

Broadleaved Forest in Norway

Forest and other wooded land cover 39 percent of the land area in Norway, of that area broadleaved forest amounts to 17% (20.000km²). However, only small quanta (50-100 000 m³) of broadleaved timber are harvested each year. *Alnus glutinosa*, *Betula pendula* and *Betula pendula* f. *carelica* are the main species established for production of quality timber, but also *Prunus avium* is planted on a small scale. The Norwegian Forest Seed Center has a seed orchard for *Betula*, and in spring 2006 an *Alnus* seed orchard will be established to ensure the delivery of high quality seed.

In order to gain experience on seedling quality and regeneration of broadleaved species by planting, a 4-year industry supported research project at The Norwegian Institute for Agricultural and Environmental Research was running from 2002 to 2005. Experimental plots were established in the "Spind Hardwood Park". This is a research and demonstration area for broadleaved forest trees in the boreonemoral zone in the south of Norway. The focus in the project was seedling quality of *A. glutinosa*, *B. pendula* and *B. pendula* f. *carelica* intended for production of high value timber. The project will be followed further, with focus on silviculture for production of quality timber, and also protection against roe deer and rodents will be studied.

However, the majority of the broadleaved forests in Norway are being established by natural regeneration. Large areas are neither treated with pre-commercial nor commercial thinnings. Thus considerable areas consist of stands not well suited for quality timber production. The Norwegian University of Life Sciences established 30 experimental plots in 1997-98 in order to examine the growth after thinning in such neglected stands in southern Norway. Mostly *Betula pendula*, *Betula pubescens*, *Alnus glutinosa*, *Fraxinus excelsior* and *Quercus sp.* are represented. Stand age, density and site class varied between plots. Different thinning regimes were included. Selected trees were cut for detailed analysis of height development. Several parameters related to tree size and quality were recorded. Vegetation and soil characteristics were described and analyzed. Increment cores were sampled for detailed studies of diameter growth. In 2003-04 the plots were remeasured and thinned again.