Selection, vegetative propagation, clonal field trials and deployment of varieties of valuable broadleaved species

Andreas Meier-Dinkel

Northwest German Forest Research Institute, Dept. of Forest Genetic Resources
Prof.-Oelkers-Straße 6, D-34355 Staufenberg

Email: andreas.meier-dinkel@nw-fva.de

Abstract

The deployment of clonal varieties of valuable broadleaved species is one of the tasks within the scope of utilization of forest genetic resources at the Northwest German Forest Research Institute. The way until the introduction of new clones of forest trees to the market includes the following steps: selection of promising candidates, production of ramets by micropropagation, clonal field testing, certification and registration of tested clones according to the German Law on Forest Reproductive Material and last but not least cooperation with commercial micropropagation labs as well as publicity and sales promotion.

Candidates for clonal testing and identification of superior genotypes can be selected phenotypically in forest stands or in progeny trials. Using the latter, phenotypical selection can be combined with information on the heredity of quality and growth traits. In the case of wild cherry (*Prunus avium*) and birches (*Betula pendula, B. pubescens)* we have used single tree progenies as basis for the selection of superior half-sib families and elite trees within the superior families. The progenies originated either from open pollinated plus trees in forest stands or seed orchards. In the case of aspen and aspen hybrids (*Populus tremula*, *P. tremula* x *P. tremuloides*) and birch hybrids (*B. platyphylla* var. *japonica* x. *B. pendula*) elite trees were selected in progeny trials of controlled crosses. The production of ramets for clonal testing is preferably done by micropropagation. An important effect of this method is the rejuvenation of the plant material taken from selected mature trees resulting in ramets with juvenile characteristics like rootability and fast orthotropic growth. Those clones that have proven their superiority in at least one economically important trait like growth performance or stem form in comparison to a seedling standard can be certified as tested clones. Recent results on field testing of selected wild cherry clones concerning qualitative and quantitative traits are presented. For commercialization of new varieties we cooperate with commercial tissue culture labs which produce our clones under licence. Tested registered clones are in the market under the registered trademark silvaSELECT® which was established in Germany in 2002 and as Community Trade Mark for all EU member states in 2009.