New Zealand roundwood markets as viewed from the high north

Kristian Lein*

My visit highlighted two outstanding features of the New Zealand forest sector compared to Norway’s. The first is the tremendous expansion in both forestry and the forest products industry. The second is the dynamics in these sectors in terms of the wide scope of different agents, new agents, and emerging markets for both forestry products and services to forestry and the forest products industry.

In Norway, forestry and the forest industry are “mature” sectors, although the scope of expansion should be considerable in both sectors. Two indications of this are the constant or even slightly decreasing annual harvesting levels, increasing import of pulpwood, increasing direct foreign investments by the forest industry. In the period 1985-1995 the average cut of industrial roundwood was about 10 million m³ per year, slightly decreasing over the period. However, annual increment is close to 20 million m³ per year, and total inventory amounts to about 600 million m³.

The private sector owns approximately 80 per cent of the forest land in Norway. Private ownership is mainly by individuals and there are 125,000 forest estates with more than 2.5 ha of forest. The majority of the estates are relatively small, with about 60 per cent of the estates being between 2.5 and 25 ha, and 90 per cent being between 2.5 and 100 ha of forest land. The majority of the estates are run in combination with agriculture. The forest industry’s ownership of forest estates is insignificant. The forest products industry is largely precluded from investing in forest estates because of extensive legislation on forestry and agriculture.

The fragmented ownership structure has probably been critical in promoting the importance of cooperatives on the supply side in the roundwood market. Regional forest owner associations (cooperatives) represent about 75% of the total roundwood supply in Norway. In addition to selling timber on the behalf of their members, the forest owner associations are also professional and industrial bodies and offer services such as logging and silviculture to their members.

There is extensive roundwood trade across the Norwegian-Swedish border, and imports from Russia and the Baltic States. Roundwood exports from Norway vary greatly from year to year; however, roundwood exports are typically modest, and are traditionally strong only in periods when the demand from the domestic industry is weak. Since 1990, the import of roundwood and chips to the Norwegian pulp industry has more than trebled to 3.2 million m³. There has also been a strong increase in the import of sawlogs to more than 0.5 million m³.

Heart Warming

For a former antitrust and pro-competition spokesperson the New Zealand experience is heart warming. In addition to the large corporates that still dominate the forest sector, new plantings are also taking place by a range of different agents: agroforesters, landowners, private individuals, partnerships and joint ventures. The planting boom during the 1990s also has contributed to the emergence of business intermediaries and also financial interests in the forest area. In relative terms this development has decreased the importance of the traditional forester and highlighted the position of private investors and business analysts. This development has also implied an increased focus on short-term profit and return on investments.

The resulting roundwood market in New Zealand is very different from Norway’s, but it is clearly more dynamic in New Zealand. In contrast to Norway, New Zealand has a large degree of vertical integration between forestry ownership and the forest products industry. The significance of cooperatives in this trade is negligible, and private log brokers play an important role. In addition, roundwood export, as opposed to import, is significant. In Norway, timber trade has almost opposite characteristics, and there also exist accords between forest owner associations and groups of buyers which are important for determining roundwood prices, especially on pulpwood.

In view of the privatisation of government forests and the rapid expansion of the tree-farm area I would not have been surprised if there existed some kind of roundwood exchange or futures exchange for roundwood in New Zealand. However, up to my visit no such initiative has been taken although there exist companies with such plans. But not surprisingly I found that the range of different agents (on the supply side) and types of contracts (in both scope and length) in the roundwood trade are larger than is the case in Norway. I clearly got the impression that roundwood trade is a relatively complicated business in New Zealand. Negotiations are often prolonged, due to differences over wood quality, classification, or conversion factors. This again is a contrast to the Norwegian system with its common scaling rules and the availability of neutral ‘market mediators’ provided by regional timber measurement councils.

With large corporations accounting for more than 70 per cent of the total round-

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Author’s Note

I wish to use this opportunity to thank people from the Forest Research Institute, Tachikawa Forest Products, School of Forestry, the Ministry of Forestry (in Rotorua, Wellington and Christchurch), Forest Industries Council, Timber Industries Federation and TRADENZ for receiving me and sharing their knowledge with me. Unfortunately I cannot thank everybody here, but a special warm thanks to Hugh Bigsby at Lincoln University for organising a very interesting stay in the Christchurch area and to Frances Maplesden at FRI for making the stay in Rotorua a useful one.

Kristian Lein

* Kristian Lein is an economist with the Eastern Norway Research Institute (ENRI). ENRI has a significant research focus on roundwood trade, markets for forestry products and forest policy. He visited New Zealand in February-March, 1997 for four weeks, with the objectives of: i) studying roundwood markets and market 'instruments' in the roundwood trade, ii) studying New Zealand saw timber production and marketing, and iii) visiting researchers engaged in similar research.
wood supply in New Zealand, and even making up about 60 per cent of the logs delivered to independent sawmills, there is the potential for reduced competition which could have an adverse impact on market performance. I did, however, get the impression that the independent sawmills did not consider the supply situation to be difficult, although it would depend on the general demand situation both domestically and on export markets, as well as on location of the sawmill. The fact that log buyers and sellers have to relate more or less directly to the log supply in New Zealand, is the potential for reduced competition which could have an adverse impact on market performance. I did, however, get the fact that log buyers and sellers have to relate more or less directly to the log export prices in both contract negotiations and price re-negotiations appeared unpopular amongst independent sawmills, but seems rational from a market performance point of view, knowing that log export is significant and that log export is an option for most suppliers of roundwood.

Potential Harvest

If planting continues at 60,000 hectares or more per year, the potential annual harvest could increase to more than 60 million m³ in the next 30 years. This harvest level would put New Zealand on the same footing as the largest producer in Western Europe, Sweden. New Zealand will in that case emerge as one of the leading players on the world markets for wood-based products. A particularly interesting aspect concerning future roundwood markets is that major corporates now account for just one-quarter of the new planting. This development could lead to a situation in which the small grower estate was equal to that of the corporates by 2015 (MOF estimate).

Two Observations

If we use roundwood supply in the Nordic countries as an example, this scenario leads to two observations. First, the link between increased wood availability and annual cuts becomes highly indirect with small growers. In Norway, the harvest falls behind annual increment by several million m³ per year, and this is also traditionally the case in Sweden and Finland. One may point out that these are not plantation forests and thus are subject to different management objectives, but basically the mechanisms in harvesting decisions would be similar. Secondly, small woodlot owners and farm foresters (as a group) tend to have more fluctuating harvesting patterns than larger owners. Smaller owners, or the typical farm forester, usually have low fixed costs, often little debt, and they do not have an industry to supply. They are therefore inclined to harvest when prices are both high and not expected to increase. Their harvest can moreover often be influenced by factors external to forestry, especially if they are doing the cutting themselves. To the extent that these observations may apply to New Zealand, prognosis about future harvest will be increasingly difficult to make in the years to come. With a larger proportion of small owners, fluctuations in roundwood prices can have considerable impact on harvesting decisions, and the altered composition of the forest estate can even prove to increase price fluctuations.

Changed Ownership

Another interesting question is how changed ownership to New Zealand's planted forest estate will affect supply in the roundwood market. Based on current planting, the basic assumption would be a steadily decreasing market position for the large corporates. However, such a development is not guaranteed. Firstly, woodlots can change hands before harvest. Secondly, the structure of the roundwood market will clearly be affected by the smaller forest owners' inclination and ability to link up with others in the roundwood market.

Special Interest

In the capacity of being from a country with a high market share in the hands of cooperatives, smaller forest owners' interest in and ability to form cooperatives in this trade is of special interest. To my
wood supply in New Zealand, and even making up about 60 per cent of the logs delivered to independent sawmills, there is the potential for reduced competition which could have an adverse impact on market performance. I did, however, get the impression that the independent sawmills did not consider the supply situation to be difficult, although it would depend on the general demand situation both domestically and on export markets, as well as on location of the sawmill. The fact that log buyers and sellers have to relate more or less directly to the log export prices in both contract negotiations and price re-negotiations appeared unpopular amongst independent sawmills, but seems rational from a market performance point of view, knowing that log export is significant and that log export is an option for most suppliers of roundwood.

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In particular, the programme will match the rate of release of nitrogen with the trees' uptake potential, and overcome the gaseous nitrogen loss by volatilisation. It will also test the effectiveness of N-rich urea (46%) applied at 200 kg N/ha in spring, against CRN (t-60; 41% N) applied at 200 kg N/ha.

Meanwhile, alternative rates of CRN fertiliser will be examined to define the optimum:

- Control - no fertiliser
- CRN (t-60) at 50 kg N/ha
- CRN (t-60) at 100 kg N/ha
- CRN (t-60) at 200 kg N/ha

Other design features include four replicates of each treatment with 25 trees per plot. The trial will be conducted in production-thinned stands about 11-12 years old and preferably thinned six to 12 months prior to spring 1997. The two trials are scheduled to run for four years, with the possibility of less intensive measurements continuing.

This exciting research initiative has potential to offer the forest industry some major improvements in nutritional management programmes, and in obtaining data for ongoing nitrogen use.

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Dothistroma pine needle blight

Each year the Dothistroma Control Committee, a sub-committee of the New Zealand Forest Owners' Association Inc., mounts an aerial spray programme to control Dothistroma.

The committee is concerned that the owners or managers of small forest blocks may overlook Dothistroma in their plantations until serious damage to the stands has occurred.

Any forest owner in the North Island who has infected trees may use the Dothistroma Control Committee services to have their trees aerial sprayed with a copper fungicide.

The main functions of the Dothistroma Control Committee are to:

- purchase bulk supplies of suitable cop-

Radiata pine and nitrogen

Over the years, forestry has played an increasing role in rural livelihoods. Recognising a need for adequate forestry fertiliser information and advice, the Forest Research Institute conducted a research programme with radiata pine and N-rich urea, much of it in the central North Island's Kaingaroon Forest.

Without doubt, healthy radiata pine plantations in New Zealand are responsive to nitrogen fertiliser, provided it is applied shortly after thinning or pruning, or a combination of both. Where the crop has the opportunity to expand the canopy as a result of silviculture, nitrogen fertiliser ensures this happens quickly.

For forests chronically short of nitrogen, such as the sand-dune forests along the west coast of the North Island at Aupouri, Woodhill, Poutou (north of Auckland) and Santoft (south of Wanganui), further trial work with nitrogen fertiliser demonstrated large growth gains. Of particular note, researchers found that under especially low nitrogen conditions, silviculture is not necessarily a prerequisite before fertilising.

However, also of note, any effectiveness of the applied nitrogen is over within four years. At this stage, growth rates of fertilised trees parallel those of unfertilised control trees.

During the research programme, FRI identified 200 kg N/ha as the optimum biological application rate, and that about 70% of the response could be obtained at 100 kg N/ha. This rate is high in relation to the trees' capacity to take up nitrogen. Volatilisation of nitrogen from N-rich urea can account for part of the applied nitrogen being lost as nitrogen gas and average annual uptake of nitrogen by a healthy radiata pine crop (above-ground only) can vary.

Recent work by FRI for BOP Fertilisers Ltd has identified excellent potential for improving plantation productivity with nitrogen (and phosphorus) fertilisers. This conclusion was reached by applying FRI growth models, which incorporate fertiliser effects on productivity, to the FRI foliar nutrient database for forest estates from Auckland to the central North Island.

The outcomes of this research were not only greatly increased productivity, but also marked changes in wood flow over time, giving management the opportunity to reschedule the timing of harvest.

The use of N-rich urea is normal practice in forestry, and the experimental programme being initiated with CRN promises further advantages in the future for forest managers concerned with improving the effectiveness of N-rich urea.

A matter of timing

The effectiveness of nitrogen release from N-rich urea for pines is strictly time limited; it can be a matter of a few months. As the applied nitrogen rapidly enters the organic matter/microbial cycle (and release within the cycle as mineral nitrogen is small), any technique to both slow down the rate of release and minimise volatilisation has advantages for any tree crop. CRN has the potential to meet these requirements. Small quantities of this experimental product have been imported by Petrochem for use in ongoing studies.

Thanks to the generosity and resources