

Development of cultivation technology for hybrid poplar plantations

**A project for sustainable hybrid poplar
cultivation under changing conditions**

The development activities were carried out with the support of the project entitled "Nyár ültetvények ipari termesztés technológiájának fejlesztése" (project identification number: 1924342122). This project was submitted to the call ID VP3-16.1.1-4.1.5-4.2.1-4.2.2-8.1.1-8.2.1-8.3.1-8.5.1-8.5.2-8.6.1-17.

The aim of the project

Nowadays, climate change is not only making forest management increasingly difficult in drier areas, but also poses significant challenges for foresters managing floodplain forests. The project, therefore, aims to develop a new reforestation and cultivation technology that promotes the creation and maintenance of productive, climate-resistant hybrid poplar stands.



One goal, but several things to do...

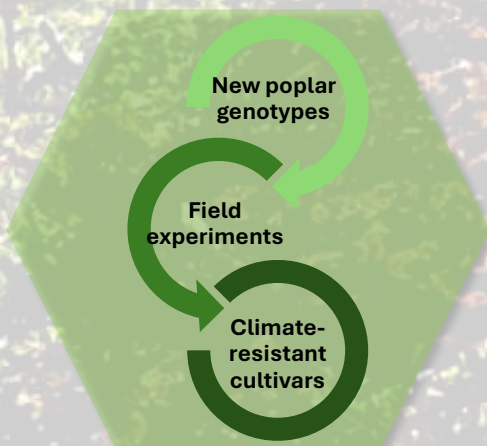
The consortium planned to carry out three main activities within the framework of the project:

- ❖ Establishing new hybrid poplar experiments to select varieties that tolerate the already changed and still changing growing conditions
- ❖ Developing a new hybrid poplar cultivation technology to promote the establishment of productive forest stands
- ❖ Developing an online cultivar selection application within a decision support system to promote the adaptation of plantation forestry

Field experiments

Neither traditional nor modern methods of poplar breeding can spare the field testing of newly bred genotypes under different site and technological conditions. These tests are made possible by clonal and semi-industrial trials designed according to appropriate experimental criteria. To select successful varieties under changing climatic conditions, we have established clonal trials to test new poplar clones and candidate varieties selected at various breeding institutes

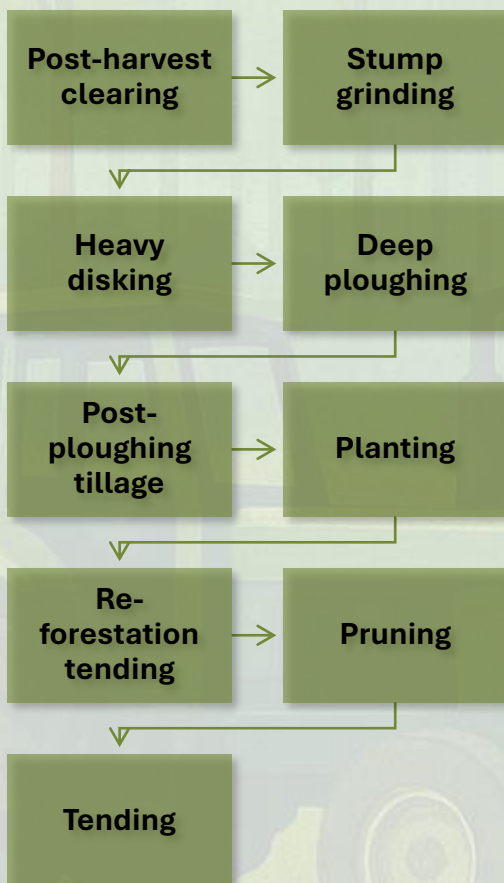
- ✓ Abádszalók 25/E – 9.91 hectares
- ✓ Ászár 18/D – 4.61 hectares
- ✓ Jászberény 134/C – 3.88 hectares
- ✓ Tiszasüly 30/J – 5.7 hectares
- ✓ Vasad 10/C és E – 8.4 hectares



These experiments provide an excellent basis for selection work to be carried out over several years, even a decade, which means that the scientific impact of the project will extend well beyond its implementation period. The first meaningful results are expected within a few years.

Cultivation technology process

Reforestation of noble poplars carried out specifically in floodplain conditions requires new cultivation technology approaches, which involve work operations spanning the entire cultivation cycle.



The hybrid poplar cultivation technology developed by the project has been submitted for international patent registration under the identification number PCT/HU2023/050087.

Cultivar selection application

The basis for successful poplar plantation cultivation is the selection of varieties that are resistant to biotic and abiotic diseases, suitable for industrial use, and capable of using the growing conditions of the planting area. The ability of varieties to tolerate often unfavorable and deteriorating environmental conditions is therefore an essential criterion for profitable poplar cultivation.

Professional experiences and an innovative solution



As part of the project, a poplar cultivar selection application was developed using data from several previous hybrid poplar experiments. To enable practicing foresters to use it on a daily basis, we integrated this application as a plug-in module into the mobile phone version of SiteViewer, one of the most innovative forest site research applications developed by the Forest Research Institute. Users will thus be able to select the hybrid poplar variety best suited to a given forest area, taking into account several climate change scenarios.

Members of the consortium

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