



VEGETATIVE PROPAGATION & DEPLOYMENT OF VARIETIES – THE SCOPE FOR EUROPE

21, 22 & 23 April 2009

**Report of the above Workshop held under
Activity 6 of EU 6th Framework contract,
'TreeBreedEx'**



By: Steve Lee



Summary

Over 50 people from around 20 different countries world-wide, but mainly Europe attended this 'open' meeting on the possibility of clonal forestry in a European context. News of the meeting which was held in Liverpool, England was well publicised through TreeBreedEx partners, the TreeBreedEx website and direct e-mails to known interested colleagues across the globe. The decision to hold the meeting in Liverpool was so that delegates could visit the large state-owned tree nursery (known as Delamere) located just 30 km away, which already had a programme of producing 5million rooted Sitka spruce (*Picea sitchensis*) cuttings annually.

The meeting was held on 3 days – 21st, 22nd and 23rd of April. The first two days of the meeting were open to all interested parties. These days concentrated on presentations from people around the world who were already practising clonal forestry. People from New Zealand, Canada and Portugal (with experience from Brazil) told the group how they make clonal forestry work in their country. Another invited speaker from USA explained how the economics of clonal forestry might work and invited attendees to visit an on-line calculator. These open days attracted many tree-nursery people and forest managers from Britain and Scandinavia in particular.

The third day of the meeting was open if people wanted to attend but it was more geared to TreeBreedEx members. It consisted of a number of shorter presentations and posters on success relating vegetative propagation to more minor species planted around Europe. Around 35 people attended this day.

The field trip to Delamere nursery took place on the afternoon of the 2nd day. This nursery is actively engaged in full-sibling rooted cuttings. The field trip was well suited to the subject matter of the indoor sessions and helped impress upon delegates how a modern rooted-cutting facility needs to work.

Programme of the Workshop

Day 1	Tuesday 21st April
0900-0915	Welcome <i>Steve Lee, Forest Research, GB</i>
0915-0930	Introduction to the meeting and the promise of clonal forestry <i>James Pendlebury, Chief Executive Officer of FR, GB</i>
0930-1030	If vegetative propagation and/or clonal forestry is so great... why are we not using more of it in Europe? <i>David Thompson, Coillte, Ireland</i>
1030-1045	Tea/Coffee
1045-1145	Clonal forestry in Norway – Tried it once. Could it work now? <i>Øystein Johnsen, NFLI, Norway</i>
1145-1230	With Such Good Sitka Spruce Family Forestry in the UK... Clonal Forestry? Why Bother? <i>Steve Lee, Forest Research, GB</i>
1230-1300	Summary of the morning and Lunch
1330-1430	Industrial Implementation of Multi-Varietal Forestry for Spruces in New Brunswick, Canada <i>Yill-Sung Park, Natural Resources, Canada</i>
1430-1530	Integrating Research and Nursery Practices for Mass Cutting Propagation and Somatic Embryogenesis in Quebec Seedling Production <i>Denise Tousignant, Ministry of Natural Resources and Wildlife, Québec, Canada</i>
1530-1545	Tea/Coffee
1545-1645	Clonal Forestry of Radiata Pine. Lessons for Europe <i>Michael J. Carson, Forest Genetics Ltd., New Zealand</i>
1645-1715	Summary of the afternoon
Day 2	Wednesday 22nd April
0830-0930	Clonal Forestry of Eucalyptus – in Europe and South America <i>Gabriel Dehon S.P. Rezende, RIAZ (Portugal)</i>
0930-1030	Clonal forestry of cherry and chestnut: i. Vegetative propagation of wild cherry. <i>Luc Paques, INRA (France)</i> ii. Clonal Forestry of Chestnut in Northern Spain. <i>Josefa Fernández-López, CINAM, Spain</i>
1030-1045	Tea/Coffee
1045-1145	Economics of Clonal Forestry. <i>David South, Auburn University, USA</i>
1145-1230	Is It Natural? Clonal Forestry in Public/Private Spaces. <i>Mariella Marzano, FR, GB</i>
1230-1345	Discussion on whole workshop and Lunch
1345	Bus leaves for Delamere Nursery courtesy of Forestry Commission.
1730	Return to hotel in Liverpool. End of open meeting.
Day 3	Thursday 23rd April
0830-1230	Posters and presentation on more scientific aspects of clonal forestry in particular: Clonal replication to assist breeding Keynote Speaker: <i>Bo Karlsson, Skogforsk, Sweden</i> <u>Other Papers</u> 1. In vitro establishment of juvenile and adult black alder (<i>Alnus glutinosa</i> (L.) Gaertn.) clones for resistance studies. <i>Gisela Naujoks, Irmtraut Zaspel and Lisa Krüge, Germany.</i> 2. Selection, vegetative propagation, clonal field trials and deployment of varieties of valuable broadleaved species. <i>Andreas Meier-Dinkel, Germany</i> 3. Gibberellin in vitro research for vegetative propagation of aspen. <i>Jonas Ziauka</i> 4. Outcomes of the Nordic meeting: “Vegetative Propagation of Conifers for Enhancing Landscaping and Tree Breeding. <i>Tuija Aronen, Metla, Finland</i>
1230-1330	Lunch & Depart

Attendees:

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Objective of the Workshop:

The objective of the workshop was to let delegates become aware of clonal forestry operations taking place elsewhere in the world and consider how lessons could be learnt if clonal forestry was to be practised in a more wide-spread manner in Europe.

Steve Lee, UK (Partner 11) was Chair of the Scientific Committee (SC). Other members were: David Thompson, Ireland (Partner 13); Michel Verger, France (Partner 1); Gerry Douglas, Ireland (Activity 6 co-ordinator and Partner 14); Berthold Heinze, Austria (Activity 6 co-ordinator and Partner 2) and Anne-Marie Lelu-Walters, France (Partner 1).

It was agreed from the first SC meeting that the Workshop should not dwell on discussion of how to get the technology to work – that has already been proven by many laboratories around the world. Rather the focus of discussion should be on deployment of clonal stock and presentations from people and organisations who are already making clonal forestry work for them. We wanted to look closely at case-studies.

We wanted to make sure the Workshop was inclusive by covering both conifer and broadleaf species but did not want to dwell on Poplar which is well covered elsewhere.

Spirit of the Workshop

The SC agreed the Workshop should be open to all and not just TreeBreedEx partners for 2 of 3 days. The 3rd day being more scientific in nature and so a narrower appeal would not be promoted as 'open'. People and organisations external to TreeBreedEx were invited from across Europe to attend the first 2 days. This was particularly the case in Britain – the host nation – where additional sponsorship was sought from forestry related companies.

Partners invited clonal forestry practitioners from across the world. It was warming to see how invited speakers were keen to attend and inform others of their experiences. The case-studies investigated were Radiata pine from New Zealand, White spruce from Canada, Eucalyptus from Portugal, and mention of loblolly pine in SE USA and past experiences in Norway spruce in Norway.

Rather than have a large number of presentations over the open 2-day period, the policy was to go for few, good quality presentations followed by detailed questions and discussion (Q&D). 60 minutes was allotted to each speaker who was asked to speak for no more than 45 leaving 15 for Q&D. This worked well enabling a good airing of all aspects of clonal forestry including the possibility of not bothering with it at all.

It was important that economics was considered as well as the societal aspects which can not be ignored in modern, sustainable, certificated forestry.

A general opening introduction from the CEO Forest Research (Partner 11) set the scene well in reminding the Workshop that climate change remained the main forestry-related priority for most European governments and any deployed clones would have to be 'future proofed' i.e. adaptable to the changing environment. This was something that discussions kept returning to during the meeting.

Lessons learned from the Workshop

It is not proposed here to give a summary of each presentation; these will all be available from the TreeBreedEx website (www.treebreedex.eu) along with abstracts and posters presented on Day 3.

However it is possible to conclude certain themes which came out of the meeting for delegates to consider as they return to their host organisations:

1. Clonal forestry is practised in certain places in the world. Although this is often with short-rotation species, increasingly this is not the case (e.g. white spruce in Canada);
2. Clonal forestry may not be the answer for all organisations. The economics may not justify such an approach and there are other issues such as certification and acceptance by stakeholders;
3. Foresters may find that the next best option – family forestry – is quite acceptable for their own circumstances
4. Ensuring deployed clones are adaptable to future, often unknown climate conditions ('future proofing') will be a challenge to breeders;
5. Some countries are investing more money in tree breeding as a means of locking up more carbon from the atmosphere.
6. Clonal forestry can help tackle climate change by maximising carbon sequestration and producing better-grade construction timber which displaces alternative carbon-intense building products such as metal and concrete;
7. The message from existing clonal enterprises was that the investment in people and kit may not be much more than required for an active vegetative propagation system using rooted cuttings;
8. The best way to consider clonal forestry further is to try it. Demonstrations of clonal forestry and actual clonal trials are needed for breeders to convince themselves that the effort is worth while (i.e. whether realised gain matches theoretical figures or not) and to have trees available in the ground of sufficient age to convince budget holders and policy makers;
9. The demand for clonal forestry in European countries will vary depending on forestry objectives, species planted or managed, and demand from stakeholder industries. It is clearly already here (Eucalyptus in Portugal) but whether it expands into other species and countries depends on many issues;
10. Of greatest importance is clonal trials in the ground so that informed discussion can be based on facts rather than theory.