

Improving Conifer Timber Steering Group

Wednesday 1st November, 2006

Attendees:	Richard Ogilvy	- Christie Elite Nurseries Ltd
	Alan Corson	- Forest Enterprise (England), York
	Barry Gardiner	- Forest Research, Timber Properties Programme
	Chris Jones	- Forestry Commission Wales
	David Leslie	- Scottish Woodlands
	Derek Nelson	- Forestry Commission Scotland
	Geoff Cooper	- BRE
	Graham Gill	- Forest Enterprise, FDM Kielder
	Jim Dewar	- Forestry Commission, Corporate and Forestry Support
	John Morgan	- Forestry Commission Plant & Seed Supply
	Michael Fairgrieve	- Northern Ireland Forest Service
	Roger Coppock	- Scottish Enterprise, Forest Industries Cluster
	Steve Lee	- Forest Research, Conifer Breeding Programme
	Vaughan Hammond	- Tilhill Forestry Ltd
	Tim Liddon	- Tilhill Forestry Ltd
	Guy Watt	- John Clegg Consulting Ltd
	Alexis Achim	- Forest Research, Timber Properties Programme
	Madge Holmes	- Forest Research, Administration (minutes)

Apologies were received from Colin Forsyth (PB Forestry Lands) for whom Richard Ogilvy was substituting as chair; Christine Cahalan (University of Bangor); Andrew Cameron (University of Aberdeen); Gordon Callander (Callander Sawmills) and Philip Turner (Centre for Timber Engineering, Napier University).

Vaughan Hammond is retiring and Tim Liddon will now represent Tilhill Forestry Ltd.

The minutes of the previous meeting were accepted.

1. Kielder Forest District office

Attendees met at 1000 hrs at Kielder Forest District, Bellingham for coffee and departed at 1015 hrs by minibus to a progeny test site. The site had been previously assessed for log quality. Discussion centred on improvement of straightness and impact on green log proportions. The party then returned to Bellingham office before travelling to Kielder Castle to visit two contrasting sites of Sitka spruce planted in 1997 within compartment 3102a; an area of 13.5 ha. Each site had been planted with vegetatively propagated material [90(MOO34)C1]. Discussion centred on suitability of the different sorts of improved stock according to climate and site conditions.

Alexis Achim also demonstrated the use of an acoustic tool to assist in the grading of logs either at the roadside or in the sawmill. A similar device for use on standing trees was not available due to design modifications currently taking place in New Zealand.

The party then returned to Kielder Castle for lunch and the business meeting.

2. Welcome and Introductions

Chairperson for the day, Richard Ogilvy opened the afternoon meeting by welcoming Alexis Achim from Forest Research and Guy Watt from John Clegg Consulting Ltd, both of whom gave presentations. The Chair also reminded the group of the steering group remit:

- Will provide strategic direction and integration of purpose to the Forest Research programmes in conifer breeding and timber properties.
- Will provide an industry perspective and encourage a two-way flow of information between industry and researchers.
- Should promote better co-ordination and collaboration between the various research programmes involved in a bid to improve the competitiveness of British grown conifers.

3. Presentations

a. Objective of using acoustic tools – Alexis Achim

An overview on the use of acoustic tools was presented. The PowerPoint presentation will be placed on the Improving Conifer website. Alexis was thanked for his presentation.

Action: Steve Lee

In reply to a request for questions the following comments/statements were made:

- (Geoff Cooper) How do you intend splitting these groups into 3 i.e. in stand, roadside and at sawmill, before logs processed?
- (Alexis Achim) Recalculation of grading rules would need to be enforced and although there is an issue here, there is no problem getting the information before it is graded.
- (Geoff Cooper) Would this allow us to predict rejects before grading?
- (Derek Nelson) Would this be a way of identifying stiffness prior to grading?
- (David Leslie) At present there can be financial loss because of rejects (30-40%) which have to be sold as economy grades.
- (John Morgan) Regarding breeding material, would it be of benefit to look at material just thinned? Could we thin selectively?
- (Alexis Achim) Yes. At present Steve Lee has a PhD student working with him who is studying use of the acoustic tool on standing trees, variation between progeny, and correlation with microfibril angle measured in the lab. Steve hopes that such tools will provide a quick assessment of a difficult-to-measure trait in a similar way that the Pilodyn gives a quick indirect assessment of wood density.

b. Elite Sitka Economics - Guy Watt & Steve Lee

Guy Watt was thanked for his PowerPoint presentation which will be placed on the Improving Conifer website.

Action: Steve Lee

The following comments/statements were made:

- (Roger Coppock) The volume figure may be conservative. At present the red log market (60%) is shrinking but the supply of red log is increasing leading to saturation of the market.
- (Tim Liddon) If you are going to plant vegetatively propagated material, it might as well be from full-sibling rather than half-sibling seed. The costs are similar but the returns from the former will be greater due to better quality and uniformity.
- Steve Lee and Guy Watt confirmed that they have plans to publish their findings regarding the economics of improved planting stocks.

Action: Steve Lee/Guy Watt

4. Matters Arising

a. Presentations

The presentations from the previous meeting by Geoff Cooper, BRE and Steve Lee and Barry Gardiner are all on FR's website and can be accessed by linking to:
<http://www.forestresearch.gov.uk/fr/INFD-6KYGHS>.

5. Improving Conifer Quality steering group as PAG – Jim Dewar

Jim Dewar led a short discussion on whether the Improving Conifer Quality steering group should also serve as a Programme Advisory Group (PAG). He explained that rather than set up another group, which would include most of the members of this steering group, he would like to pick up some of the issues as a steer and take them to the FC PAG meeting.

Barry Gardiner expressed his view that the work between Forest Research and Napier University is becoming very closely coupled and there is a need to ensure that the work is well coordinated. Derek Nelson's view was that although this would add to his workload on managing the implementation plan for the Scottish Forestry Strategy it would be of real benefit.

Barry Gardiner drew attention to the fact that with money becoming more restricted we need to encourage criticism. Richard Ogilvy agreed.

With no opposition or objection the consensus was agreement.

6. Discussion

A number of topics were then selected for further discussion by the Group. Comments are recorded accordingly.

a. The impact of climate change

- CO₂ increase.
- Temperature increasing.
- Increased winds?
- Assumptions that there will be longer growing seasons.
- (Chris Jones) Increased lammas growth and double whorling in future.
- (Steve Lee) We have looked at the amount of lammas growth on selected material at a specific date following a frosting incident in October 1993 and found there was a huge increase of lammas growth on these particular clones - sometimes in excess of 100% - relative to the QCI control. . Those with extra lammas growth did not always have an increase in frost damage. See Mboyi and Lee (1999), Forestry 72, No. 2.
- (Chris Jones) What will be the affects of whorling on timber growth? On strength?
- (Barry Gardiner) We need to add the concept of double-whorling to the present branching model.
- (Steve Lee) We do have information that is 15 years old.
- (Jim Dewar) There is a need to add these figures to a model and then come back and assess.
- Barry Gardiner/Alexis Achim to add to model.

Action: Barry Gardiner/Alexis Achim

- (John Morgan) Is improved material more likely to be affected by frost or leader damage? There is an issue of balancing increased yield versus early frost damage or summer leader loss.
- (Richard Ogilvy) There is distinct possibility of such problems.
- (Barry Gardiner) Need to keep an eye on other countries re: climate change i.e. Scandinavians.

b. Nature v nurture including (i) the impact of spacing; (ii) minimising the size of the juvenile core and (iii) impact of mixtures

- (Steve Lee) The idea here is to get a feeling for what is under management control and what degree is under genetic control?
- (Richard Ogilvy) Asked if the Baronscourt data will give us a better handle on this. Asked Barry Gardiner if there were any areas FR wanted guidance on?
- (Barry Gardiner) Regarding the impact of spacing on timber quality, SIRT is looking at this. Quite a lot of effort is being expended into investigating but the results are still 2 years away.
- (Steve Lee/Barry Gardiner) We need to look at juvenile core at different planting spacings. The suggestion is that trees planted closely and which close canopy earlier will have a smaller juvenile core.
- (Alexis Achim) Simulations can be added to model. At present it is missing fine branching, percentage of juvenile wood and lammas growth.
- (Geoff Cooper) Programme BRE/FR. Funding agreed. Models need to talk to each other.
- (Graham Gill) Questioned the impact of mixtures on timber quality.
- (Richard Ogilvy) Question left on table for future discussion. What are the implications for timber quality and yield?
- (Chris Jones) More mixtures being planted in Wales to reduce pesticide use.
- (Barry Gardiner) We need models to deal with this.
- (Richard Ogilvy) How about old stands in north Scotland where SS was grown as mixtures in the past?

- (Barry Gardiner) Andrew Cameron has done work on impact of mixtures and spruce and would be a good person to come to the next meeting.

c. Clonal Forestry

- (Steve Lee) Using somatic embryogenesis (SE) gives the potential to make many thousands of copies of tested clones.
- (Richard Ogilvy) Would you want clonal forestry if the price was similar to conventional vegetatively propagated material?
- (Steve Lee) One might think of a scenario where clonal material costs twice as much as veg. prop. The question is can the gains ever be good enough to justify costs? One of the major benefits of clonal forestry is the potential to identify clones which combine traits that are rare and not identified at a family level e.g. good wood density and high growth rate. Although costs may be twice as much initially, this would undoubtedly reduce with quantity requirements. But would initial demand be enough to get an industry started?
- (Guy Watt) Is there not information from abroad?
- (Richard Ogilvy) USA (CellFor). Mainly worked with pine, some spruce.
- (John Morgan) What are the commercial benefits of clonal forestry?
- (Richard Ogilvy) In USA they found only 3-5% will allow themselves to be tissue cultured.
- (Derek Nelson) Questioned socially acceptability of clonal Sitka spruce in British forests
- (Roger Coppock) How much would it cost to send material to US for the somatic embryogenesis process and then get material sent back for planting?
- (Richard Ogilvy) Uniformity is a major benefit of clonal forestry.

Action: Steve Lee to do a literature review of clonal forestry use worldwide – especially in Canada, USA and NZ.

d. Opinion of Steering Group

- For next discussion add opinion of steering group of value of work done on clonal forestry.

Action: Steve Lee

e. Green log/Red log

- The specifications for red and green logs were designed to cater for the specific purpose of structural timber logs to saw market, i.e. logs for mills.
- (Barry Gardiner) We now have an economist at FR that can help with defining what is important.
- (Richard Ogilvy) We need to look at how we categorise logs. BSW – scan logs and know quality of timber over the last 20 years. We also need to find out what people utilise the wood for.
- (Derek Nelson) Breeding for stiffness needs to be addressed.
- (Richard Ogilvy) We will continue this at the next meeting. Look at Kershope and Baronscourt results.

7. Any other Business

There being no other business the meeting closed at 1600 hrs.

8. Next meeting

The next meeting will be held during May 2007 at a date and venue to be decided. Aberdeen was mentioned as a possible location so that Andrew Cameron could be asked to talk about impact of mixtures on timber quality as well as perhaps the Aberdeen PhD student make a presentation on his work involved the use of acoustic tools to assess timber strength.

Action: Steve Lee/Barry Gardiner and Colin Forsyth