

## WORK EFFICIENCY AND EXPOSURE TO NOISE DURING TREE FELLING WITH ELECTRIC SAW IN REAL FOREST CONDITIONS

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### ABSTRACT

Electric machines and tools are unstoppably entering all economic fields, which also applies to forestry. Since previous research on felling with an electric chainsaw took place in a laboratory environment or in conditions that were mainly adapted to the use of an electric saw - i.e. in younger spruce stands - the purpose of the research was to determine the suitability of using an electric saw for felling 115 coniferous and deciduous trees with DBH from 13 to 79 cm. In the 10-days research, which took place in the southern part of Slovenia, we compared the Husqvarna 540i HP electric saw with the Husqvarna 543 XP petrol saw in terms of work efficiency and exposure to noise. The results of the research showed that the differences in felling efficiency (min/t) in productive time between the use of electric and gasoline saws are statistically insignificant. The same applies to all productive time work operations. In contrast, exposure to noise was significantly lower when working with an electric saw than with a petrol saw, and this was the case for all work operations where a saw is used to perform the work. Thus, according to the results of the research, we can conclude that the use of an electric saw mainly affects the worker's workload to noise, but not the work efficiency. It should be emphasized that currently the implementation of felling with an electric saw into real conditions, where big trees are also present in the forest, is difficult especially from the point of view of electricity supply, since for a full day's work of eight hours, at least twelve 5 Ah batteries would be needed.

Keywords: electric saw, felling, efficiency, exposure to noise,