

## Timber Quality – Impacts on Processing

This Guidance Note is one of a series summarising information presented at a seminar on “Improved Conifer Timber Quality through Plant Selection and Silviculture”, held in February 2009 as part of FC Scotland’s [Timber Development Programme](#). It is an outline of a presentation delivered by David Leslie of [James Jones & Sons Limited](#), considering the impact of conifer timber quality on primary and secondary sawmill processing. The presentation itself is available for download through the [seminar web page](#).

### Introduction

Despite the economic downturn James Jones & Sons has continued to make major investments in softwood sawmilling capacity in Scotland. These include, in 2008, the installation of a biomass plant at [Aboyne](#) and a new edger at [Kirriemuir](#), and in 2009 the construction of [Lockerbie 3](#), a state-of-the-art carcassing mill producing 140 000 m<sup>3</sup> of sawn timber a year and requiring a roundwood supply of 235 000 m<sup>3</sup> a year. Overall the company’s annual roundwood demand is expected to increase from 600 000 m<sup>3</sup> to 1 million m<sup>3</sup> by 2013. Central to the continuing development and expansion of the company are the quality, availability and sustainability of the roundwood resource.

### Timber Quality Issues

Aspects of timber quality that have an impact on sawmill processing can be considered under the acronym **SIRT**:

**S**traightness – trees and logs which are not straight can display sweep (gradual bends over the entire length of the log), crook (sudden deviations over a short distance) or corkscrew features (twisted growth or bends in two or more directions).

**I**ntegrity – includes the presence of rot or degrade, wood stiffness and grain angle.

**R**oughness – includes knot size and frequency, included bark, butt flares and distortion

**T**aper – includes excessive or inconsistent taper and ovality

Each of these elements of timber quality can have a direct impact at different stages of the value recovery chain. Table 1 summarises these impacts, highlighting which aspects are important during the various processes.

**Table 1: The impact of timber quality on stages of the sawmill value recovery chain**

		Straightness	Integrity	Roughness	Taper
<b>Harvesting</b>	Timber recovery	✓	✓	✓	✓
	Wear and tear			✓	
	Cost £/T		✓	✓	
	Crop information	✓	✓	✓	✓
	Availability	✓	✓	✓	✓
<b>Haulage &amp; Handling</b>	Loading		✓		
	Transporting				
	Conveying	✓	✓	✓	✓
	Debarking			✓	✓
	Scanning		✓	✓	
	Storing				✓
<b>Sawmilling</b>	Conveying	✓	✓	✓	✓
	Sawing	✓	✓	✓	✓
	Chipping			✓	✓
	Breakout	✓		✓	✓
	Co-products			✓	✓
<b>Secondary processing</b>	Kilning	✓	✓	✓	✓
	Grading		✓		
	Planing/resawing			✓	
	Treating		✓		

Other consequences of variations in timber quality for softwood sawmilling include:

- Reputation – products produced from poorer quality timber that reach the market can damage a company's standing with their customer base.
- Morale – problems with roundwood quality can be dispiriting for staff, causing reduced efficiency.
- Availability – variable quality can affect the output of different product categories.

- Return – poorer timber quality can result in increased net sawmill costs, affecting the company's return
- Competition – if a company's reputation is damaged by the production of sub-standard products, customers may turn to competitors to fill their orders.

For a sawmilling company the priorities for selling sawn softwood and maintaining market share are:

- To ensure material is fit for purpose
- To ensure that it meets strength class and standards for the intended end use
- To provide adequate and accurate information about the timber to customers
- To be able to supply what is required when it is required.

So what are James Jones doing to address the issues arising from variable timber quality in the conifer roundwood supply?

1. Investment in innovation - the new Lockerbie 3 sawmill will use a combination of the latest 3-dimensional laser scanning technology, photography, acoustic measurement, curve sawing and state-of-the-art edging systems to deliver an optimised cutting pattern from each individual log. In addition the mill can accept logs up to a maximum diameter of 75 cm, widening the specification of material that that can be processed and providing additional flexibility. These features will maximise yield and value from a variable roundwood supply.
2. Research & Development – James Jones is involved in a number of research projects, working in collaboration with UK and European Research Institutes. One example is the [WoodValue](#) project which aims to develop a standardized methodology to define, measure and value the efficiency and profitability of key wood supply chains in Europe.
3. PR, representation and advertising – this includes product development and marketing, involvement in industry groups and consultation.

## Conclusions

The timber quality of the conifer roundwood supply is a key factor in the investment decisions and development direction of James Jones. Although quality is variable and poses many challenges, James Jones has to deal with the supply that is available and make the best of it, to ensure the company's future. To do this James Jones' approach is:

- To focus on obtaining maximum recovery and yield from the available roundwood supply
- To maintain efficiency through investment in innovative processing technology
- To maximise value to the grower
- To maintain reputation in the market through rigorous quality control of output
- To maintain the sustainability of the supply chain to market.

**Links to further information**

James Jones & Sons Ltd: [www.jamesjones.co.uk](http://www.jamesjones.co.uk)

Confederation of Forest Industries: [www.confor.org.uk](http://www.confor.org.uk)

United Kingdom Forest Products Association: [www.ukfpa.co.uk](http://www.ukfpa.co.uk)

Forest Research Timber Properties Programme: [www.forestry.gov.uk/fr/HCOU-4U4JEQ](http://www.forestry.gov.uk/fr/HCOU-4U4JEQ)

Edinburgh Napier Centre for Timber Engineering: [www.cte.napier.ac.uk/](http://www.cte.napier.ac.uk/)

SIRT Project: [www.cte.napier.ac.uk/SIRT/](http://www.cte.napier.ac.uk/SIRT/) or <http://woodresearch.blogspot.com/>