

Processing and marketing timber clears

Shaun Cawood

The value of pruning has come under scrutiny in the recent past, largely as a result of change in market demand away from long-length clears. Today the market for clears is a lot more stable and balanced. The markets for boards in the United States, chemical modification particularly in Europe, manufacturing in Asia and the New Zealand domestic market are presented as evidence. Along with market development, sawmillers have improved their management of the conversion of pruned logs, including using more optimising technology. Both recent sawmilling and market developments should give foresters confidence that the future of pruning remains strong.

Sustainable future of pruned logs

Domestic sawmilling is a critical market for the sustainable future of pruned logs. There are additional hurdles for exporting pruned logs such as sapstain and maintaining infrastructure during dips in export log pricing. The price of pruned logs dropped for a period of some 15 years. This was mainly associated with increased production from Chile and a decline in the market preference for long clear solid moulding products in houses, particularly in the United States. The coup de grace was the major swing to medium-density fibre board (MDF) and finger jointing as substrates for primed mouldings. Clears had seemingly lost their space in the global market.

Today, sales in high grades from pruned logs are more balanced and across a more diverse range of markets. Sawmillers have become more proficient in optimising the conversion of pruned logs into higher

grade timber products. These factors make for a steady market price for pruned logs over the foreseeable future.

CRI – the sawmiller’s pruned log index (PLI)

Pruned logs are expensive and rightfully so. Pruning is an expensive operation that has additional implications on stand volume through the removal of green crown and the lower final crop stockings required to increase the size of the butts. By the time sawmillers get their hands on the expensive pruned log, they must achieve the best grade outturn from its conversion, just to survive. Pruned logs conjure images of clear boards, but every pruned log also has a defect core, corewood and pith. These produce low grade boards and are priced in the market at below the recovery cost of fibre. Therefore a sawmiller must track and maximise the recovery of higher grades.

Every sawmill has a different interpretation of their grades and even a straightforward grade, such as clears, can vary by mill depending on the allowed defects. Most mills have a high grade based on the NZS 3631:1988 Visual Grading Rules ‘Dressing Grade’, although this too varies by mill depending on their target markets.

The CRI measure is not meant to replace Park’s (1989) PLI as an absolute measure of pruned sawlog quality. It does, however, have strong utility to sawmillers. It describes the outturn in actual saleable grades that can be immediately valued with real market sales benchmarks. The measure builds in the individual sawmill constraints of the primary and secondary breakdown, technologies as well as the grading and sorting processes. In other words, it expresses the

A sawmiller’s view on the quality of the pruned log is dominated by the CRI or clears recovery index (CRI). This is typically the percentage recovery of the top three grades and can be measured as:

$$\text{CRI} = \frac{\% \text{ outturn of clear timber grades produced (clears, \#2 clears and dressing)}}{\% \text{ of pruned logs consumed}}$$

Note: when cutting a pruned log trial, or all logs cut are pruned, the denominator is 1.

outturn in terms that are achievable by the mill. But perhaps the most important use for the CRI is as a key performance indicator (KPI) as the CRI can be compared for different log sources.

The CRI performance can also be recorded against different shifts and over a whole month, year or years. Progress is measured in realisable terms with improvements immediately converted into returns for the business. This is achieved even though the portion of pruned logs varies significantly from month to month, depending on log availability. As a general rule of thumb, based on accepted sawmillers' experiences, pruned logs in the North Island yield close to 10% higher CRI than logs from the lower South Island and West Coast.

One of the worst defects from modern day harvesting practices is damage from harvesting head rollers. The 'pineapple' imprints often transcribe across to the opening faces of the outside boards and can seriously lower the CRIs achieved.

Green sawn realisations

Most sawmills have systems that enable them to attribute returns or losses back to the source of logs. In-market realisations are worked back against the various processing costs to green sawn realisations by

timber grade. When this is compared against the grade outturns from a cutting trial, or a particular run of logs, the profit or loss can be determined.

More balance in the markets

Clears are sold across a range of markets.

United States board market

This market is dominated by Big-Box stores and hardware chains that sell a retail product – dressed boards complete with individual barcodes. These products sell with mark-ups similar to the wide range of other products offered on the shelf of the hardware store. They frequently are in the higher earning end of the product stock-keeping units (SKUs) that a store might hold.

The United States board market demands quality. This market also deals in imperial sizes that do not match the typical New Zealand mill set-up. The product range is typically limited to six to 20 foot lengths, but dominated by eight to 16 foot lengths. Even given all this, the single biggest constraint is the channel to market. Retail stores cannot tolerate stock outs or tolerate high inventories, so many stores are supplied by very well-run warehouses offering overnight deliveries of multiple SKU packs.

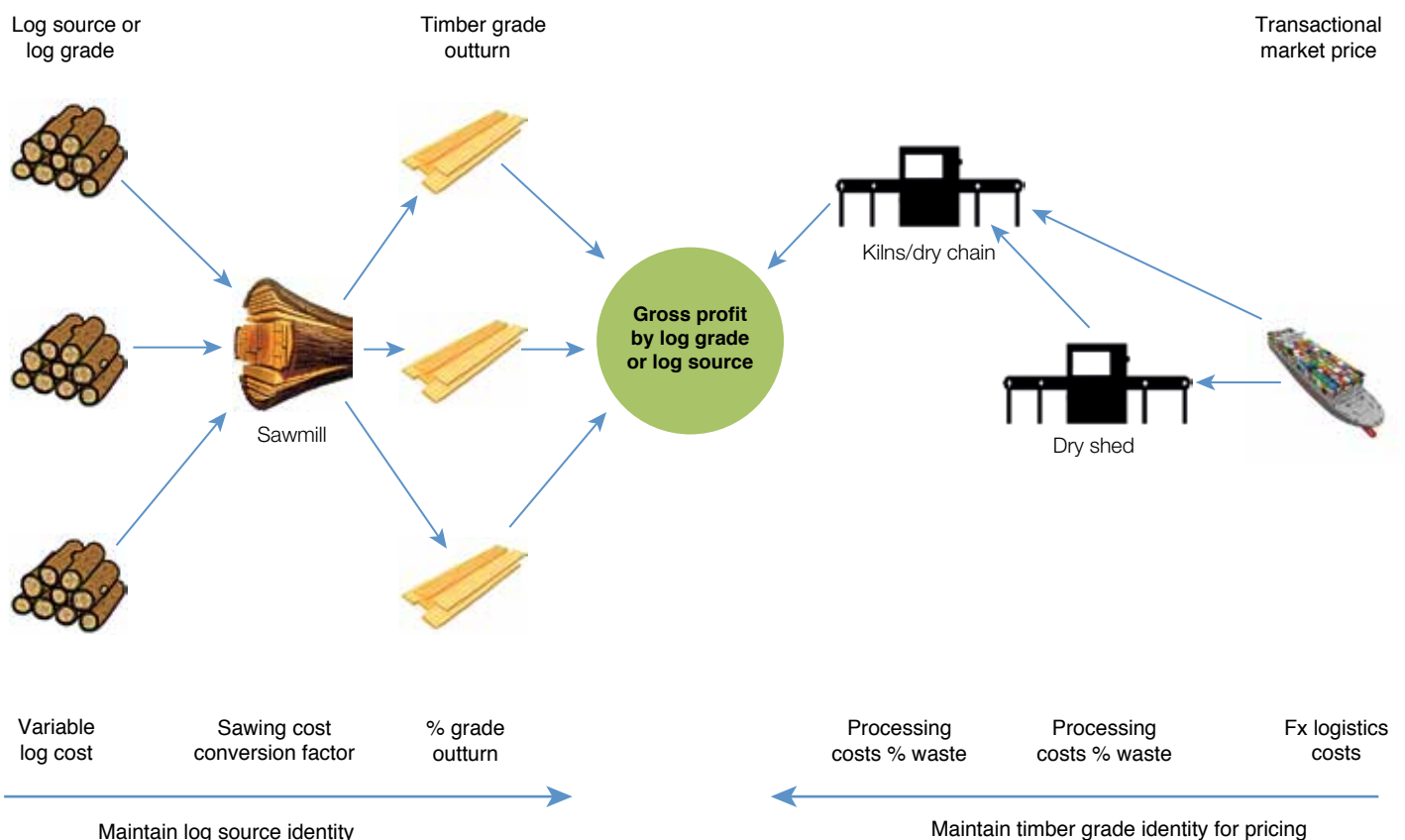


Figure 1: Calculation of gross profit at the point of exit from the sawmill green chain

Table 1: Percentage of imports into China from NZ

Import fibre into China by source	2015	2014
Timber imports from NZ as a percentage of total timber imports	1.6%	1.4%
Log imports from NZ as a percentage of total log imports	24.2%	22.8%

New Zealand sawmills either have to sell to small stores or niche traders, or they have to run with the giants, committing large resources and volume to ensure the channels are consistently stocked. The latter option is therefore dominated by a small number of larger individual suppliers or groupings of medium-sized suppliers.

Radiata clears compete well with the main substitute species of Southern Yellow Pine, Eastern White Pine and Ponderosa. Once a supply chain is stocked and a market gets used to a particular species, the barriers for substitution are high, although not insurmountable. Radiata clears have a solid place in this important market.

Rise and rise of chemical modification

There has been a steady rise of demand to chemically modify softwood into a hardwood substitute or into an architecturally specified product, most notably in Europe. A large range of species can be successfully thermo-treated, but the list is smaller for chemical treatment. Successful treatment requires good absorption of the chemical, including around defects such as knots and growth rings. Radiata takes to this treatment very well.

Sales of the chemically-modified product are on a steady growth trajectory, only limited by processing capabilities and the supply of raw material. New manufacturing plants are being built which will continue to support demand for radiata clears moving forward. Length and sizing constraints are significant for supply to this market. The new manufacturing plants being built will relieve this somewhat as they are designed to take a larger range of dimensions.

The domestic market

This important market is small and very dissected, frequently requiring shipments of packs of timber as opposed to truckloads. The domestic market is however consistent. The diverse range of products being manufactured from clears requires regular and frequent production cycles.

Asia

While the American and European markets place high restrictions on length and dimensions, Asia consumes what remains. It is a critical market segment to the sustainable sales of clears if a sawmiller does not have a dry shed option to consume the arising sizes internally. China alone is a big market, and although New Zealand dominates the log imports, the level of timber imports continue to be low (see Table 1). Kiln-dried timber sold into Asia does not have the blue stain frequently seen with pruned logs sold into the same market. With the rising cost of labour, there has been a definite market move towards higher grades that require less manual input. This move includes longer length clears with lower waste factors.

Summary

The United States, European, domestic and Asian markets together provide New Zealand timber exporters with a sustainable mix of markets that show potential reaching forward into the future. This market mix has come a long way over the last few years from one where the volume was predominantly sold into long length mouldings.

Sawmillers have also evolved in the way they view and track log quality and their performance of the conversion. Multiple innovative sawing techniques are deployed to maximise the value extracted from the expensive pruned logs. Log in-feed systems have extensive scanning abilities, and when combined with simulation software, they enable the sawmiller to fine-tune and optimise their cutting patterns. With these developments comes a lot more certainty for foresters building an estate that includes a component of pruning.

Reference

Park, J. 1989. Pruned Log Index. *New Zealand Journal of Forestry Science*, 19: 41–53.

Shaun Cawood is Chief Executive Officer of Craigpine Limited based in Winton. Email: shaunc@craigpine.co.nz.

