

# Chemicals and forest management

Chris Goulding

New Zealand's wood production is harvested from intensively-managed forest plantations stocked with non-native trees, while the indigenous forest is largely preserved in the conservation estate and the logging of native trees is now minimal. In contrast, many northern hemisphere countries propose an ideal of sustainable harvesting of their native forests which provide a wide range of social, economic and environmental benefits, and the words 'forest plantations' have negative connotations.

The Forest Stewardship Council (FSC) is a 'global, not-for-profit organization dedicated to the promotion of responsible forest management' that independently audits and certifies forest owners and managers according to its Principles and Criteria. It has a somewhat negative attitude towards plantations, with a clear bias towards 'natural' forests. The currently applied standard, FSC-STD-01-001 V4-0 EN, has a complete Principle 10 solely devoted to plantations, including the requirement that 'A proportion of the overall forest management area, appropriate to the scale of the plantation and to be determined in regional standards, shall be managed so as to restore the site to a natural forest cover' (criterion 10.5). While that negative attitude is changing, the (soon) to be applied V5-2 still defines a plantation as 'Plantation: A forest area ... which lacks most of the principal characteristics and key elements of natural forest' (Glossary of Terms). This definition ignores the many similarities, in summer at least, between the managed natural pine forests of Northern Finland and the radiata pine of Southern Kaingaroa, although there are differences (we have more needles per fascicle, they have bigger mosquitoes).

Even so, New Zealand's production-oriented forest plantations have met the FSC Principles and Criteria, with the first certificates awarded to Craigpine in 1997 and the former Fletcher Challenge Forests in 2000, so that now all the large-scale plantation forest owners are FSC certified (paradoxically, the natural forest management of the Department of Conservation is not). New Zealand's plantation management is intensive – tree improvement, site preparation, planting, one or more silvicultural operations, in-place inventory and detailed yield-regulation planning. The use of herbicides and fungicides is widespread in the early years of a stand. One of the requirements of the FSC Principles and Criteria is that 'Plantation management should make every effort to move away from chemical pesticides and fertilizers' (criterion 10.7). The FSC maintains a list of the active ingredients of highly hazardous pesticides that is continuously updated by new research. To continue using a listed substance, a company must justify its use and obtain a derogation.

In this issue, there are two papers on the use of chemicals in New Zealand forestry. That by Rolando et al. presents an overview of the pesticides in use and the research to demonstrate whether or not the active ingredients cause environmental damage. Most recently, the long-standing use of copper sprays to combat dothistroma has been deemed hazardous and the paper discusses the New Zealand research response. The second paper by Smaill discusses the use and potential of chemical fertilisers in promoting tree growth and forest sustainability for nutrient removal over multiple rotations. Again, in the current market acceptance and regulatory environment, research is needed to improve the predictions of response to fertilisers and to any negative impacts.

While in theory, auditing to a standard should be consistent through time, raising the bar to improve performance is not necessarily a bad thing (but is quite different to shifting the goal posts). As Rolando's paper states, international challenges to New Zealand forest practice, not necessarily limited to the FSC, 'need to be met with factual evidence from science and research trials, not merely aggrieved statements.'

The August issue also contains Manley's paper on the 10th edition of the survey of discount rates used for forest valuation, carried out every two years by the NZIF Forest Valuation Working Party. The survey found an average pre-tax cashflow implied discount rate of 8.6% (in comparison to the expected 2% return on investment of hill farming or the negative interest rates of the central banks of Switzerland and Japan – Editor). Murphy describes a log storage and handling optimisation model used to determine potential improvements in storage capacity at ports. Suitor et al. present the Victorian Forest Monitoring Program, a network of systematically sited permanent sample plots that enable reporting on sustainable forest management, consistent with global practice. A parallel paper by Wakelin et al. on the National Forest Inventory planted-forest plots of New Zealand describes their use as part of the Land Use and Carbon Analysis System (LUCAS).

Ian Hinton provides the last word. While his taste in music may be questionable, he argues strongly that the New Zealand forest sector is not 'dysfunctional'. The changes over the last 30 years have resulted in a better industry that he is proud of. Owning a New Zealand forest is better than having money in a bank, and the recent capital investments of CNI sawmillers are made because the sawmillers and their bankers think they can be profitable.

# Forestry in a changing world – dealing with evolving regulatory and market environments

## *Tasters of topics ...*

### *30 August 2016*

#### **Otago Regional Council – Water Quality Standards**

#### **Land Management Risk**

- Improving Pest Management
- Fire Service Review

#### **Update on FISC**

#### **Update on the Proposed National Environmental Standards (NES) for Plantation Forestry**

#### **Update on ETS and Carbon Market Outlook**

### *Field trip – 1 September 2016*

The field trip travels to the Otago High Country to look at harvesting and water yield issues in the Glen Dhu paired tussock and plantation forest catchment studies. We also see harvesting around historic sites, wilding control and high altitude forest growing.

*Registrations  
to the  
conference  
now open*

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### *31 August 2016*

Forest Growing and Processing in Otago & Southland

Taking Opportunities in Sensitive Catchments

NZ Superfund's Forestry Investments

Grade Simplification in Harvesting Operations

Pruning – Adding Value in the Forest

Processing and Marketing Clearwood

International Market Outlook

International Freight Logistics

Bioenergy Hubs

Alternative Species/Revenue Streams

- Koura
- Eucalypts
- Manuka
- Essential Oil from Wildings
- Ngai Tahu's Forest Land Holdings



**Dunedin Town Hall**

**30 August, 31 August and 1 September 2016**