RESOURCE

Management methods are continually being improved to ensure a reliable supply of high-quality raw material for the full range of wood users.

SUSTAINABLE PLANTATION FORESTRY

New Zealand soils and climate are well suited to forest growth, and much of the country was originally covered in natural forest. Until about 1940, wood users were almost entirely dependent on supplies from this natural forest, which now occupies about 24% of the total land area.

Since the mid 1800s trees from around the world had been introduced to provide farm shelter and lumber for local uses. One of these introduced species was New Zealand pine (*Pinus radiata D. Don*) from California which adapted well to local conditions.

Since the 1920s large scale plantings of introduced species have been established for commercial uses and have progressively replaced the harvest from the natural forests, ensuring New Zealand continued to be self sufficient.

The plantation forest area of New Zealand is continuing to expand and is currently about 1.5 million hectares. The dominant species is New Zealand pine, which grows more rapidly than other species in most situations. Natural forests still make up 90% of the forest area in New Zealand, but their future uses will be mainly for soil and water conservation and for recreation. Although the plantation forest area is relatively small by world standards, it will ensure a perpetual supply of raw material for both domestic consumption and export.

Plantation forestry has developed rapidly in New Zealand. In 50 years, the country's industrial wood supply has changed almost completely from natural forests to managed forest plantations, emphasising New Zealand pine (Pinus radiata) as the primary species.

Resource

Size, Age, & Distribution

The benefits of plantation forests have been fully established and for the past 30 years growers have created forests specifically for future exports. Sixty % of the plantation area is still under 15 years of age. The forests are widely distributed throughout the country, with nearly 40% (by area) in the central North Island.

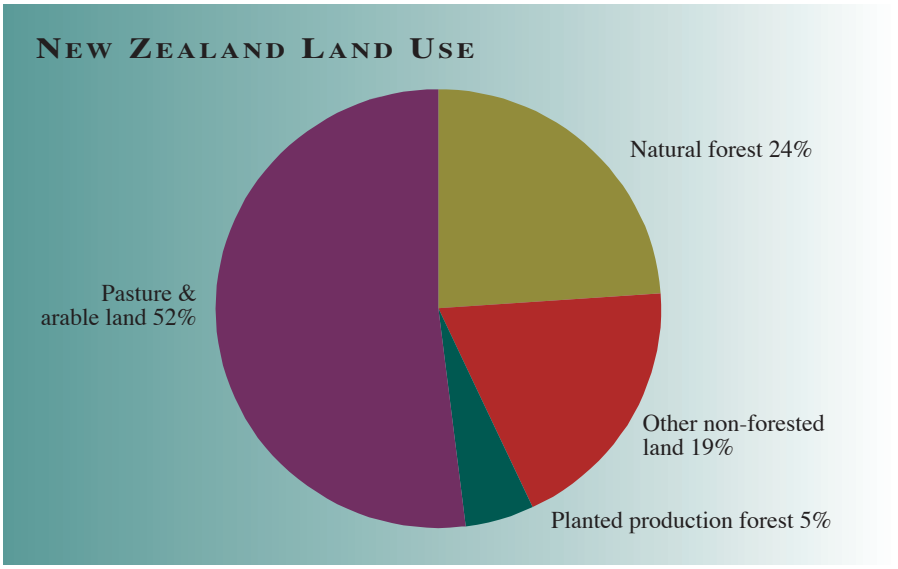
Emphasis has been on concentrations of forest to sustain industries based on exports. Ownership of the current 1.5 million hectares of forests is mainly with large companies. Smaller plantations are owned by individuals, syndicated investment groups, trusts and regional government organisations. As much as 75% of all new planting over recent years has been undertaken by non-corporate organisations.

Present & Future Production

The present uneven age distribution and rate of new annual planting ensure expanding production for the foreseeable future. Projections indicate that the annual harvest may reach 25 million m^3 by about the year 2005 and as much as 60 million m^3 by 2025 if current new planting levels of 70,000 hectares per year continue. New Zealand's domestic demand is constant so much of this extra volume will be available for export in one form or another.

Forest Management

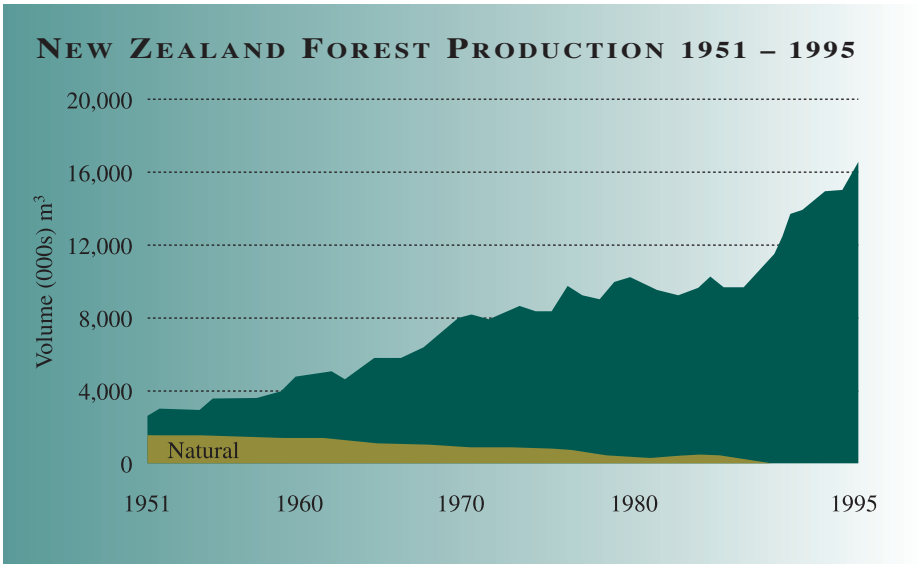
New Zealand forestry companies have not relied entirely on the climatic conditions to ensure good yields of high quality logs and lumber. They have also applied tree breeding methods and intensive silvicultural practices to produce uniform stands of high quality logs for domestic use and export.

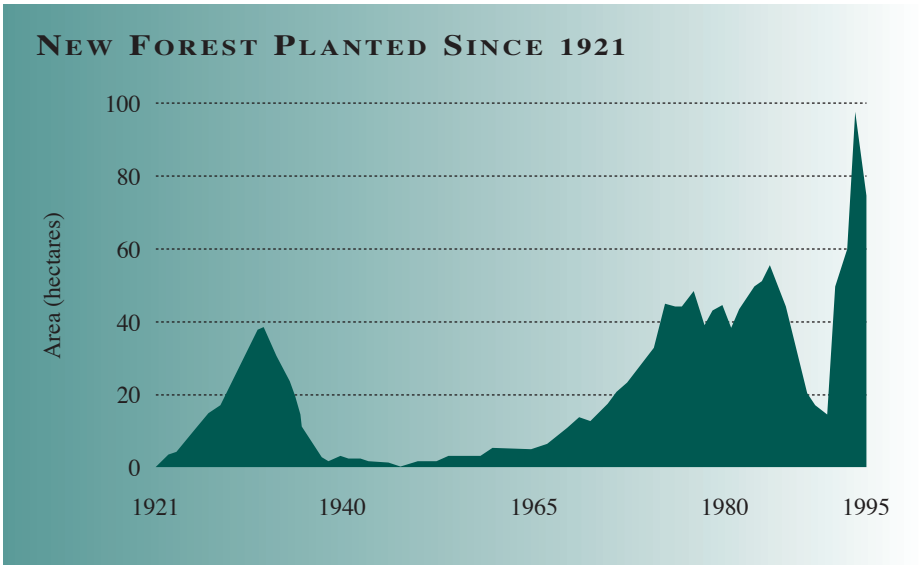


They are concentrated on the proven species, New Zealand pine and Douglas fir, and are dispersed geographically. Stands are progressively composed of genetically improved seed stock. The growth and form of the trees planted in the 1990s are also substantially improved over those in earlier plantations and those found in their original Californian habitat.

HIGH TECHNOLOGY FORESTRY

New Zealand's pine plantations are among the most intensively managed in the world, and are capable of yielding large volumes of high-quality logs on rotations of 25-30 years. Quality in the short term is maintained by planting genetically improved seedlings on the most suitable land, normally thinned and pruned to encourage the growth of the best trees. New Zealand pine does not readily shed its branches in plantations, but by removing the limbs from the lower part of the stems at an early age, foresters are able to produce large volumes of "clearwood" or defect-free wood for high-value sawn lumber and veneers.





Standard management methods include pruning (removal of bottom branches) a large percentage of trees to be left to the full notation age (about 30 years) and thinning out unwanted trees. The typical tree resulting from this treatment will be about 35 metres tall at harvest with a tree volume of about 2.5 cubic metres.

Advanced management tools, including computer simulation of forest growth, log quality, and processing options, are used to ensure that the best decisions are made for each plantation. The use of genetic engineering and modern tissue culture techniques is opening up prospects for matching the wood properties of New Zealand pine to the requirements for specific end uses. The forests are continually monitored to ensure that they remain healthy and free from attack by pathogens.

It is now one of the world's most widely planted plantation species, but there are few places where the species is managed to its greatest potential. New Zealand is one of those places.