



## INSTITUTE FOR LOWLAND FORESTRY AND ENVIRONMENT

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A new technological approach for the regeneration of oak forests

A new technological solution applied at the international level

Vasić V, Stojnić S., Vasić S., Novčić Z., Pap P., Stojanović D., Stevanov M.

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In addition to harmful insects and diseases, great problem in the regeneration of oak forests are weed vegetation. The presence of weeds and the abundance of shrub species per unit area are the main limiting factors in pedunculate oak regeneration and survival. Mechanical measures which are previously used to remove undesirable ground vegetation in oak regeneration have not yielded satisfactory results. This method of weed control is quite expensive because it requires the engagement of a significant number of workers and is insufficiently efficient. This method of weed control is quite expensive because it requires the engagement of a large number of workers and it is insufficiently efficient.

Due to the impossibility of preserving the young seedlings of oak, as well as due to its rapid decay, which is significantly contributed by the presence of weed vegetation and especially the occurrence of shrubby and woody species, it was necessary to create a technical solution which will enable the preparation of the terrain, i.e. the removal of problematic species, and then direct research to the examination of foliar treatments (post-emergence herbicides) that will enable the survival of the oak, especially in the initial stages of development. Years of herbicide testing in regenerated oak forests were performed in experiments that were set up at two localities that differed in morphological structure and soil properties. A large number of herbicides were included in the research and the aim was for the herbicide to be effective and selective for oak and to achieved significant savings in regeneration costs by applying herbicides.

The results obtained in the studies showed that of the large number of tested post-emergence active substances, the herbicides clopyralid, imazamox, nicosulfuron, fluroxypyr and cycloxydim were selective to oak and effective in controlling a large number of weeds. Based on the data obtained by measuring the growth elements of oak plants over three years, the obtained results showed that the tested herbicides clopyralid, imazamox, nicosulfuron, fluroxypyr and cycloxydim did not have a negative impact on the growth and development of oaks. Chemical measures, i.e. the application of herbicides, effectively prevent excessive regeneration of woody species and reduce the number and growth of herbaceous weed species on the restored areas of oak forests. By applying the new technological procedure, the costs of regeneration of oak forests are significantly reduced, and care measures, i.e. removal of competing vegetation on the regeneration areas, are reduced only to occasional intervention in the years to come.

