More on wood quality

Sir

John Walker’s contribution “Clauswitz on forestry” in the February issue made some good points. The issues mentioned are well presented in John’s usual style but they are nothing new to people who are interested in quality. Several people (including John himself) have given this information at numerous public meeting and workshops over the years. In particular, the statement “until 2004, foresters had not investigated such effects” is totally wrong. He ignores the wood quality, silviculture and breeding research at Rotorua for the past 50 years, starting with Orman (Timber engineer), Harris (Wood Quality scientist) and Ib Thulin (Tree breeder).

Wink Sutton’s comments in the same issue are enlightening and address some of the same issues in a more pragmatic fashion. The Radiata Pine Task Force in the 1970’s (coordinated by Wink with strong industry input) documented many of these issues, as did other research/industry initiative (John Kininmonth’s Conversion Planning in the 1980’s; my own Value Recovery Initiative in the 1990’s). Conversion to products and assessment of stiffness and stability of structural lumber were important components of these research programmes and clearly revealed the deficiencies of short rotation radiata. They all set out to address the economics of growing wood products. Many sawing studies (including machine stress grading and distortion assessments) highlighted the deficiencies of fast grown trees and short rotations. Breeding research also focused on branching and wood properties as well as growth, BUT the forester’s mindset remains firmly to grow volume, and so genotypes with improved wood quality have not been widely adopted.

As pointed out by Sutton, pruned regimes have driven a large part of the industry to maximise diameter growth at the expense of upper log quality. Given the commercial availability of fast-growing genotypes, the result has been predictable for at least 30 years - the final log quality of the unpruned upper logs in pruned regimes is lower due to younger wood and larger branches, but financially this is hopefully more than compensated for by the increased value of the larger pruned log. The result is a supply of large pruned logs but an overall decrease in availability of good structural material.

The industry in general accepted these facts, but failed to seriously address them - preferring instead to rely on short term measures such as log and lumber grading. The impacts became progressively more serious as markets responded and financial returns decreased, and lead on to the establishment of the WQI Consortium in the 21st century to once again address quality issues.

So what is the problem? Is it the nature of the preferred species or the attitude of forest managers?

For softwood plantations worldwide the same issues exist - juvenile wood has been recognised as the source of problems and described since early 1960’s. This is produced in early growth rings irrespective of growth rate (faster early growth - more juvenile wood) but the impacts have only become worse as companies continue to chase stem volume as a priority. Radiata pine has distinct growth advantages but also some deficiencies in branch response and juvenile wood. Silvicultural and breeding options to minimise branch size and restrict juvenile wood are available but costly. In fact, on the global scene only short rotation hardwoods have made real significant improvements in quality (mainly Eucalypts in South Africa and Brazil).

In the short term pragmatic solutions are necessary - material segregation for end use - but in the longer term improvements to juvenile wood quality are necessary (as pointed out by Walker). There is no doubt that site and silviculture contribute to quality - but only within limits, and at a significant cost. The one bright light for wood quality has been the increasing availability of clonal material - where uniformity and the individual stem variation can be used to advantage - but issues with costs, juvenility and lack of demonstrable improvement in quality have restricted implementation so far.

As Sutton points out, there needs to be a convincing argument to induce foresters to adopt a different approach to their business. Clearly, to date, that argument has not included a serious evaluation of the long term impacts of growing mediocre wood. There is still a lot of scope for continued wood quality research in New Zealand.

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