

Timber Quality Steering Group

7th Meeting at Cruickshank Building, Aberdeen University, 27th November 2008

Present:

Colin Forsyth (CF)	- Chair, Scottish Woodlands Ltd
Richard Ogilvy (RO)	- Christie Elite Nurseries Ltd
Barry Gardiner (BG)	- Forest Research, Timber Properties Programme
Steve Lee (SL)	- Forest Research, Conifer Breeding Programme
Tim Liddon (TL)	- UPM Tilhill
Andrew Cameron (AC)	- Aberdeen University
Gordon Callander (GC)	- Callander's Sawmill
John Kissock (JK)	- Scottish Forestry Trust
Andy Leitch (AL)	- Forestry Commission Scotland
John Morgan (JM)	- Forestry Commission, FE
Elsbeth Macdonald (EM)	- Forest Research, Timber Properties Programme
Derek Nelson (DN)	- Forestry Commission Scotland
Rob Sykes (RS)	- Conifer Breeding Programme
David Rook (DR)	- Scottish Forestry Trust
Francis Wilbur (FW)	- James Jones & Sons Ltd
Madge Holmes (MH)	- Forest Research (minutes)

Also present:

Stuart Kennedy (SK)	- PhD student Aberdeen Univ.
Dave Auty (DA)	- PhD student Aberdeen Univ.

Apologies: Alan Corson, Christine Cahalan, Geoff Cooper, Michael Fairgrieve, Graham Gill, Chris Jones, John Moore, Margaret Watson and Dave Leslie (substituted by Francis Wilbur).

The morning consisted of a visit to view a Model D timber house (including timber from the Kershope progeny test) located in Sylvan Stuart's yard near Insch. Lunch was at Aberdeen University hosted by Andrew Cameron. Café

Chairman, Colin Forsyth welcomed everyone.

1. Minutes of the last meeting - 6th May 2008 at Abergavenny, Wales

The minutes were accepted.

2. Action points from previous minutes

- 2.1 *Economics of improved Sitka spruce:* Steve Lee confirmed that this Information Note is still in production and is not ready for publication. See discussion at item 10.
- 2.2 *Impact of climate change on the planting of conifers* – Comments on the Scottish report were sent to Chris Jones to aid his production of a Welsh report.
- 2.3 *CFS review of conifer breeding* - This is now complete. Discharged.
- 2.4 *Update on the review of clonal forestry technologies* – Steve Lee informed the group that since the appointment of Trevor Fenning progress was now being made in the area of cryopreservation as well as other areas of Somatic Emryogenesis. Some small emblings are now in the glasshouse for planting out spring 2010.
- 2.5 *Prof. Bruce Greaves report* – See Agenda item 9.
- 2.6 FC(S) Timber Development Programme (Training in Silviculture). Elsbeth Macdonald to update. See Agenda Item 6.
- 2.7 *Information Note presenting results of the Kershope study* – This Information Note (FCRN003) has now been published and is available from the FC website.

2.8 *Update on Benchmarking project* – Barry Gardiner informed the group that John Moore has completed measurements at all sites. Timber has been extracted from 12 sites and testing of sawn batons is ongoing. The report, when available will be put to the Production Forecasting Group. Results expected by end of FY.

3. Any other business

Abergavenny meeting - The Welsh trip earlier this year concentrated on species other than SS e.g. Douglas fir, Grand fir and Larch. Colin Forsyth (CF) commented that the hybrid larch stands were encouraging, looked good and reminded attendees of the potential of good Larch.

Roger Coppock asked at our last meeting if Steve Lee (SL) knew of any good hybrid larch trials in Scotland which might contain the best family – EL6 x JL 42. SL reported that no suitable trials had been found. SL went on to say that CONFOR have requested information regarding what FR have done with larch and this information will be included in the April 2009 CONFOR magazine.

SL explained that European and Japanese larch do not flower at the same time. John Morgan (JM) informed the group that an intimate mix, not pure mix was in the nursery, and that the only way we can obtain pure hybrid larch is by controlled pollination and vegetative propagation which is not viable commercially. SL said FR used to force flower Larch in polyhouses 10 years ago. Richard Ogilvy (RO) endorsed the unsuccessful efforts to obtain pure hybrid larch and queried other methods of obtaining good quality HL.

Elsbeth Macdonald commented that it would be of commercial benefit if we could produce controlled crosses but the problem was sourcing the seed. SL commented that larch is difficult on all levels, pollen, flowers and seed. EM asked if we knew of anyone who had a system that worked. JM informed the group that Canada and USA have a system that works but with a different strain of larch. SL commented that somatic embryogenesis may work with Larch and protocols exist within INRA, France..

The following presentations are available on [FR's website](#).

4. The Juvenile core and impact on wood Quality – Presentation by Andrew Cameron

Andrew Cameron's (AC) presentation was also an introduction to the work being done by Stuart Kennedy PhD student Aberdeen University. Although there is no agreed universal definition of juvenile wood AC's presentation gave a brief definition of juvenile wood, its properties and formation, discussion of growth rate and how it affects juvenile wood and how we can limit the amount of juvenile wood in trees by tree breeding and silviculture. In Sitka spruce it is generally considered that juvenile wood comprises the first 12-13 rings.

Conclusions made to limit juvenile wood were the need to plant at close spacing, thin when side branches are suppressed to 4-6m, grow on longer and remove lower branches to 6 m of clear stem allowing trees to open out and expand. SJ informed the group that FR already have some crown width and height data that could be used for species modelling, and that there was limited evidence to suggest that improved Sitka spruce had a narrower crown for a given height at the same spacing as unimproved material.

5. Modelling the juvenile core – Presentation by Barry Gardiner and Elspeth Macdonald

BG's presentation used data on Microfibril Angle from Paul McLean's thesis "*Modelling Juvenile Wood Percentage*". Slides show Modulus of Elasticity (MOE) versus Cambial age in SS, effects of thinning on juvenile wood, and juvenile wood area in relation to tree age. The impacts of silviculture on wood properties, including juvenile wood percentages are given in the presentation available online. In summary the main question is "What is the correct definition of juvenile wood?" It appears to be a mix of factors such as microfibril angle, wood density, and fibre length that combine to produce wood with poor mechanical and stability properties in the first 12-13 rings from the pith.

Modelling juvenile wood percentages now is available by using the Timber Quality model on the FR Decision Support System site on the web at <http://www.eforestry.gov.uk/forestdss/>. You will need to register – instructions given on-line.

6. FC(S) Timber Development Programme (Training in Silviculture) – Presentation by Elspeth Macdonald

Elspeth Macdonald's presentation in collaboration with FCS set out the key objectives of the development programme, the activity areas and the outcome of the workshop held at NRS in June which raised lots of issues, surprisingly mostly not concerned with silviculture.

EM's presentation included a draft programme for the seminar "*Improved timber quality through plant selection and silviculture*", to be chaired by James Pendlebury and to be held at Birnam Conference Centre in Dunkeld on 11th February 2009. The seminar is aimed at foresters and managers involved in the planning and implementation of silvicultural decisions.

EM has requested that speakers provide in advance of the seminar a double-sided A4 article which can be printed out and used together as the basis for silvicultural guidance..

Action: Seminar speakers

It was noted there is a limited but growing market of architects requesting home-grown larch and Douglas fir as well as Sitka spruce for their aesthetic appeal. Climate change is affecting views and the possibility of building in a way that minimises 'carbon miles' and growing a range of species in order to 'spread the risk'.

7. Variation in the mechanical properties of Sitka spruce – Presentation by Stuart Kennedy

Stuart will be presenting his PhD soon.

JM enquired whether this acoustic tool will improve screening for thinning clones in a seed orchard. SL confirmed this would give a value for MOE which we do not have at present and could be used for screening.

8. Wood Quality model for Scots pine – Presentation by Dave Auty

Dave Auty's presentation set out the structure of his PhD and placed it in the context of forest policy, resource assessment and market development for Scots pine. He is working towards a forecast for Scots pine timber quality in time for the production forecast of 2015. Samples have been taken from YC6 and YC10 sites containing young, medium and mature stands. A total of 12 sites are included and DA's presentation included photographs of the sites demonstrating their variability. At present all the samples have been measured collected and are now being prepared for destructive testing.

David Rook (DR) asked DA if he had measured sapwood area. DA described a complimentary project looking at heartwood/sapwood ratio being undertaken by Kate Beauchamp, a PhD student at FR. Kate will be using the same material as collected by Dave for her study.

Barry Gardiner (BG) informed the group that he hoped to have models for SP at the end of this project to complement those already developed for SS. He is also aware of the group at Bath University who are doing similar work with DF. The hope is that in the next 3 years we will have comprehensive wood property models for all 3 species.

9. Bruce Greaves' report – Presentation by Steve Lee

Steve Lee (SL) was asked last May to give a presentation on Professor Bruce Greaves' report on Selection index weights for Sitka spruce. This report and Bruce Greaves' visit to the UK in April 2008 was funded by SFT. SL was asked to investigate various extreme scenarios to test out the model. SL's model included all costs (except that of the tree breeding programme). and the variables can be altered to demonstrate different profit margins.

John Kissock offered to liaise with SL over some of the figures included in report.

CF thanked SL and SFT for arranging for Bruce Greaves' visit to the UK.

10. Economics of planting improved Sitka spruce (Seed orchard and VP) – Presentation by Steve Lee and Guy Watt.

CF emphasised the importance of this work to enable practitioners to be comfortable with the greater investment cost at year 1. Some of the Private sector are now not prepared to incur the extra cost of full sib material ex VP; an economic justification is required. The last economic justification figures published in FC Bulletin 'Super Sitka for the 90's'. Different sources of SS are available at various costs, but the aim is to determine when increasing the quality justifies the increase in cost of VP relative to seed orchard planting stock.

A breakdown of the various costs and benefits was discussed under various yield classes and rotation lengths, assuming a no-thin regime. BG offered the services of John Fonweban from the Timber Quality Programme to help determine the increase in volume of sawlogs in the working model. Both BG and Derek Nelson (DN) agreed the importance of looking at aggregate grades and where these can be obtained from. Clarification on terminology needed – seed orchard, half sib and full sib (SRDP issue).

SL agreed to look into the figures taking into account the comments made and bring to the next meeting of the TQSG including expanding the range of YCs and investigating thin as well as no-thin.

Action: Steve Lee

11. David Rook, SFT who retires from SFT reminded the group that 7 SFT-projects had been discussed today and the need for the industry to contribute to future funding of timber quality projects.
12. Next meeting Thursday May 7th. NRS.

Colin Forsyth closed the meeting by thanking everyone for attending.