

BIRCH/ALDER

Selection and improvement of Irish birch and alder

PROJECT TEAM

Dr Ellen O' Connor, University College Dublin/Teagasc*

Dr Martin Steer, University College Dublin

Dr Nuala Ni Fhlatharta, Teagasc

Jerry Campian, Teagasc

Toddy Radford, Teagasc

* Email: elaine.oconnor@teagasc.ie

COMPLETION DATE: December 2009

BACKGROUND

Demand for native species has increased in recent years. This project continues the work of the birch (*Betula pendula* and *B. pubescens*) improvement project that began in 1998. Improvement of alder (*Alnus glutinosa*) was initiated in 2005.

OBJECTIVES

The overall objective of this research is to provide a secure source of improved planting stock of these native species for the Irish forestry sector. The improvement path for all three species includes:

- Locating the best examples of mature trees (plus trees) of these species on which to base the improvement programme;
- Collecting scion wood and establishing seed orchards;
- Establishing clone banks to preserve the genotypes;
- Collecting seed and establishing progeny trials to assess the value of the trees as parents.

PROGRESS

Grafts of selected birch trees were bulked up and grown on for inclusion in an indoor seed orchard. Two birch trials established in 2001 were measured at planting and after one, two, four and six years. The plantations are approaching the stage where thinning will be required. Field assessments, begun in autumn 2008, will assess the trees after eight growing seasons and provide pre-thinning data to compare with post-thinning data. Growth and quality will be assessed.

Grafts of alder plus trees were bulked up and grown on for the development of a seed orchard and to provide material for an alder clone bank in Kilmacurragh. Three alder progeny trials were established in 2008 using seed from selected alder plus



Eight year old birch trial at Ballyredmond, Co Carlow.

trees. The seedlots were planted in blocks of nine trees (3 x 3) with spacing of 2 x 2m and three replicates per site. Planting heights and diameters were measured to provide baseline data. Sites will be assessed over the years to compare growth, quality and health of the seedlots.

A polytunnel has been prepared to house the birch and alder seed orchards. More plus trees of birch and alder have been identified.

ACTIVITIES PLANNED

- Completion of indoor seed orchards for birch and alder at Teagasc, Kinsealy.
- Increase of the alder collection number towards the target number of 200.
- Establishment of a third alder progeny trial.
- Completion of the assessment of the 8-year old birch trials.
- Collation, analysis and summary of birch breeding work to date.

OUTPUTS

Co-operation in COST E42 led to participation in two publications:

Skovsgaard, J.P., O'Connor, E., Graversgaard, H.C., Hochbichler, E., Mohni, C., Nicolescu, N., Niemistö, P., Pelleri, F., Spiecker, H., Stefancik, I. and Övergaard, R. 2006. *Procedures for forest experiments and demonstration plots*. <http://www.valbro.uni-freiburg.de/>

Hemery, G., Clark, J., Aldinger, E., Claessens, H., Malvolti, M., O'Connor, E., Raftoyannis, Y., Savill, P. and Brus, R. Growing scattered broadleaved tree species in a changing climate – risks and opportunities. *Forestry* (submitted).