

## Effect of Term of Preparation on Performance of Cool Chamber Stored White Poplar Hardwood Cuttings in Nursery

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**Abstract :** Poplars present one of the most important tree species used for phytoremediation in the northern hemisphere. They can be used either as direct “cleaners” of the contaminated soils or as buffer zones preventing the contaminant plume to the surrounding environment. In order to produce appropriate planting material for this purpose, there is a long process of the breeding of the most favorable candidates. Although the development of the poplar propagation technology has been evolving for decades, white poplar nursery production, as well as the establishment of short-rotation coppice plantations, still considerably depends on the success of hardwood cuttings’ survival. This is why easy rooting is among the most desirable properties in white poplar breeding. On the other hand, there are many opportunities for the optimization of the technological procedures in order to meet the demands of particular genotype (clonal technology). In this study the effect of the term of hardwood cuttings’ preparation of four white poplar clones on their survival and further growth of rooted cuttings in nursery conditions were tested. There were three terms of cuttings’ preparation: the beginning of February (2nd Feb 2023), the beginning of March (3rd Mar 2023) and the end of March (21nd Mar 2023), which is regarded as the standard term. The cuttings were stored in cool chamber at  $2\pm 2^{\circ}\text{C}$ . All cuttings were planted on the same date (11th Apr 2023), in soil prepared with rotary tillage, and then cultivated by usual nursery procedures. According to the results obtained after the bud set (29th Sept 2023) there were significant differences in the survival and growth of rooted cuttings between examined terms of cutting preparation. Also, there were significant differences in the reaction of examined clones on terms of cutting preparation. In total, the best results provided cuttings prepared at the first term (2nd Feb 2023) (survival rate of 39.4%), while performance after two later preparation terms was significantly poorer (20.5% after second and 16.5% after third term). These results stress the significance of dormancy preservation in cuttings of examined white poplar clones for their survival, which could be especially important in context of climate change. Differences in clones’ reaction to term of cutting preparation suggest necessity of adjustment of the technology to the needs of particular clone i.e. design of clone specific technology.

**Keywords :** rooting, *Populus alba*, nursery, clonal technology

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