

Douglas-fir

RESEARCH CO-OPERATIVE

Newsletter

No 4, December 2001

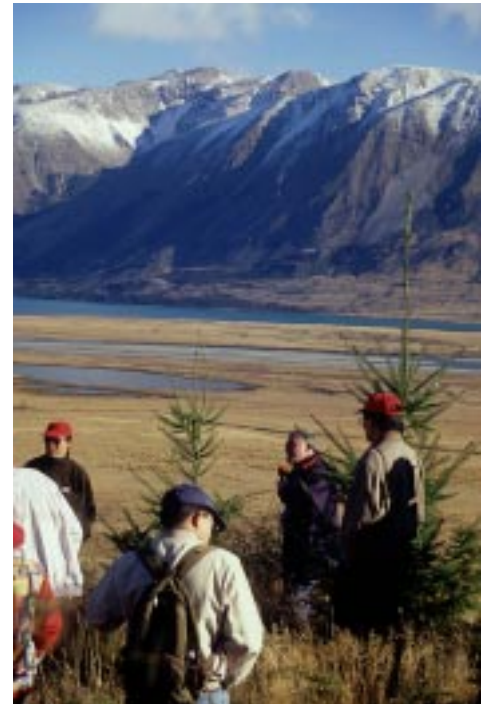
Douglas-fir Co-op meeting, seminar and field-day, Weds/Thurs Feb 13/14, 2002

The next Douglas-fir Research Co-operative meeting will be held at the School of Forestry on the University of Canterbury campus in Christchurch on the morning of Wednesday, February 13, 2002. This will include the Co-op's AGM, and technical presentation session — for Co-op members only.

After lunch, starting at 1.30 pm, the Co-op will host a Douglas-fir seminar at the School of Forestry (lecture room F3). This will be free and open to anyone wishing to attend, *but they must register with the Secretary (Nick Ledgard – see contacts panel on back page) before January 18 (preferably before Christmas)*. The seminar will go through til 5 pm, to be followed by a BBQ dinner in the evening.

On Thursday, Feb 14, there will be a field-trip for Co-op members and seminar attendants. This will be into the headwaters of the Rangitata River to look at Douglas-fir investment plantings co-ordinated by Mark Belton and Associates (MBA) – our host for the day. Over the last 4 years, MBA has established 3 500 hectares of Douglas-fir for overseas investors in the South Island. We will inspect their plantations, and discuss genetics and establishment. We will also consider environmental planning for forestry development in high country settings, including RMA consent requirements such as tree spread management and forest design. In addition, we will visit older stands (planted in 1987 and 1952), which show the forestry potential of the area. Both stands have PSP records, and the latter stand is currently being harvested.

A highlight for many will be a stop on the way home at Mt Peel Station to see arguably the oldest plantings of Douglas-fir in



Gordon Baker addressing a field-day on Glen Lyon station at the head of Lake Ohau. These 4-year-old Douglas-fir trees are showing the excellent growth which can be achieved at such sites.

[From front page]

New Zealand (1859), and what is certainly the oldest permanent sample plot (planted in 1865), with every tree holding over 10 m³ of wood.

The day will not only be very topical relative to Douglas-fir history and investment considerations, but

will be in a part of the country hard to rival scenically. A bus will leave from Christchurch at 7 am, returning by 6 pm. Transport and lunch will be provided by MBA. Remember warm clothing, as well as sunblock and hat.

Douglas-fir seminar topics

Listed below are the topics likely to be included in the Co-op seminar on the afternoon of Wednesday, February 13, 2002.

	Topic	Presenter	Content
1	D-fir Research Co-op structure	Leith Knowles (FR, Manager)	Purpose, membership categories, costs, history
2	Current membership	Phil De La Mare (Ernslaw One, Chairman)	Introduction to current members
3	Current field trials	Nick Ledgard (FR, Secretary)	Pictorial summary of major field trials
4	Genetic improvement in D-fir	Charlie Low (FR)	Outline of progeny and seed source trial results, plus progress in breeding population and control pollination work
5	Future seed source availability	Shaf van Ballekom (Proseed)	Appropriate use and availability of interim seedlots
6	Report on D-fir research in USA and UK	Leith Knowles	Based on trip to, and research in, both areas in 2001
7	Foliage sampling and fertiliser requirements	Tim Payn (FR)	Protocols developed, and trial results
8	National D-fir growth model	Leith Knowles	New suite of ht/age curves
9	D-fir profitability calculator	Leith Knowles	A simple calculator suitable for 'amateurs'
10	Wood quality	Leith Knowles / Lars Hansen	Outlines of new generation study
11	Environmental issues	Nick Ledgard	D-fir and eco-certification (cf. radiata pine)
12	Douglas-fir in the USA	Dale Cole	Opportunities for New Zealand Douglas-fir timber in the USA

Chairman's Comments – Phil De La Mare, Ernslaw One

At the conclusion of the calendar year, we have seen the Co-op yet again bear much fruit, despite a relatively small financial base. This is due in no small part to the energies of our manager Leith and secretary Nick.

Continued progress on upgrading and improving the growth model, developing a ready reckoner for current seed sources, and first measurement data of the 1996 seed source and progeny trials were some of the recent outcomes. Already this last output has resulted in short term modification to Ernslaw One's breeding strategy, and there is no doubt that other members will be thinking likewise.

We have also reviewed our membership rules, with the inclusion of associate membership, the detail of which

will be explained at the February '02 meeting.

The Co-op management is following up potential research collaboration with CSIRO Melbourne (wood quality), Pacific North West Tree Improvement Co-operative (vegetative propagation strategies) and the Swiss Needle Cast Research Co-operative at Corvallis, Oregon.

A special mention must go to our manager, Leith Knowles, who through his extensive network of contacts and his broad knowledge base has maintained the impetus of our Co-op, which was in danger of collapse three years ago. It now has new direction and purpose. With our changes to membership, and raising the profile of the Co-op through next year's workshop, we are looking forward to more successes.

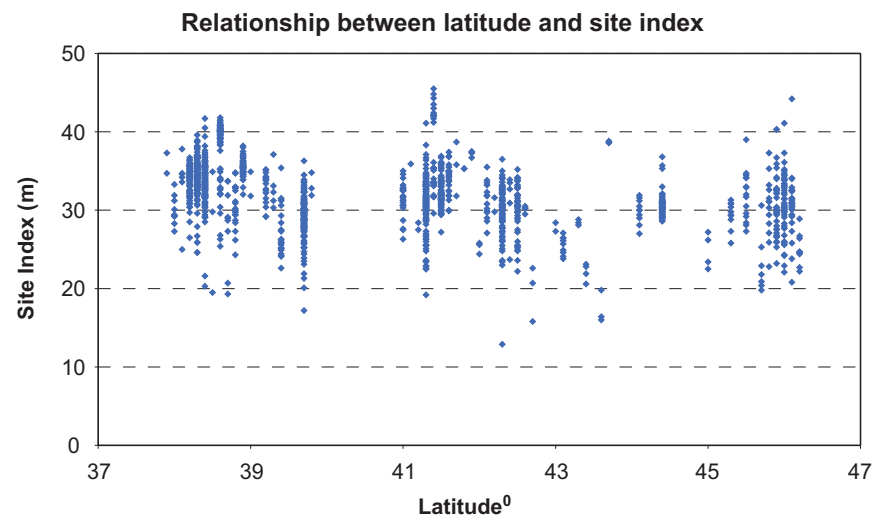
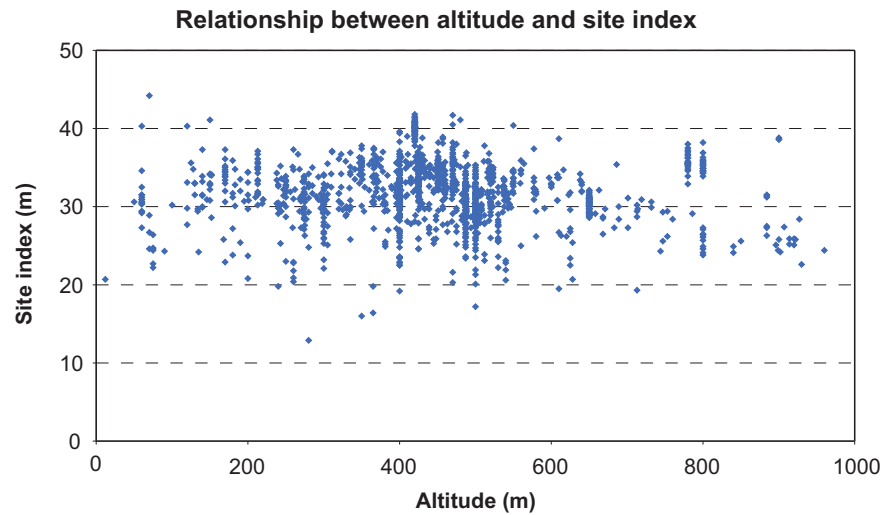
New national suite of height/age curves for Douglas-fir

A total of eight height/age curves for Douglas-fir are currently available to users of the STANDPAK stand modelling system. Unfortunately many of these are dated, and the set is geographically incomplete.

Mina Budianto, Leith Knowles, and Mark Kimberley are currently developing a new set of height age curves. This new set will be based on analysis of the data from some 1500 permanent sample plots distributed throughout the country. Statistical analysis will be used to determine if separate curves at the regional, district, or forest level are valid. Other variables which will be closely examined for possible influence on height/age development include provenance, initial stocking, thinning intensity, and Swiss Needle Cast. A wide range of different mathematical functions will be compared.

Preliminary examination of the data shows only very weak relationships between altitude, and latitude, and site index (*see figures*). This is in marked contrast to the height/age relationships exhibited by radiata pine, and possibly explains why Douglas-fir is expanding onto more southern, higher altitude sites.

A progress report will be provided at the February meeting of the Cooperative, and a final report should be completed by June, 2002.



Summer droughts – winter frosts

It's been a tough time trying to establish Douglas-fir in the inland areas of the South Island during the past 12 months. After one of the worst summer droughts in the last 100 years, parts of inland Canterbury and Otago were hit by the coldest winter frosts for 50 years. A series of frosts during July froze the soil up to 30 cm depth on south facing slopes and the ground remained frozen for 3–4 weeks.

Early winter (June) plantings remained in good health until late September, and then suddenly the tops died back on 5–25 % of seedlings on south-facing slopes. The pattern of dieback was random on uniform sites, and there was no apparent correlation between seedling dieback and degree of slope, soil type, vegetation cover or planting depth. At one site in the Mackenzie Basin, seedlings planted in 2000 showed similar symptoms, and it was interesting to note that smaller seedlings were worst affected.

Although the exact cause of this dieback is not known, it has been reported as a common cause of Douglas-fir seedling mortality in France. One possible explanation is frozen ground leading to damaged seedling root systems and restricted water uptake during warm spring weather, resulting in dehydration of seedling needles and stems.

Eighty percent of the seedlings with dieback had retained some green basal foliage and live stem tissue near ground level. It is expected that, with favourable summer growing conditions, most of these seedlings should recover, albeit with the loss of one year's growth.

Possibly we can reduce the risk of this winter drought damage by avoiding early winter planting on southerly slopes until the worst of the winter frosts are over, but further investigation of frost drought and its effect on Douglas-fir seedlings is required.

This article supplied by Gordon Baker (MBA)



Frost drought of 2/0 Douglas-fir seedlings on a south-facing slope, Western Southland, November 2001

[The 2001 mid/late summer drought highlighted aspects of Douglas-fir site sensitivity. Where average annual rainfall is under 1000 mm, the importance of adequate soil depth and soil moisture retention was obvious. Where these were lacking, mortality and severe top dieback were common. *Editor*]

New Zealand Douglas-fir Research Co-operative

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Annual base fee: \$5000

Annual area levy: \$1.20/ha of Douglas-fir estate