

David Elliott's letter - a response from one of Fenton's acolytes

Sir

David Elliott in his timely letter "The Alice in Wonderland World of New Zealand Wood Quality and Log Pricing" (page 30, NZ J. For. 56(2) of Aug 2000) presents a very good summary of present market conditions and possible solutions. His letter begins with the statement that "Fenton and his enthusiastic acolytes were wrong...". As one of those "enthusiastic acolytes" I feel bound to respond and to explain why we were passionate advocates.

In the 1960s a new research group - The Economics of Silviculture - was established at the Forest Research Institute in Rotorua and I was appointed as one of its scientists. We had responsibility for researching all aspects of radiata pine silviculture.

Two general, but related, principles soon emerged:

The size and wood quality of trees at harvest are very largely determined by the decisions at the time of planting (eg the initial spacing) and by the timing and intensity of subsequent pruning and thinning. In other words, the marketability of the trees at harvest is determined by decisions made 20 to 30 years earlier.

As a guide to early decisions today's wood market is almost totally irrelevant. The only market that matters is that which will exist on the day of harvest.

The subject of future silviculture (especially pruning and thinning) was the subject of Symposium 12 in 1970. By about 1940 New Zealand had established enough plantation area to satisfy the domestic wood demand for at least the next 50 years. Any additional plantations were therefore destined for export markets.

During the early 1970s our research focused on the question of "what wood product(s) offered New Zealand the best long term export prospects?" In 1972 I was awarded an NRAC Scholarship to do a D. Phil - "An evaluation of New Zealand's Forestry

Export Potential". That 1975 thesis was to be a major support in my (our) advocacy for intensive silviculture.

In my thesis I attempted to evaluate the world wood market in the year 2000 when New-Zealand plantations, established and tendered in the 1970s, would be finally marketed. I was aware that we were unlikely ever supply more than a few percent of the world's wood supply but could our plantations be managed in such a way that gave us a long-term sustainable competitive advantage?

Although in the 1960s and 1970s the log export trade had been very profitable, no one foresaw the log trade continuing for the next 30 to 50 years. The log trade was then almost exclusively with Japan with just over a third of our solid wood exports being in log form.

Just before I began my thesis Meadows et al published "Limits to Growth" (1972, commissioned by the Club of Rome). Not surprisingly, this influential publication ignored wood completely - they were obviously not aware that, at the global level, more wood was being used than all of the major food products **combined!** Meadows et al convincingly put the case that most global resources would soon be limiting. Even though it was very tempting, I was most reluctant to adopt a similar approach. I was very conscious that a global wood shortage, although periodically predicted since the late 1880s, had never eventuated.

In the 1960s and early 1970s there was no shortage of those who predicted that solid wood had no future. Duerr (1968) (a forest economist of some standing) wrote of processes "*...in which wood is kept nearly in its natural state are technologically backward... are an anachronism amidst economic development, and their days are numbered...[on the other hand]...Those lines of production in which wood is broken down into small pieces or fibres or molecules are... technologically progressive...are in harmony with economic development and receive their rewards on account of it*". Zobel (1970) (widely considered the father of modern tree breeding) wrote that we should "*...not be too much influence[d] by the traditional emphasis on solid wood products.*" Our own Forest Industries Review (5(6)

page 1) in a 1974 editorial predicted “...that in ten years time most timber will be reconstituted and faced with veneer.” It is hard to imagine anyone investing in radiata pine plantations just to grow what is little more than a residue product – the late Leith Knowles used to liken growing a residue crop to raising sheep for just their dags and for making blood and bone.

In spite of the arguments against I was confident that solid wood (sawntimber and plywood) would remain a dominant wood use. We couldn't breakdown wood into small particles and recombine them without some loss of strength and without the use of more energy. The first energy crisis of the early 1970s increased our general awareness of the importance of energy efficiency.

Being convinced that solid wood offered the best long-term prospects for our radiata pine the choice was between framing and clearwood. Although radiata is a very good packaging timber such an end-use was unlikely to attract premium returns. Our silvicultural research had suggested that we couldn't maximize clearwood production while at the same time grow quality framing. In the 1970s routine machine stress grading (MSG) was not envisaged. Timber grades were generally decided by knot (branch) size. Although radiata pine framing is used in both New Zealand and Australia the species compares unfavourably with premium framing timbers overseas e.g. Douglas-fir, Southern pine, etc. To grow our radiata pine with knots (branches) small enough to be comparable with the premium grades of North America or Scandinavia we would have to have high initial stockings (at least 3000 sph and probably much higher) combined with a very late thinning. Had MSG been more widely adopted radiata framing would have been found to be not as stiff as quality framing such as Douglas-fir or Southern pine - a additional reason for not expecting our framing timber to be internationally competitive. There was no doubt that in the global market our framing would never be a superior product. Pruning late thinned stands that had been planted at high initial stockings was not a viable option.

Radiata pine established at wide initial spacings with heavy and early thinning is capable of growing trees to a large diameter. With timely pruning such trees can produce a butt log with a high proportion of clearwood, ie Clears comparable in quality to Ponderosa pine (then, as now, the premium finishing coniferous timber in North America).

An evaluation of the world's forest resources showed that most of the old growth coniferous resource would have been exploited by the year 2000. Most of the yet to be exploited “natural” forests, together with almost all of the regrown old growth stands, would produce only small trees (but trees with small branches) - trees that would produce quality framing but almost no clearwood.

I was convinced that New Zealand's best long-term forestry prospects were in growing clearwood (ie wide initial spacing, heavy thinning and timely pruning). Only with clearwood could we establish a competitive global advantage. As New-Zealand couldn't grow a superior framing we shouldn't even try.

In the 1970s and 1980s there were so few timely pruned trees available for sawing that there was no established market for long length clears. How do we then convince growers to timely tend their plantations when there was no market for well pruned logs and such a market couldn't exist until a large volume of pruned logs was available for sawing and peeling? A classical “Catch 22” dilemma.

To promote timely pruning and thinning our research group gave hundreds (possibly thousands) of presentations throughout New-Zealand. There were some who questioned our concentration on intensive management. Their fear was that with all our pruning there could be a surplus of clears. In the 1970s my estimate of the market for clears, just for the USA market, was a little over 10 million m³ while our total production (assuming all plantations - both private and state - were pruned) could not to exceed three million m³ by the end of the century. There were a few sawmillers who maintained that clear radiata pine was not a quality product. In the late 1970s the most vocal objections to our advocacy for intensive management came from Northern Pulp. Their argument was that pulpwood would soon be more valuable than sawlogs. I never accepted Northern Pulp's line of reasoning.

The present wood prices, including the price of well pruned logs, are my worst nightmare. I (and probably most others in the forestry sector) certainly never foresaw it. We have plantation owners deciding now not to prune increasing proportions of their estates. But what alternatives do we have? We can't grow quality framing and it is very doubtful we can profitably grow radiata for pulpwood, bio-energy,

wood reconstitution products such as particleboard, MDF, etc. We certainly have no comparative advantage in growing these products.

Is our future just to grow low quality logs for China and India? If the future is in low quality plantation grown wood wouldn't an international investor be attracted to invest in the plantations in South America rather than New-Zealand?

The current low price for wood is universal and not restricted to New-Zealand. For example, The Forestry Source 14/11 (the internal newsletter of the Society of American Foresters) for November 2009 reported that composite framing lumber grade reached a high of US\$474 per 1000 board feet in August 2004. Since then the price of the same lumber grade has declined – in January 2009 it reached a low of US\$190 per 1000 board feet (a fall of 60% in less than 5 years!). The current (September 2011) price has only improved slightly – US\$265 per 1000 board feet.

When it is clear (defect free) radiata pine wood is an excellent finishing timber. Is it possible that the international market is now so small that the price remains so low? To continue to have faith in both radiata pine and in pruning we must have a processing industry that develops markets for our clears.

Have we done enough to develop overseas wood markets, especially for clears?

I'm not sure we have. In the mid 1990s I was working for Fletcher Challenge Forests and the company had a joint venture (JV) with a North American company that marketed radiata mouldings. The American head of the JV came to New-Zealand concerned about the long-term supply. Concerns quickly satisfied with a drive around our plantations. I took him on a forest tour and at the end of it he said something like "you mean you were pruning trees in the 1970s for us in the 1990s". I proudly replied "yes". He then shattered my confidence by saying, "but you never told us what you were doing". Are we yet to use this as a marketing aid?

The market for our plantations has not evolved as I (we) predicted but I do not accept we were "wrong". We can only be accused of being "wrong" if an alternative approach and rationale had been advanced in the 1970s. Northern Pulp did suggest an alternative management regime but the country

would now be worse off if its regime had been widely adopted.

Our confidence in pruning may be diminished but I remain convinced we should not have done things differently. And I think we should not do things differently in the future. One day (and this may not be too far off) our confidence in intensive stand management should be restored.

Wink Sutton