

Douglas-fir

Research Cooperative

No. 10, August 2008

Newsletter



**This is the final newsletter of the Douglas-Fir Co-operative.
In future, all news and information will be channelled through Future Forests Research.**

Cooperative merger with Future Forests Research (FFR)

On July 15, 2008, fifteen members of the late NZ Douglas-fir Research Co-operative met in Christchurch to be introduced to the proposed Douglas-fir research outline under the new FFR umbrella. Significant extra funding has been obtained from the Foundation of Research, Science and Technology (FRST - see Box).

All those present agreed with the new membership fee structure and were pleased with the proposed expenditure split per species group. Douglas-fir will get \$500,000 (31%) of the allocated funds, which is a significant increase on what was available under the previous Co-operative. The other core species of the Diverse Species Theme are the cypresses, eucalypts, redwoods and indigenous species.

Members of the Theme can decide for themselves whether to participate

in research on all species, or just those in which they are most interested. They will not have to pay an area levy on 'non-core' species of little interest to them.

Diverse Species manager, Heidi Dungey, outlined the process for determining the projects on which the funds would be spent. Firstly, the meeting had to determine the priority research areas for Douglas-fir (see page 2), which would then be put in front of a Technical Steering Committee (TSC) to see how they could best be fitted to meet the expectations of the FRST programme.

The TSC has member representation from each of the species groups. The meeting requested that the TSC report back to members for comment on the outcome

of their deliberations – before any final decision was made. (See page 4 for FFR contact details and important upcoming events).

Below: Members of the Douglas-fir Research Co-operative meeting in Christchurch on 15 July 2008, to discuss research under the new Diverse Species theme within Future Forests Research.



Congratulations to Diverse Species Manager - Dr Heidi Dungey

Heidi master-minded the Diverse Species bid to the Foundation of Research Science and Technology (FRST), and has this to say about the outcome:

“We are pleased to announce that the new FRST programme, named ‘Diverse Forests’ was successful, with almost a \$700,000 increase in annual funding. The programme overall won \$1.6 million per annum over 5 years.”

“This is fantastic news, and Douglas-fir research can be expected to have a significant boost in funding. The successful and integrated Douglas-fir Cooperative programme was very important in securing the success of the bid. We look forward to an exciting next 5 years!”

“Thanks to all who provided valuable feedback and input into the programme.”

Priorities for Douglas-fir research

At the meeting on July 15 (see P1), Douglas-fir growers 'brain-stormed' research options under the core headings of breeding; propagation; silviculture; harvesting; modelling; health/environment/soil/water /carbon; wood properties; new products/processing; marketing; legislation /consents and education / promotion.

All the options were then considered one-by-one before prioritisation into what were considered to be the most important.

The outcome was as follows:

- **Breeding / propagation**
 - ~ develop/confirm breeding plan.
 - ~ selection for drought tolerance, water efficiency.
 - ~ delivery of propagation advances.
- **Silviculture / harvesting (particularly relative to production thinning)**
 - ~ optimal thinning regimes.
 - ~ optimal harvesting equipment and strategies (ghosting).
- **Growth models**
 - ~ regional validation of existing models.
 - ~ new growth models and PSP strategy to suit.
- **Health and environment**
 - ~ continue SNC work.
 - ~ continue wilding work.
 - ~ comparative water quantity and quality impacts.
- **Wood properties**
 - ~ characterisation of D-fir wood (juvenile and mature).
 - ~ small log (thinning) utilisation.
 - ~ durability / treatment.
 - ~ stiffness tools for field use.
- **Marketing / promotion**
 - ~ maintain/strengthen links to D-fir Association, NZWood, education agencies (UoC).



Sawing study. Logs colour coded prior to sawing to identify individuals, with inner 10 rings marked.

Sawing study

A study was carried out in February 2007 (D-fir Co-op Report No 57), which demonstrated that acoustic tools could be used to measure stiffness in both standing Douglas-fir and sawn boards from the same trees - from a Central North Island stand at Whakarewarewa.

A sister trial to that used at Whakarewarewa Forest was undertaken using a stand at Rankelburn Forest, south-west Otago. Using previously collected data on growth and form, 300 trees were selected that showed good form and growth.

These 300 stems were assessed using the IML hammer and again using the ST300 standing tree acoustic tools. From this data set 30

trees were identified to represent the stiffness range of the stand.

The targeted trees were then felled and sawn, thanks to major in-kind assistance from Ernslaw One and Blue Mountain Lumber.

Once sawn, board stiffness was assessed via a raft of techniques. Data from green timber was obtained from Director and the A-grader, while the machine stress grader was used for the dry lumber. A subset of 100 random boards was sent to Scion timber engineering and will be assessed for MoE and MoR.

Based on actual calibrated bending tests using sawn timber, this study will allow us to identify the best techniques for assessing stiffness in the field.

Biofuel advantage for D-fir?

The growing interest in biofuels has particular interest for Douglas-fir growers and processors since the wood provides a much higher fuel value than radiata pine, by volume. It is also naturally drier in its green state.

Douglas-fir firewood, boiler chip fuel and pellets are all superior fuelwoods to those made from pine,

and this attribute will help improve the economics of production thinning, and offset processing costs. Growth in renewable forms of energy is expected to continue rapidly as consumers are encouraged to switch from fossil fuel based energy sources. Douglas-fir owners will be able to utilise this built-in advantage.

Update on wilding work

Some of the best sites for growing Douglas-fir are in inland South Island hill and high country. Due to the largely grassland cover and often low grazing intensity, the risk of wilding spread can be high. For this reason, all Douglas-fir Co-operative members belong to the South Island Wilding Conifer Management Group which has obtained considerable funds from MAF's Sustainable Farming Fund (SFF) to carry out wilding risk mapping, control and education/awareness work.

Of specific interest to Co-op members is research into the most cost-effective chemicals for controlling Douglas-fir wildings. It appears that the species is more susceptible to some of the more common chemicals than are the pines. A report on the first stage of this study is due out by the end of the calendar year.

Progress, including a number of recent and interesting reports, with the SFF wilding project can be seen on the dedicated wilding website (www.wildingconifers.org.nz).

Rising importance of production thinning

At the July 15 meeting of Douglas-fir Co-op/FRR members, Chairman, Phil De La Mare high-lighted how little Douglas-fir had been planted

prior to 20-30 years ago, and hence the present-day bulge of estate hectares in the 10-20 year age class. This, combined with the tendency towards production thinning of smaller piece sizes, suggested a priority need for research on young tree wood quality characteristics and the harvesting/processing techniques. The new research priorities (see P2) reflect this, with an emphasis on characterising juvenile wood properties and determining the optimum thinning regimes and harvesting strategies and equipment. The thinning trials set up on five sites over 10 years ago, will be most useful in this respect.

New Douglas-fir Manual

Piers Maclaren has already written the first part of the Douglas-fir Manual as a Co-op report (No. 61). This was like an annotated index – it summarised the huge amount of research generated by the Coop since its inception in 1994, and told readers where they could delve into details.

The second part of the manual is about to be completed. It is less technical, containing public domain information which is not referenced, and will be well illustrated with photograph (but more needed – see Box). In other words, it is suitable for someone new to the species who

just wants a broad overview. Included is information on: the best place to grow Douglas-fir in New Zealand; how to go about establishing a stand; what pests and diseases to watch out for; how New Zealand Douglas compares in terms of growth; the use of the Douglas – fir Calculator (a real gem – just as good as the radiata version!); optimum silvicultural regimes; environmental issues; risks; wood quality and utilisation issues.

Similar handbooks or manuals have now been written for a range of species, including radiata pine, cypresses, blackwoods, redwoods, and various indigenous trees. Together, these provide a starting point for new forestry investors. Let's hope that future years bring renewed interest in forestry, and – for environmental as well as for commercial reasons – we will see more of our marginal land planted in trees. If so, Douglas-fir will definitely be one of the leading choices.

Douglas-fir images needed

Co-op member and author, Piers Maclaren, is seeking additional images for his Douglas-fir Manual. If you have any reasonable photos of the following topics, please get in touch with Piers (piersmac@ihug.co.nz). Full acknowledgement of the photographer will be given – so a chance to get your name in permanent print.

Any pretty pictures for the Introduction and History; site selection (frosts, drought, wind, snow, pests/diseases, weeds); soils and mycorrhizae; planting stock (good and bad); site preparation; growth rate (good and bad); stocking rates, thinning/pruning, rotation age; wood in use; drying and preservation; environmental issues (wildings, visual landscape, water quality etc).



'20-yr-old Douglas-fir thinnings from Naseby forest. Note straight stems, which are essential for sawn timber production from small logs.'



The new leaders of Douglas-fir research, Manager Dr Heidi Dungey of Scion (above) and Future Forests Research CEO, Russell Dale (below).



Tribute to past D-fir Co-operative officers

At its last (and 15th) annual AGM and meeting in April at Timaru, the NZ Douglas-fir Co-operative was formally dissolved, as part of its merger into the Diverse Species theme of Future Forest Research.

In her opening address, new manager Heidi Dungey paid tribute to the last Manager, the late Leith Knowles (Scion), past Chairs, particularly the present one, Phil De La Mare (Ernslaw One) and the current Secretary, Nick Ledgard (Scion).

“Leith was a researcher with a unique ability to bring his many

contacts together to blend practice with science,” Heidi stated.

“Without him there we would definitely not be in the strong position we are today.”

“Phil is from a very similar mould, and has gone out of his way to ensure that the Douglas-fir industry is recognised and well served by research.”

“These two are complemented by Nick, who has used his facilitation skills to make sure that members meet regularly and are up to speed with progress.”

Future Forests Research - Upcoming event

10-11 February 2009 - Christchurch
Diverse Species Forests - Theme Meeting
and Field Trip

Douglas-fir Co-operative Membership

Members (13)

Blakely Pacific Ltd
Cainard Forestry LLC
City Forests Ltd
Ernslaw One Ltd
Hancock Forest Management NZ Ltd
NZ Redwood Co Ltd
P.F.Olsen Ltd
Proseed NZ Ltd
Rayonier NZ Ltd
Timberlands Ltd
Wenita Forest Products Ltd
Weyerhaeuser New Zealand Inc.

Department of Corrections
Edendale Nursery
Ford's Nurseries
A W Gordon
Guild Forestry
Laurie Forestry Ltd
Leithfield Nursery
Mark Belton & Associates
Oregon Nurseries Ltd
Piers Maclaren & Associates
Rangiora Nursery
Southern Cypresses Ltd
Southern Forests NZ Ltd
Southland District Council
Waiariki Institute of Technology
Warren Forestry Ltd
WSM Ltd

Associate Members (20)

Appletons Tree Nursery Ltd
Canterbury University

**For more information on Future Forests Research
see www.ffr.co.nz**

**For more information on research described in this newsletter contact:
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