



IDENTIFYING INHERENT WOOD QUALITIES BOOSTS STUMPAGE RETURNS

INTRODUCTION

Wood with higher stiffness and with higher density confers advantages for users of lumber and other processed wood products such as LVL. Whilst it is widely recognised that older trees have denser wood, it is less recognised that site influences wood density significantly. Wood from sites with higher mean annual temperatures produce wood with higher density. Therefore, wood grown in northern climes has higher density, as does wood grown in sheltered, coastal sites.

TOO YOUNG TO KNOW

A situation arose recently where Olsens commenced harvesting an unpruned forest aged 25 years on the East Coast of the North Island. Initially the marketing mix saw the large, unpruned sawlogs being sold as export grade logs. Whilst there was strong demand for higher priced LVL (peeler) logs to a local processor at the same time, the LVL log specification had a minimum wood age of 30 years. This was to ensure that the logs met minimum density/stiffness criteria. The large diameter (minimum 30 cm small end diameter) and small branches (maximum knot size of 10 cm) required for this grade of logs were easy to assess visually and the 30 year minimum age was used as a crude and indirect criteria for density/stiffness.

LOCATION, LOCATION, LOCATION

Olsens had an inclination that the sheltered, coastal site of this forest could, in fact, produce wood of significantly higher density, even at 25 years of age. The challenge was to inexpensively measure this variable and evaluate whether the logs actually fitted the LVL density/stiffness criteria.

SONIC TESTING

In this instance a number of trial loads were sent to the Fletcher Challenge Forests sawmill in Kawerau. This mill focuses on producing high quality, structural lumber and, prior to sawing, all logs undergo sonic testing to determine wood density/stiffness.

The results of this sonic testing indicated that the average log density/stiffness was sufficiently high for the logs to be acceptable for structural use (lumber and LVL), despite coming from a stand of only 25 years of age.

INCREASED RETURNS TO FOREST OWNER

Armed with this information it was possible to return to the original LVL producer and demonstrate that the logs Olsens were marketing fitted their requirements well. Subsequent negotiations lead to a log supply contract benefiting both forest owner and processor. This enabled this type of wood to be sold at an on-truck price \$30/tonne higher than the export log option. This was an increase in stumpage of \$4,500/hectare.

This process highlighted some important features regarding marketing logs:

- While external visual characteristics are important, internal quality plays a critical role in determining quality of the processed product.
- Some guidelines to internal quality do not hold true in all cases, i.e. that age is the only determining factor in log density/stiffness.
- An understanding of wood quality, how it is measured, and how it relates to the value and performance of processed products is critical to ensuring that wood is marketed to the best advantage and the best stumpage returns are achieved.

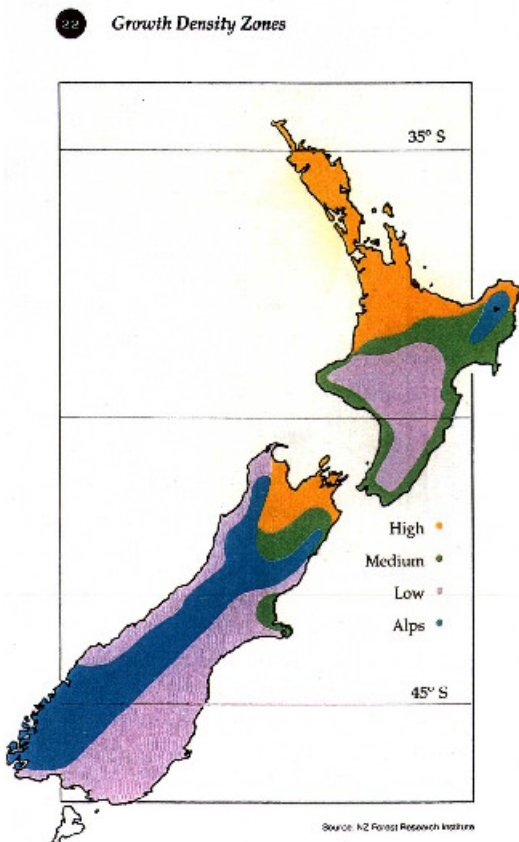


WOOD QUALITY INITIATIVE LIMITED

Olsens is a member of the pan-industry Wood Quality Initiative (WQI Limited) led by Dr Keith Mackie. The objective of this initiative is to identify key wood quality parameters and to develop tools and processes for identifying and allocating wood into the highest value end uses. Olsens brings its own experience and this research into the application of its harvesting and marketing services.

DRIVERS OF WOOD DENSITY (see table below):

Figure I



Driver	Relationship
Latitude	Generally lower density in southern latitudes and higher density in northern latitudes, (see Figure I).
Microclimate/ geography	Generally higher density in sheltered, coastal areas.
Fertility	Low fertility sites generally have higher density.
Age	The longer the rotation age, the higher the average density will become as higher density wood is grown on the outside of the tree (see Figure II).
Position in tree	Logs from higher in the tree tend to have lower average density.
Genetics	Earlier breeding programmes focused more on growth and form than density. Nowadays, people are able to choose seed sources with a particular density characteristic. The GF Plus scheme rates seed sources for basic wood properties as well as growth rates.

Figure II

