

# The New Zealand forest industry - genetics-based biotechnology and international competitiveness<sup>1</sup>

**F**orest products are competitively traded internationally and New Zealand forest product companies mainly earn their living by marketing products internationally. To stay in business and expand, the New Zealand forest industry must stay internationally competitive. Companies must have the option of using genetics-based biotechnology applications to improve competitiveness and keep up with or ahead of competitors.

The New Zealand forestry industry, which is plantation or "tree-farm" based, is already arguably New Zealand's most sustainable industry. Biotechnology has potential applications within plantation forestry that would improve that sustainability. It could also deliver

productivity and environmental performance benefits for the processing sector as well. Companies should have the option of enhancing what is already a sustainable industry through access to biotechnology. We believe the risk to New Zealand from forest industry applications of biotechnology can be effectively managed through a regulatory system that relies on comprehensive risk assessment of specific applications.

World demand for forest and paper products continues to increase. At the same time, the area of the

---

<sup>1</sup> Adapted from the New Zealand Forest Industries Council submission to the Royal Commission on Genetic Modification

## Continued from page 11

ous native trees that are well suited to commercial forestry, thus resulting in a managed forest that is more similar to the native forest than the situation in New Zealand. It was only the introduction of Radiata pine from California that finally made it possible to have a domestic forest industry that was sustainable. Radiata pine, along with a few other introduced tree species, has become a major contributor to New Zealand's economy. Genetic modification may play a key role in the future of New Zealand's forests both native and plantation.

One of the main differences between trees and annual farm crops is the much longer breeding cycle in trees. It is sometimes ten years or more from when a tree is planted before it produces viable seed. This results in a much slower breeding programme, taking longer to breed desirable characteristics than with crops that produce seed annually. Genetic modification allows us to "short-circuit" this long breeding cycle and to develop trees with desirable traits much more rapidly. There are a number of key modifications that could greatly benefit the native rainforest, the plantation forest, and the environment.

Through the use of the so-called "terminator gene", it may be possible to produce plantation trees that are sterile. This could reduce or even eliminate the incidence of self-seeding and encroachment of non-native plantation tree species into native forest. This, in turn would be of great assistance in preserving and protecting native forest from being taken over by exotic tree species.

Through the use of genetic modification it might be possible to increase the growth rates of some native tree species, thus making them suitable for commercial growing. This would allow the establishment of managed native forest and the possibility of expanding the area of land planted with native trees rather than exotics. It is particularly unfortunate that the government of New Zealand has seen fit to ban forest management in native forests. Only through successful management will it be possible to justify a large increase in native forest cover.

Genetic modification may allow for faster growth rates in plantation tree species such as Radiata pine. This

would not only make the industry more profitable but it would result in a more rapid uptake of carbon from the atmosphere. An increase in carbon uptake, coupled with great use of wood as a substitute for non-renewable fuels and materials, could result in significant reductions in greenhouse gas emissions. Indeed, the most powerful tool at our disposal to reduce CO<sub>2</sub> emissions is to grow more wood and use it sustainably to offset emissions from the burning of fossil fuel and the production of steel, concrete and plastic.

In terms of New Zealand's environment, the more profitable it is to grow trees the better. Genetic modification could bring about tree varieties that grow faster, are resistant to insects and disease, and have better wood quality. This will lead to further reforestation of the land that has been historically deforested for grazing. More trees and forests results in more carbon sequestration, better protection of soils, cleaner air and water, and less ruminants producing greenhouse gas and increasing the threat of climate change.

The bottom line in the debate over genetic modification has to do with the inevitable and natural quest for knowledge and new ways of doing things. While it may seem daunting that we have discovered the secrets of deep space and atomic particles, this trend towards awareness of our environment seems bound to continue. Of course we must curb ourselves when discoveries prove to be destructive or detrimental. But there is no definitive evidence that proposed genetic modification programmes are either destructive or detrimental. All the evidence points to the potential for improvements in both human and environmental health.

I call upon the Royal Commission to consider the subject of genetic modification in a truly global perspective, to reject unfounded allegations and to accept demonstrated benefits. It is not without precedent that civilisation has been thrown into dark ages and anti-intellectual periods due to the superstitions and myths of cliques with no science. I ask you to listen to reason and truth and to assert the right and benefit of scientists to continue to explore nature and to help provide the means for our survival and good fortune.

world's natural forests continues to decline. To address this contradiction, the forest industry must improve the productivity and economics of forest products from plantations or "tree-farms". Wood based products must be able to compete against substitute products (concrete, plastics, steel, synthetic fibres) - in particular those that are significant users of energy and other non-renewable resources.

Improvements through biotechnology are expected to enable forest managers to meet the growing demand for paper and wood products while strengthening their ability to manage forests in a sustainable manner for the benefit of future generations. By increasing the productivity of "tree farms", New Zealand forestry can help meet the world's wood and fibre needs - and in turn reduce the pressure to use natural forests to make wood and fibre products.

The New Zealand forest industry is currently based on 1.7 million hectares of sustainably managed, highly productive plantation forests and has a total turnover in excess of NZ\$ 5 billion p.a., including NZ\$ 3.1 billion in export sales. It accounts for 4 % of New Zealand's GDP, is the third largest export sector and employs over 25,000 persons and, indirectly, a further 100,000. The New Zealand forest industry is expanding rapidly and its current annual harvest of 17 million cubic metres will double within the next 15 years and reach an estimated 50-60 million cubic metres per annum by 2030.

Based on these harvest levels, its international competitiveness as a manufacturer and marketer of forest products as well as its proximity and business links to the world's fastest growing forest products markets in Asia, the following development targets are achievable by 2025: total outputs of \$18 billion comprising 14 per cent of GDP; promotion to the country's top export earner with \$14 billion of export receipts; employment of 60,000 people directly and 250,000 indirectly; and a ranking among the top five global suppliers.

The New Zealand forest industry competes in the international forest products market. The development and uptake of new technologies and innovation associated with forestry, forest products processing and new product development - such as biotechnology - are key to the ongoing international competitiveness of the New Zealand forest industry and achievement of its developmental milestones.

The New Zealand Forest Industries Council believes forest industry applications of genetics-based biotechnology have the ability to:

- enhance its competitiveness and sustainability; and therefore
- make an already sustainable industry even more sustainable.

We believe the risk to New Zealand from forest industry applications of biotechnology can be effectively managed through a regulatory system that relies on comprehensive risk assessment of specific applications. Case by case determination of each application by an organisation like the Environmental Risk Management Authority, with public disclosure and input, and

recourse to independent specialist advice is a logical approach to regulating biotechnology in New Zealand.

We further contend that:

- Accurate and specific information on costs and benefits can only be quantified in relation to a specific case of biotechnology. Such information should be compiled and provided to the independent biotechnology regulatory framework on a case by case basis.
- Liability should be assessed on a case to case basis and be dependent among other things on whether the assessor failed in his/her duty of care, the applicant failed to follow agreed procedures, or someone with criminal intent sought to compromise a legally approved activity.

There are economic, social and environmental opportunities from the use of biotechnology in forestry applications. In particular, biotechnology offers the potential for the forest industry to more quickly implement custom products selected for particular consumer markets.

Forest industry based biotechnology developments could also generate a new economic sector and expand foreign exchange earnings for the New Zealand forest industry if the associated intellectual property is developed and controlled by New Zealand based interests.

New Zealand Forest Industries Council supports:

- the retention of the risk assessment framework and the case-by-case determination of applications of biotechnology provided for within the Hazardous Substances and New Organisms Act 1996
- the clarification of current regulations with respect to the interpretation of the precautionary principle
- independence of the ERMA from other branches of Government, as a means of maintaining both its objectivity and independence.

Any measures adopted in New Zealand with respect to the regulation of biotechnology must consider the approaches adopted in those countries with which we compete in international markets.

The industry's ability to compete successfully will be undermined if it is not able to take advantage of any biotechnology that is developed and deployed by competitors.

It is also important that domestic regulation of the import and export of biotechnology products is consistent with our obligations under the World Trade Organisation as well as any relevant multilateral environment agreements.