

Pruning in a recession

Even though there's a recession, do we still retain our enthusiasm for pruning? Might carbon credits change our thinking?

In order to find the answers, the Journal of Forestry sent a questionnaire to 17 managers of the New Zealand forestry estate, including fifteen of the largest owners of forestry land:

Hancock Natural Resource Group
Kaingaroa Timberlands
Matariki Forests
Ernslaw One
Weyerhaeuser New Zealand
Juken New Zealand
Panpac Forest Products
Crown Forests (MAF)
Timberlands West Coast (Olsens)
Roger Dickie New Zealand Limited (Olsens)
Blakely Pacific
Wenita Forest Products
Forest Enterprises
Global Forest Partners
City Forests
NZ Forestry Group
Warren Forestry

Some fifteen of these enterprises responded. Due to the need for anonymity (commercial sensitivity) we were not able to link each respondent with an individual set of answers. Therefore, the results of this questionnaire are NON-QUANTITATIVE. They give an impression of the current thinking of some major players, rather than supplying quantitative data in the manner of the NEFD. The number of responses is in parentheses after each answer. Note that some respondents chose not to answer a particular question or else provided multiple answers for that question.

Question 1. What proportion of your radiata pine estate has been pruned or is scheduled for pruning?

- All of it (3)
- More than half of it (7)
- Less than half of it (3)
- None of it (1)

Commentary: The NEFD 2008 states that 58% of the radiata pine estate is pruned or scheduled for pruning, so this question's response is to be expected. Foreign visitors are often amazed by the extent of intensive tending in this country. We do seem to have put a lot of eggs into this particular basket, for better or worse.

Question 2. What is the ultimate pruned height you have hoped to achieve in your pruned stands?

- In most case, more than 6 metres (4)



Loppers are the universal preference. Photos: Euan Mason.

- In most cases, between 5 and 6 metres (9)
- In most cases, between 4 and 5 metres (0)
- In most cases, less than 4 metres (0)

Commentary: This is an interesting result. The NEFD defines "intensive tending" as "pruning carried out before age 12 so that more than 50 percent of the stems in the planned final crop stocking will contain a pruned butt log of not less than four metres in length", but it does not go into more detail about pruned height. In this survey, we have discovered that no respondents pruned to less than five metres (which, it could be argued, might be done for reasons of stand access, fire or disease control, or merely to concentrate on one or two clearwood peeler bolts). Instead, most respondents opted for a pruned height corresponding to two traditional North American stud lengths - a strange decision given that Gerard Horgan wrote some years ago indicating that a large proportion of clearwood in the American market is in fact utilized in relatively short lengths. Surprisingly, no less than four respondents pruned higher than 6 metres. But it has not yet been demonstrated that ultra-high pruning can be justified by any economic

analysis - in view of the smaller diameters, larger defect cores, increased pruning costs and safety issues that occur with the highest lifts. One respondent stated, "We target a pruned height of > 6 m, but if get to 5.5 m in two lifts, we won't prune anymore. This helps balance risks: ie some markets don't want more than 5.0 m, whereas others will take a 6.0 m length".

Question 3. Has your pruning involved

Fixed pruning lifts on every occasion (1)

Variable height lifts on every occasion (11)

A mixture of fixed lifts and variable height lifts (1)

Commentary: More than 20 years ago, Graham West, Alan Koehler and Leith Knowles showed that variable lift pruning was cheaper and more effective than fixed-lift pruning. It minimises growth loss while maximising clearwood. But the New Zealand forest industry (despite constantly praising itself for its sophistication) was very slow to learn this. It is therefore satisfying to discover that nearly all the major players have finally got the message.

Question 4. What is the most common pruning tool employed by your contractors?

Loppers (14)

Jacksaws (0)

Chainsaws adapted for pruning (0)

Other (0)

Commentary: No surprises here - a universal endorsement of loppers. Jacksaws are slower and tend to be used only when there has been a mistake in scheduling or in regimes. Likewise with chainsaws. Pruning provides useful employment among less skilled or less well-educated members of society, but it is important to remember that labour rates are far cheaper in some other countries, so what competitive advantage does New Zealand have in pruning? Wink Sutton has replied that pruning is capital-intensive rather than labour-intensive (given that capital can be seen as deferred labour), and that Third World countries cannot afford to forgo rewards for such a lengthy period. A successful mechanical pruning device could have provided a more distinct competitive advantage to a developed nation - but this never eventuated.

Question 5. What has been the MAIN objective of your pruning?

To secure high average prices for logs and therefore greater profit (7)

To secure the advantages of greater market flexibility of logs rather than mainly price (5)

To supply your own processor - that's where the real profits are made (0)

To provide employment (1)

Other (0)



Why was this tree ever pruned?

Commentary: A fairly even split between pruning for obvious profit and pruning for market flexibility. No takers for "supplying your own processor"; it is disturbing that New Zealand can't seem to make much profit from value-added processing (eg furniture). Perhaps the Chinese, for example, can make furniture as well as us but at far cheaper cost. It is intriguing that the provision of employment - which was once one of the goals of the Forest Service in the old semi-socialist New Zealand - is now limited to one respondent. Another replied, "Prune to avoid black knot in some areas", although he may be aware that bark-encased knots can be reduced by judicious thinning as well as by pruning.

Question 6. Given that the U.S. building market is currently depressed, do you think

The U.S. clearwood market will bounce back soon, so best to hang in there (0)

Clearwood can be marketed to a far wider range of countries, so don't get too upset about the U.S. (11)

NZ made a mistake in pruning so many trees (2)

There are cheaper ways to make clearwood other than pruning (2)

Commentary: Most of our clearwood has indeed been exported to the U.S., either directly or after further processing in places like China. Our respondents don't seem to show great confidence in that market. One respondent said, "People are moving to less volatile markets, so the U.S. may need significant premium to get [our pruned logs] in future". It is a sad reflection on the marketing ability of New Zealanders that we have not been able to spread our customer base more widely. Decades ago, perhaps we should have gone - cap in hand - to Chile and learned why they are able to export wood products to such a diverse range of countries.

Two respondents replied that we made a mistake in pruning so many trees and that we could make clearwood more cheaply by other methods (finger-jointing etc) - but

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The good...

the bulk of New Zealand's pruned resource has yet to reach maturity. It would take a brave person to predict price trends a decade or more in advance, so let's hope that substantial premiums for clearwood will recover soon and prove them wrong.

Question 7. Given that pruned regimes are not normally associated with high stockings (and presumably high total volumes)

The loss of volume is worthwhile, given the resultant large piece size of logs (1)

The loss of volume is worthwhile, given the (expected) high price of clearwood (5)

The loss of volume is regrettable, given the relative value of unpruned wood (3)

Lower stockings are disastrous, given that they normally result in large branches on unpruned logs (3)

Pruned regimes do not need to be associated with low stockings (6)

Commentary: Many respondents (sensibly) ticked more than one answer to this question. All answers seem to have their supporters. It is hard to understand, however, the six respondents who ticked the final answer - depending on what they meant by "low stockings". They presumably thought they could prune trees and also maintain high stockings. But, as exhaustive studies by Wink Sutton and others has shown, high stockings (ie >300 sph) will result in small-diameter buttlogs containing little clearwood - and even less useful clearwood. Delaying harvest usually results in suppression of a substantial number of trees, and the total waste of the pruning spent on those particular trees. Selective pruning just makes things worse.



The bad...

One respondent suggested that, "Low stockings are disastrous in terms of the large branches so we have increased the stocking rate in pruned stands". But in increasing the value of the unpruned logs, the value of the pruned logs may also have been reduced. We wonder if the trade-offs have been carefully calculated by this respondent, or whether the decision was more of a gut reaction. Another said, "Currently, although there is a smaller gap between pruned and unpruned log prices, there is still greater revenue from pruned blocks. We have to weigh the opportunity cost of delaying the harvest of pruned blocks until a time when prices increase, versus greater cashflow now".

Question 8. Carbon credits could conceivably stimulate a wave of new-land planting on farm sites. If so, how would your regime choice change if you were to engage in any new-land planting?

No change: continue as normal (6)

Would still prune as normal, but would have higher stockings and/or longer rotations (2)

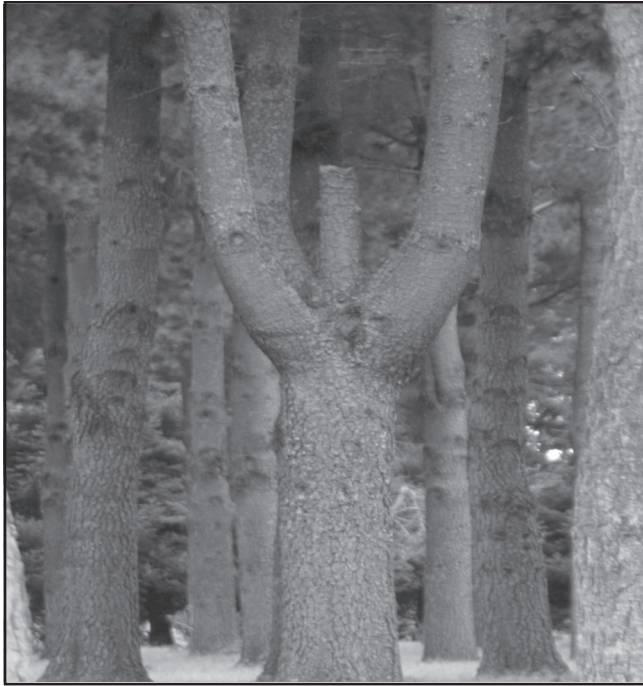
Farm sites produce huge branches and ugly trees: would use high stockings and no pruning (2)

Farm sites produce huge branches and ugly trees: would use high stockings and more intensive pruning (0)

We do not trust carbon credits to endure: we would totally ignore this factor (1)

We would be planting only for carbon: we would use high stockings, no pruning and long rotations (3)

Commentary: A mixed bag here. It is possible that some respondents may not yet have fully considered their options in regard to carbon credits. This might explain the support for "no change", although it has been shown



And the ugly.

by a number of studies that a price for carbon would radically alter relative profitabilities and the way forests are managed. One respondent commented that "Carbon credits will be icing [on the cake] only, and we will be relying on the underlying value of the tree-crop in the first instance." But whether carbon will be merely "icing on the cake" surely depends on the ongoing value of those credits relative to timber returns? We cannot yet predict a robust price for carbon.

One respondent stated, "There's no guarantee that carbon will be around forever, so it's risky to grow regimes entirely for volume, i.e. if the carbon market collapses, you will mainly have pulp - which is likely to be uneconomic to harvest". Another said, "We are now going to seek our consultant's advice on two stands that will be ready to start pruning late this year as to whether he thinks we should perhaps prune just half, for example. This question relates to carbon as much as log prices."

Question 9. Given that the market for pruned logs is depressed, what are your future pruning intentions?

- We are continuing to prune as originally intended (5)
- We have reduced our scheduled pruning programme (3)
- We will finish pruning our scheduled stands, but will not prune any younger stands (4)
- We have put all our pruning operations on hold (1)
- We will recommence pruning if either markets or our cashflow situation improves (3)
- We do not think the future lies in pruned regimes (2)

Commentary: Again, many respondents chose to provide multiple answers. It seems that the recession has cut deeply into pruning operations, but some managers (with two notable exceptions) maintain an underlying confidence in pruning.

Respondents were also given space for to express their views in their own words. Here are some of their comments:

"We have stopped pruning across our estate and are now concentrating on developing a high class structural resource".

"We have carried on doing what was scheduled by prospectus, except to a metre lower and we have left unpruned on average about 10% of area not quite good enough to warrant pruning."

"The current (and medium term past) price relativity between pruned & unpruned radiata makes it difficult to justify intensive managed (high quality) pruned regimes. Strategically our business has hedged against such market downsides by planting other species."

"Our large TIMO clients are not investing in pruning unless required to under the joint venture arrangements they have with landowners (Maori). Forest owners continuing to invest in pruning tend to be smaller investors or in regions where structural timber is difficult to grow, eg lower South Island."

"To prune or not to prune that is the question, however you must thin for stand health to increase the resistance to windthrow."

"The decision to prune is a question of overall estate, marketing and processing strategy as much or more than DCF or IRR analysis of individual stands."

"Our first-lift pruning is on hold at present, but we will continue with later lifts - or else we would be wasting our earlier investment".

"We do not currently believe the future lies in pruned regimes, but that perspective is not set in concrete."

Some historical background (kindly supplied by one respondent)

The two largest players in New Zealand forestry used to be Carter Holt Harvey (CHH) and Fletcher Challenge Forestry (FCF). Apart from some joint venture forests, where there was/is a contractual requirement to do so, CHH basically stopped pruning around 2000 when the company implemented their "Millennium Regime".

Around that same time, FCF reviewed its Radiata pine regimes:

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- Where site index exceeded 30m, it aimed to prune a final crop stocking of c. 317 s/ha in 2 variable lifts, (aiming for a DOS of 16 cm), to 4.6-5.8m.
- Where the site index was between 27-30m, the clearwood regime was implemented when cash flow permitted.
- Where site index was less than 27m, no pruning was undertaken.

‘Loppers’ were the principal tool used and the main rationale for pruning was that, based on the differentials between pruned and unpruned logs at the time, where the growth rate was adequate, the operation increased the profitability of the regime. FCF had also developed a pruned log processing and mouldings manufacturing facility at Taupo, with an associated distribution infrastructure in America. That operation was proving profitable at the time and undoubtedly it would have created difficulties/undesirable perceptions if the forest growing side of the company had discontinued pruning.

The Direct Sawlog Regime that was promoted, and implemented in some regions, during the mid 1970s, was premised in part, on high differentials between pruned and unpruned logs. I think that experience with genetically improved Radiata pine demonstrated that, on good sites at least, (eg, Kaingaroa Cpt 1350), Radiata could be grown at stockings higher than 200 s/ha without unduly compromising piece size and whilst also achieving greater branch control. Hence the stocking levels advocated by FCF in its clearwood regime.

If farmland were to be planted by my company, I personally would be advocating an approach that took advantage of the higher potential growth rates whilst also countering the negative impacts of larger branching and lower density. This would be achieved through a combination of not only silvicultural impacts (eg, relatively high initial stockings, multiple thinning and relatively high final crop stocking - the exact stocking being influenced by intended rotation length), but also planting cuttings tree stocks with relatively high genetic ratings for diameter, density and stiffness. This approach would apply irrespective of whether I intended to prune or not, the decision on that resting again on my long term perspective on pruned log price differentials.

Commentary: Having been a long-time advocate of clearwood regimes on moderate or good sites, one feels like a financial advisor who had been recommending certain investment companies - that later turned sour. It is true that, in 2009, clearwood is not the darling of the casino, as was once hoped. But the wheel’s still in spin. At best, forestry returns could hit the jackpot before the planting boom of the 1990s reaches maturity - with clearwood the largest prize. At worst, the pruning investment may have been a second-rate choice: the money could have been better invested but nevertheless the act of pruning may still yield a positive return.

Acknowledgements

Many thanks to Euan Mason, who figured out how to set up the online questionnaire so that it was quick and easy for respondents, and so that the results could be totally anonymous. Also, Prof Bruce Manley kindly supplied names and email addresses. If respondents have found this study worthwhile, we would welcome feedback. Maybe this exercise could be repeated for a different topic, or perhaps targeting a different component of the forestry sector?