



WHAT IS FOREST TREE BREEDING?

Since Neolithic times, humans have selected the best male and female to mate, hoping their progeny will inherit specific properties (milk production, wool production, resistance to diseases etc.). In forests, large exchanges of pollen and seeds between trees maintain a high level of genetic diversity making selection processes more difficult to handle. Foresters, through active management, used to leave the larger and tallest trees in areas they wanted to regenerate, so that the young trees growing from their seeds were known to have the characteristics of their mothers.

In the 18th century, forest research began to use conventional breeding techniques based on deliberate crossings among carefully chosen parents and the selection of seed from better-performing trees.

In the last century, selection focused mainly on survival and straighter and fast-growing trees. However, this took decades as mature trees – with some exceptions like poplar or other coppicing species – are harvested after 30 years or longer.

Recent progress in genomics and modelling - fostered by projects such as B4EST - confirms that genetic diversity can be maintained through selection programs that follow European scientific standards. New techniques allow scientists to analyse the genealogy of past trials and reduce the production period of a given breed from decades to a few years. It is important to note that genomics information is used to assess affiliation, monitor genetic diversity and make more precise the selection - improved trees are not genetically modified organisms and there is no artificial gene transfer from other organisms.



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