

representation of age-classes has been obtained there is no need, they say, to consider rotation length. Every year a forest company spends money on tree-planting, silviculture, etc. and every year it receives income from the sale of wood. Why not determine profit by subtracting yearly costs from yearly income?

The answer is that the standing crop of trees is a capital asset that has an opportunity cost. The crop could be liquidated (i.e. felled) and the revenue invested elsewhere. A forest comprising stands of very old trees carries a high opportunity cost. If it were possible to replace this forest with younger stands without greatly affecting revenue, this frees up capital. Which is the most profitable forest, one which is worth \$10 m and yields \$1 m a year, or one which is worth \$20 m and yields \$1 m a year? Obviously the former, because the latter could be sold to buy two forests like the former. The new enterprise would yield \$2 m, using the capital twice as efficiently as before.

Risk

Forestry is associated with all sorts of risk: physical, biological, legal, management and market risk. Any comparative evaluation of profitability must take these into

account. There are no uncontroversial ways of quantifying most types of risk, so some subjective element is necessary. One approach is to select a discount rate that is a composite of the risk-free opportunity cost of capital and an additional risk component. Given this thinking, interest rates such as 15% are not unreasonable. This places even greater emphasis on regimes which postpone costs and bring forward revenues. With any discount rate higher than 10%, Regime B is at a considerable disadvantage.

Rotation length affects risk in yet another way. To use a simplistic example, let us suppose that randomly, but averaging once in every 60 years – a major cyclone hits New Zealand and renders a crop unharvestable. A forest grower with three 20-year rotations will harvest two crops and fail to harvest the third. In contrast, a forest grower who insists on 60-year rotations will never harvest anything. The use of real data would not dilute the message that shorter rotations reduce risk.

With regard to markets, it may be possible to predict (dimly) the future in 20 years. Trees which will compete with New Zealand forestry products are already in the ground. The market situa-

tion in 40 years is considerably more uncertain. Current high prices for wood could result in a rash of new plantings that increase supply and lower price. There is a greater lead-in time for non-wood substitutes to be developed, and so forth. Longer rotations have to be considered a greater market risk.

Summary

The conventional way to bring together all the five components of profitability – price, volume, cost, timing and risk – is to use discounted cash flow analysis. There are two methods of doing this. One is to use Internal Rate of Return (IRR), and the other is to use Net Present Value at a predetermined discount rate. The methods will give the same answer if the discount rate is equivalent to the IRR (which, in typical regimes, is 8-10%). Use of IRR or NPV with high discount rates will invariably favour Regime A over Regime B. Longer rotations will become more profitable only if premiums for quality increase substantially, or low discount rates come into vogue. The latter is unlikely to happen unless prevailing real interest rates fall to very low levels.

'A sustainable future for forestry'

The two-day New Zealand Forest Industries International Conference "A Sustainable Future for Forestry" being held in Rotorua in February 1998 will examine major sustainability issues in terms of critical industry input, including the resource, energy, forest management, human resources, transportation, research, processing and investment.

Keynote addresses will include presentations on the global wood market, Asia and the Pacific Rim, and the power of the marketplace. Delegates will hear first-hand how a firm commitment to the environment can have major market pay-backs. In a keynote presentation Alan Knight, quality and environmental controller for B & Q, the largest DIY chain in Europe, will outline why and how B & Q demands environmentally certified wood and wood products from its suppliers. (At present the company sources all timber products from well-managed resources, but has set a target that these products will only come from independently-certified sources by the turn of the century.)

Conference organiser Toni Myers says

forest-based industries around the world can no longer ignore the growing importance of sustainability and environmental issues or the impact of environmental "image" on marketplace and consumer behaviour. Case studies and panel sessions will provide delegates with the opportunity to pursue these issues in greater depth.

Exhibition

"A Sustainable Future for Forestry" is being held at the Rotorua Convention Centre, Rotorua, on February 18-19 and will be followed by the FI98 Exhibition which runs from February 20 to 22. A showcase for New Zealand forestry, this exhibition is now one of the leading events on the international forestry calendar, with an exhibition area covering around 60,000 square metres of outdoor space and 3500 square metres of covered pavilion space, including one of the largest marquees ever erected in New Zealand for trade exhibition.

In-forest demonstrations of more than 40 machines, working in tree sizes ranging from 0.5m³ to 3 m³, will be held in the

nearby Kaingaroa Forest, one of the Southern Hemisphere's largest plantations forests.

Harvesting systems on view will include cable logging operations, as well as full tree harvesting to the roadside, mechanised cut-to-length and small wood thinning operations. These demonstrations always attract keen interest from visitors wanting to evaluate the performance of different machines and different systems. Live demonstrations at the main venue will include a large range of working portable sawmills.

As well as exhibits covering more than 300 sites, a number of special events and seminars will be held during the course of FI98. The New Zealand Institute of Forestry will be coordinating a series of seminars during the Exhibition, with seminar presenters including the NZIF, the Ministry of Forestry, the Farm Forestry Association and the Forest Industries Training & Education Council. On a more competitive note, FI98 Exhibition will also feature chainsaw carving and the national final of the Husqvarna Mobil Loggers Sports.