

GENETIC DIVERSITY ASSURED

Genetic diversity is retained by genetically improved seed because the trees forming the seed orchards originate from different geographical locations and they are not closely related. Genetic diversity is ensured through several other means as well. The number of base trees selected as the initial breeding material is large – nearly 20,000 trees. A considerable part of Finnish forests are regenerated naturally. Variability is also retained through the establishment of conservation areas and dedicated gene reserve forests.

PRODUCTION OF FOREST AND PARK TREES

The Foundation for Forest Tree Breeding produces planting stock for both forestry and greening purposes and for ornamental needs. The Foundation's share of the Finnish market is approx. 5 percent.

INDOGENIOUS PLANTING STOCK

The Foundation acquires its propagation material locally. Seed is obtained from seed orchards or top quality stands. Cuttings and the seed for shrubs is obtained by the various nurseries by accessing local sources proven to be of good quality.

NEW PRODUCTS COMING TO MARKET

The Foundation has brought to market several special forms of indigenous tree species. The best range is that for Norway spruce. A few special forms of birch are also in commercial production.

PLANTS SOLD DIRECTLY FROM NURSERIES

Each of the Foundation's nurseries attends to the selling of their plant material without go-betweens. This ensures that the plants the customer gets are in a good condition and attractively priced.

THE PRODUCTION OF BIRCH PLANTING STOCK AT THE FOUNDATION IS BASED ENTIRELY ON GENETICALLY IMPROVED SEED.



COVER: FEMALE INFLORESCENCE, NORWAY SPRUCE

THE FOUNDATION FOR FOREST TREE BREEDING

LASTING GROWTH AND QUALITY THROUGH BREEDING





SPECIAL FORMS OF NORWAY SPRUCE AT HAAPASTENSYRJÄ BREEDING CENTRE.

Haapastensyrjä is 187 hectares in area with 10 hectares covered by the nursery and approx. 2 hectares under polyhouses. Adjacent to the breeding centre there is a collection of special forms of indigenous tree species. This collection demonstrates the great genetic variability of the tree species we have in Finland. Indeed, this variability is an essential prerequisite for successful breeding work.

TREES OF LASTING SUPERIORITY

The goal in forest tree breeding is to bring about trees superior to those occurring in the wild in terms

The Foundation for Forest Tree Breeding carries out tree breeding and plant production serving the forestry practice. The Foundation was established in 1947. Its headquarters are currently located in Helsinki while practical breeding work takes place mainly at the Haapastensyrjä Breeding Centre in Loppi, 65 km to the north. Plant production is distributed among three nurseries – in Røykkä, Pieksämäki and Keuruu. The funds for breeding work are provided mainly by the government, whereas plant production is independently funded.

The Foundation engages in keen cooperation with the Finnish Forest Research Institute, the Finnish Forest and Park Service, and Forestry Centre Tapio.

HAAPASTENSYRJÄ TREE BREEDING CENTRE

The Foundation's breeding centre was established in 1960 when the bank organisation OKO handed over the Haapastensyrjä farm to the Foundation's needs for a term of 50 years.



GENETICALLY IMPROVED SEED FROM SEED ORCHARDS

of quality, growth and hardiness. The gains to be achieved through breeding are lasting gains – individual trees retain these properties for their entire life span. The crucial stages in breeding are selection of trees, crossing them and testing of their progenies. The foremost tree species are Scots pine, Norway spruce and Silver birch.

Genetically improved seed is produced in seed orchards of which there are currently approx. 3,000 ha for conifers. The majority of seed orchards are managed by the Finnish Forest and Park Service. Most of the seed requirement of the forestry sector is met by seed orchards. The growth of conifers obtained from such seed is 5–15 % faster than that of nonimproved trees. In addition, genetic improvement means superior quality or at least quality equivalent to that of nonimproved trees. Improved strains are assessed to ensure that they possess adequate climatic tolerance and resistance against pests.

GROWTH GAINS WITH BIRCH AS HIGH AS 20 %

Birch has responded best of all to breeding. Stands of birch raised from improved seed develop 15–20 % faster than natural stands. Birch seed is produced in seed orchards established in polytunnels. Their combined area, a little over a hectare, is almost sufficient to meet the total need for birch seed in the southern half of Finland.

CROSSING RESULTS IN NEW GENETIC DIVERSITY.



GENETICALLY IMPROVED BIRCH SEED IS PRODUCED IN POLYTUNNELS.

CLONED PLANTING STOCK AS WELL

Genetically improved plants can also be propagated vegetatively; through micropropagation in the case of birch and rooting of branch cuttings in the case of spruce. Cloning ensures total exploitation of the benefits of breeding.