

ASHGEN

Identifying the scale of suspected hybrid ash (*F. excelsior* x *F. angustifolia*) in Ireland and its potential for genetic pollution of indigenous ash germplasm

PROJECT TEAM

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OBJECTIVES

The overall objective is to provide a set of tests that can confirm the hybrid nature of ash present in suspect stands in Ireland and their potential to interbreed with indigenous ash.

The specific objectives are:

- to examine suspect material in Ireland using known morphological criteria;
- to examine suspect material in Ireland using known molecular criteria;
- to assess the potential threat of the confirmed hybrid material to further introgress with native stocks of ash.

PROGRESS

Samples collected from four sites are currently being analysed. Ten further suspect sites will be sampled for their morphological features and the presence of seeds and flowers.

The pilot work has shown that only small adjustments are needed before beginning the large scale evaluation of putative hybrid plantations. Trunk morphology measurement seems to be the priority for:

- tree pre-selection on the field;
- hybrid status not evidenced by leaf characteristics and/or molecular markers.

Leaf samples from each site were pressed for measurements of exceptional features. The University of Paris, with the aid of the other partners, proceeded to a first pilot sampling in two identified plantations in Ireland at Greenane and Kildalkey. The purpose of this pilot sampling was to:

- validate the overall sampling scheme;
- test the DNA collection technique;
- evaluate the morphological character recognition for field characters;
- evaluate the set of diagnostic molecular markers.

In total, 52 trees were sampled at the two sites and a set of morphological characters was recorded. Samples were sent to the laboratory at the University of Paris for DNA extraction. Two molecular diagnostic markers have already been tested (FemSat Long 19 and FAL757). Microsatellite genotyping standardization with 3100 Abiprism 16 capillary sequences has been initiated, showing adequate and precise resolution for a set of eight microsatellite markers with small non-significant modification of former protocols (genotyping was previously performed using a gel scanner). Size standard quantification, however, needs to be further examined as large inter-sample variation for the standard has been observed. Preliminary morphological analysis suggests that plantations include provenances with different types of hybrids, but that clear common ash individuals also exist. Tree form (not used before for natural population analysis) has been identified as a very relevant character and will be analysed during the winter period along with bud colour. These analyses, along with the next flowering evaluation in spring, will provide a general methodology ready to apply at a large scale as early as spring 2008.