

# GROWTH AND PLANT PHYSIOLOGY STUDIES OF JUVENILE BLACK LOCUST CLONES: EARLY EVALUATION

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The purpose of our paper was to present the early results of growth and plant physiology studies of newly selected, vegetatively propagated black locust clones ('PL251', 'PL040', 'NK1', 'NK2') and the 'Üllői' black locust cultivar, with a view to assess their suitability for the establishment of industrial plantations for the production of high quality timber in marginal sites. In the evaluation of the results, we found significant differences ( $p < 0.05$ ) between the clones tested for height, diameter at the base, net assimilation rate, transpiration and water use efficiency. Based on our results, *Robinia pseudoacacia* 'NK2' performed to be the best in all studied parameters. However, the clone 'PL040' also seems to be promising in terms of drought tolerance, and 'PL251' in diameter at the base: there were no significant differences between 'NK2' and 'PL040' clones in water use efficiency, and 'NK2' and 'PL251' in terms of diameter at the base values. The study of industrial plantations is of great practical importance. To be able to produce good quality industrial wood on the plantations, it is essential to study the phytophysiological properties of the trees (biomass production, photosynthetic activity, water use efficiency) in addition to the traditional stand full inventories.