sawn timber for specific end-uses depending on their quality characteristics will become increasingly important in improving the returns on investment in forestry and wood processing.

▲ Olsens – Leader of Sonic Technology Implementation

Olsens has invested heavily in sonic technology with five sonic tools in use and is the industry leader in the application of this technology in harvesting and marketing services. This technology has allowed us to upgrade entire stands to structural stands, resulting in significant increases in returns to forest owners, says Olsens Harvesting and Marketing Manager, Peter Weblin. In a current 40,000 tonne block, sonic testing and segregation will result in at least an additional \$40,000 revenue. Knowing the value of what you sell is important in maximising the returns from forest investments.

JUVENILE WOOD – “*it's in the core & butt*”

Juvenile core wood in radiata pine is that cylinder of wood within a tree that is usually confined to the first 10 growth rings. It is of low value for existing wood products. It is of lesser stiffness, more prone to checking, warping and twisting, and less stable in service compared to the more valuable outer wood. These wood properties get better in each successive ring.

▲ Pruning Favoured

Recent research has shown that juvenile-type wood is not confined to the core; wood near ground level also has juvenile wood characteristics relative to wood further up in the tree within the same ring. These juvenile characteristics are generally confined to the first 3.5 metres of the stem. The practical implications of this are that butt logs are generally less suitable for the production of structural timber or structural veneer (for LVL) compared to second logs. This finding favours pruning of the first log in order to produce high value appearance grade timber or veneer in which stiffness is not crucial.

▲ Advantages of Cuttings

This finding also appears to give cuttings an additional advantage over seedlings. Cuttings are older than seedlings (the cutting tissue is usually taken from 3-4 years old trees) giving better tree form and wood properties near ground level. Whilst the wood properties are more mature it is not yet clear if they will overcome all lower stem juvenile wood problems.

Cuttings also have less taper of the butt log, which is good for veneer recovery.

LAND USE CHANGES – a healthy choice

Recent forestry news has focussed on the conversion of forestry land to farming, particularly in the Central North Island. CHH has sold about 5,000 hectares of its forest land in the past 5 years and has earmarked a further 9,500 hectares of its forest land for conversion to dairy farming. A further 25,700 hectares of ex-Fletcher Challenge land in the Taupo district is also earmarked for conversion over the next 15 to 20 years. About 10,000 hectares of Eucalypt pulp plantations in the Bay of Plenty will not be replanted by the current owner once the current crop is harvested. In December 2004 a 132 hectare plantation of radiata pine in the Gisborne region was sprayed with herbicide to allow the landowner to use the land for grazing.

▲ What are we to make of all that?

First, it is important to point out that the New Zealand plantation forest area continues to expand, in other words there is more new land planted than existing forest land converted for farming. Second, most land that is cutover is being replanted. In the 11 years from 1992 to 2002 inclusive more than 600,000 hectares of farmland was converted to forestry.

Over the next 5 to 10 years the area of existing forest plantation harvested in New Zealand is expected to increase from about 45,000 hectares to about 65,000 hectares per annum. Thus, while new land planting has declined from an average of more than 50,000 hectares per annum to about 15,000 in 2003, the likely increase in replanting of harvest areas will help to maintain the distribution of areas in young crop.

No doubt, some areas harvested will not be replanted and most of these areas will be more productive in alternative uses, but for the vast majority of forest areas replanting will continue into the foreseeable future.

The future of forestry in New Zealand will be influenced by some emerging trends and some major events that we cannot foresee or predict. In respect of those emerging trends we note:

- The carbon credits that can be gained by the New Zealand government from growing the plantation area.
- The environmental impact of nitrate pollution associated with changing from forestry to pastoral land use; and
- The unsustainable use of erosion-prone hill country for farming.

Plantation forestry delivers environmental benefits to many parts of New Zealand. Where these benefits are evident the forest owners deserve recognition for delivering these benefits. Where such benefits are less evident, converting to a more profitable land use may well be better for the forest owner and the national economy.

From a socio-economic and environmental perspective maintaining and growing forestry on land for which it is best suited makes good sense. Both local and national governments

need to have policies in place that enhance the environmental and economic benefits of the forest industry.

The NZ Forest Owners Association continues its battle with the government to receive some of the benefits of the carbon credits without facing a potential liability when converting forest land for other more appropriate uses. The Forest Industry Framework Agreement has been under negotiation since May 2004, but the government's proposed cap on deforestation liability would impact on forest owners' land use choice. This cap would potentially penalise those landowners who created the forestry benefits for the environment and the economy in the first place. Forest owners deserve a more positive approach from the government.

SAFETY AND HEALTH

“...the annual cost of accidents and (occupational) disease in New Zealand is about 4% of GDP”...and is “...in fact, so high that we run the real risk of it negating the economic growth in the economy...”
Dominion Post, April 28, 2003.

Having one of New Zealand's highest accident rates has been a challenge for the forest industry.

On average, 11 forestry workers were killed per year between 1969 and 2001 with 7 deaths for the year to June 2001. However the pain for the industry doesn't stop there!

Also biting hard, are the downstream effects of a poor safety record, such as the costs of rehabilitation, the reduction in productivity and the unwelcome barrier to recruitment as mums and dads guide their children into safer industries.

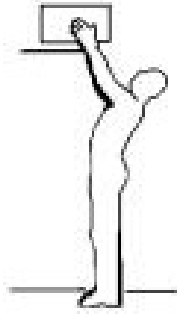
To address this problem, PF Olsen and Company Limited (Olsens), have given strong support to the development of training and accident prevention systems and have made good progress. Indeed, injury and severity rates have fallen dramatically in the past three years within our operations. We are particularly proud of our recent achievements:

- Nelson branch of Olsens, employing three large silvicultural businesses and one harvesting crew, collectively worked 43,000 man-hours during 2004 without sustaining a single lost time injury. A fantastic achievement!
- Three other (smaller) branches with a combined 47,000 man-hours also went the 12 months without having a serious injury.
- Viking Timber Management's operations (the former FCF estate now managed by Olsens) produced even more spectacular results. 590,000 man-hours have been worked since start-up on 1 March 2004 all 'lost time injury' free. This is despite our move into some very challenging terrain and having proportionally less mechanised operations.

Olsens approach to health and safety is a simple one. We participate in many industry forums, pay attention to those things 'tried and tested,' and then commit ourselves to the implementation of best practice. The 'lessons' we have learnt

and procedures we have put in place (detailed below), combined with hard work and diligence, are paying dividends.

- Safety is driven from the CEO down.
- Every single employee is measured on their contribution to safety and health.
- Establishing a common company goal – a single focus for all.
- Employee participation – involving those who deal with the hazards in practice.
- Providing safety training on as wide a scale as possible – starting with management.
- Holding regular safety meetings – keeping people involved.
- Regularly and rigorously auditing safety compliance.
- Managing workplace impairment in particular that caused by substance abuse; and
- Focusing on rehabilitation and the early return to work after minor injury.



It is Olsens' goal to continue to improve the safety and health of its staff and contract workers. Better health and fewer accidents benefits everybody: the workers, our contractors and our clients.



Olsens' Environmental Manager, **Kit Richards**, accepts the opportunity to assist DOC to relocate a juvenile North Island Brown Kiwi to a new site.

BETTER SOFTWARE – *more efficiency*

Computer software is becoming easier to use, more efficient and in many applications a repository of knowledge. The Olsens Forest Information and Planning System, or FIPS, is at the heart of our business. All transactions related to forest management and harvesting services are stored in one database that is used to pay contractors and suppliers, to maintain the forest stand records, client reports and invoices. It is the central repository of our company knowledge. All our branches are linked to this system and staff can access the system through a secure internet connection as well. The FIPS system allows our forest managers to work more effectively and efficiently.

▲ Log Tracking

Associated with this system is a log tracking system, which we use to monitor and control the production and delivery of logs, the payments of harvest contractors and the payments for the logs. FIPS and log tracking systems are continuously improved to enhance their functionality and improve the efficiency of our service delivery. In 2004 we expanded our area under management from 60,000 to 125,000 hectares and our log harvest from 50,000 to 125,000 m³ per month. The increased workload has allowed us to enhance the software we use to manage our business for the benefit of all our clients.

▲ Forest Management Tools

Olsens also uses decision support software that is developed externally. During 2004 we purchased two new software packages: YGen (Silmetra Ltd) and Woodstock (Remsoft Inc.). YGen allows us to process mid-rotation and pre-harvest inventory data and estimate yields by log grade at the time of the inventory and in the future. It replaces MicroMarvl and GroMarvl, but can be used to process and grow Marvl inventory data. YGen incorporates individual tree growth models developed by the Radiata Pine Stand Growth Modelling Cooperative, a research co-op of which Olsens is a founding member. The YGen software allows us to separate sweep and branch characteristics from other stem features of trees in the sample plots. This, combined with the use of individual tree growth models, allows us to project growth and yield more accurately and efficiently.

The Woodstock model replaces the Interactive Forest Simulator (IFS). The Woodstock model allows us to model the stocks of wood in a forest, simulate harvest and silviculture and model the impact of various management options in terms of cashflow and present value. An associated linear programming optimiser allows us to define an objective function (say maximise present value) and a set of constraints (to ensure that the solution is practical). The model will then calculate the optimum solution. The Woodstock software will be used to model relatively large forest estates for valuations and for medium and long term harvest planning.

The Olsens software tools are getting sharper. We use these tools to maximise the returns on your forest investment: to monitor and control costs and revenues and to improve the basis for our professional advice.

Log Markets – Export

Export Log Markets

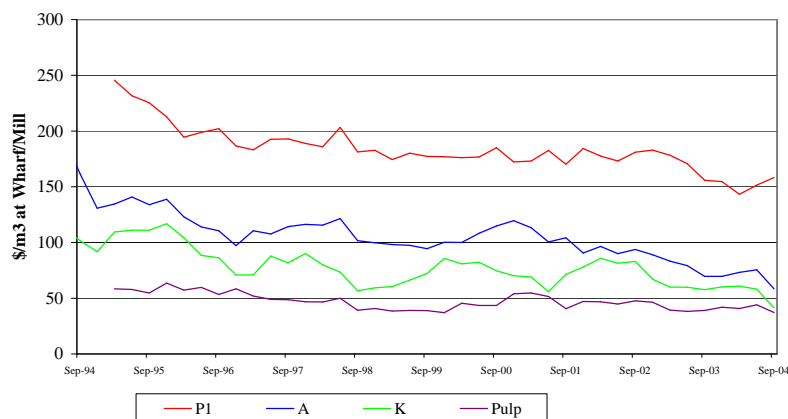
Forest owners continue to suffer low returns from log exports due to the twin impacts of the high \$NZ/\$US exchange rate and high ocean freight costs to Asia. While the delivered price of Radiata pine in US\$ remains high, Asian countries look to the Russian Far East as an alternative source of wood supply. This applies particularly to China, which has direct rail connections to the Russian Far East.

Russia has indicated it will increase levies on export logs. An increase in these levies will impact on Russian log prices. A drop in the value of the NZ\$ to about US\$0.55, a 30% drop in shipping costs, or 17% rise in the overseas US\$ price are sufficient for log prices to get back to their 10-year average. While each of these events are possible, the combined impact of a relatively small positive movement in each of these variables would be the same.

Latest market intelligence is that inventories are now very low at both Asian and NZ ports. We can expect this to lead to some reasonable price increase over the next few months.

The graph below compares the \$NZ delivered prices, at mill or wharf gate, for four grades of logs in New Zealand (prices surveyed by MAF).

NZ RADIATA PINE LOG PRICES 1994-2004 (Cpi Adjusted)



Domestic Log Markets

Domestic log prices continued to provide better returns than export prices in the second half of 2004. Buoyant construction activity in New Zealand and Australia resulted in steady prices for high-density large diameter logs with small branches that are suitable for milling to structural grade timber. Construction activity in Australia and New Zealand is at a cyclical high and is expected to decline in the next few years.

During 2004 harvest levels from forest owners, Carter Holt Harvey and Kaingaroa Timberlands in particular, have been reduced. In the Central North Island harvest levels have been reduced by some 2 million m³ (about 20%) and other regions such as Northland and the East Coast have seen cutbacks in their harvest levels. This has helped to support domestic log prices in particular.

The price margin between pruned and unpruned logs widened over the past half year while the overall log price level declined. This has strengthened the rationale for pruning stands.

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