The influence of markets & processing on silviculture

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Introduction

The recent decision by CHH to quit pruning has re-opened discussion on what is the most appropriate silviculture for New Zealand foresters to pursue. I'd like to offer a perspective from a processor's view.

Context of silvicultural decisions

Historically, New Zealand has committed itself heavily to pruning, largely based on the early research work of FRI, and the enthusiasm of Dr. Sutton and the Conversion Planning Group for the potential of pruned clearwood. Based on the tree quality of that time, and the site and silvicultural interactions, the quality of wood expected was probably the lowest risk, best value option. Certainly, the potential export of framing products beyond Australia was unlikely to justify planting trees.

Subsequent changes in the industry in the 1990s have seen a declining quality of pruned clearwood, mainly as a result of the secondary effects of the focus on maximising volume per tree and per hectare, and the younger ages of clearfell. At the same time improvements in re-manufacturing, have swung the balance towards a more conservative stance - minimise costs early in the forest life.

Influences on value - Decision drivers

What factors have the most influence over the value of decisions to prune or not to prune? I would suggest that amongst the most important are the following.

Future relative prices and costs for pruned clearwood and finger-jointed clearwood

At the heart of the decision "To prune or not" is the expectation of the relative profit available from pruning, or growing unpruned stands. For the "prune" option, the revenue side is driven by price expectation for the pruned products targeted, and the revenue expectations of the falldown products. For the "not" option, the relative prices for finger-jointed products, and arisings are the focus. Clear lumber prices for New Zealand processors are currently influenced by U.S. Mouldings and Better prices. This market, with its large capacity, will probably establish a price indicator for some years. However, the price impact on New Zealand pruned logs (the value to the foresters) will reflect the costs and efficiencies of New Zealand processors in

Business Partnerships

Like much of the rest of the forest management operations at FCF, the CPYs are run on a contract basis. The concept here stems out of a plan to bring the company's workforce closer to the business in what has been a move from traditional contracting relationships to a series of partnerships.

Whereas FCF previously had more than 200 contractors, it now has just 11 "partners" as follows: three in harvesting; two in log processing; and one each in transportation, forest management (thinning and pruning), mechanical land preparation, aerial work, technical (measurement), and security.

FCF believes that the benefit of partnering is that those partners selected are able to have a much greater volume of work and they can be more responsible for the management of it. The concept gives the groups involved greater certainty and ownership of the business, therefore an increased stake in productivity and profitability.

For FCF, there is the added advantage the administration and costs are reduced and "ownership" of the forest management is shared with the partners. This has required quite an adjustment for FCF, in that it must be more proactive in communication and give more responsibility to others in terms of aspects of forest management. If FCF gets it where it wants to, its operations will be at the bottom of the international cost curve. However, the company recognises that the cost curve is continually moving to the left and therefore continues to look for further step changes to ensure it can remain competitive.

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manufacturing those products, as will the ongoing radiata discount over indigenous L5 products. In the face of the large increase in New Zealand's harvest, similar considerations probably apply to fingerjointed products from unpruned logs. The choice "to prune or not" will reflect the forester's view of the future relative supply/demand balance, and prices of those two market segments. Arguably, clearwood will always be in shorter supply.

On the costs side, this depends partly on the expectation of the quality of pruned clearwood to meet customer end uses, and therefore what recovery percentage of the pruned clearwood in the tree will actually meet the customer's requirements. Balanced against this are the present and future costs of re-manufacturing products from unpruned trees. In reaching the pruning decision, the forester will have to take a view on the real quality of his future clearwood, and the likely future costs and relative product quality, of manufactured products. These processing costs will reflect not only present costs, but processing capability 15 to 20 years ahead in the future. A rational decision must consider technologies as yet unknown, and their likely future cost and quality impact. It is here that the risk element of pruning costs today, versus possible future processing costs, 15 years later, with high discount rates, can be very significant in the decision.

At the heart of this "Pruning" decision, I would argue, is the Risk/Benefit analysis, which can reflect the enormous uncertainty of the decision. Pruning is a sunk cost today. It is a commitment to pruned clearwood. Not pruning saves front end costs, and leaves open the option to provide for similar markets with manufactured products, with costs that are faced only when the market need is known. Risks of low clearwood yields from resin pockets, or checking are reduced, partly from the different regimes, and partly from their lesser impact on lower value logs.

For some forestry companies, existing sunk investment costs in processing may be a factor. If efficient use can be made of existing plant then the effective costs of processing can be lower than if new investment is required.

**The effect on the quality and value of 2nd and 3rd logs of pruning**

The focus of pruning is on the pruned log. But the silvicultural regime has influence on the quality of the 2nd and 3rd log for other uses. Whilst domestic framing products return the highest margin to domestic processors, silvicultural strategies that reduce the quality of these logs will have a cost for the forest owner. The impact of faster growing (genetically improved), and wider spaced (to maximise the clearwood per stem) trees can cause large knots, and change potential framing logs into lower value product segments, with lower end product yields.

**The intended age of clearfell**

The planned age of harvest is also a factor. In principle, pruning regimes grow a "zero value" defect core for 15 years, and then put valuable clearwood on it year by year. Given a suitable clearwood quality (in terms of stability, density, and hardness), the actual end product yield is very sensitive to the SFD and log form. The end product value of a 1 cm extra diameter may well be much more than the increase in volume indicates. Present pruned log grading and sale methods do not yet allow the forester to capture a share of this improved value; but it may be within the realm of the possible to achieve before present pruned trees are harvested in 15 years.

The expected annual increment of the pruning and thinning regime on the specific site

Site quality interaction with regime is also a factor in the pruning decision. These key factors affect the growth ring width, and log density. These two qualities control stability and hardness, and both of these are important to end use customers. In their absence (or if they are at too low a level because of inadequate consideration), technologies may be available to rectify this, but the costs are presently high, and may never recover the avoidable losses.

**Market links for different log qualities or lumber products**

Finally, the pruning decision is affected by the forest owner's expected marketing relationships. Some forest owners can only sell logs. Their choice will be influenced by expectations of future log markets. Others have, or expect relationships with export clients with specific product needs. Their forests will be tailored to meet those expected needs.

**Risk / Benefit**

At the heart of the decision to prune is a complex risk - benefit decision, based on many unknown factors. There can be no right decision. All that is possible is clarity about the values the forester seeks to maximise; careful, and well documented analysis of the possibilities, and thorough analysis of the way the alternatives stack up against the target values. Future market uncertainty, and high earnings expectations enshrined in high discount rates, will influence the outcome. Using 'expected', rather than 'desired' values for key variables will increase the probability of reaching the right decision.

**But perhaps it is all too hard**

Corporate forestry has always existed between the long term view; and short term pressures. Currently, for the major players, the short term pressures are severe. So perhaps cash-strapped forestry companies are taking a short term cash-flow driven view that not spending today saves cash and makes the bottom line look good on my watch, and sorting out the mess in 15 years time will be some other mug's problem.

My guess. Carters are right. And Fletchers are right. It is just horses for courses. And of course, the diversity that different approaches show can only reduce our national risk, and benefit New Zealand.

**Applicants for Registration**

The following has applied to become a registered member with the extension to registered forestry consultant.

**Rob Ralph Lawrence**

Blenheim

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