MULTI-FUNCTION MACHINE’S WORK QUALIFICATION

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INTRODUCTION

More and more harvesters and forwarders have been appearing in Hungary in the last years. Highly mechanized logging technologies are more often used, for example the CTL (Cut To Length) work system when felling, skidding, delimbing, assorting, chopping, bunching and reviewing are done with a harvester and skidding and forwarding are done with a forwarder. The damaging which can be caused by the harvesting, are not restricted to the stands of trees and the harms were caused in the soil. Gólya (2003) drew up an evaluative system, which takes which the rest of the elements of the sylvan environment into consideration. Harvestings’ comlex classification can be done with the thinning result control. This method includes the examination of the tolerance.

QUESTIONNAIRE

A questionnaire was carried out to find out the factors influencing the quality of harvesters working. A questionnaire was compiled in order to get to know the circumstances influencing the work, so it was possible to get the opinion of the practitioners more widely. The first few questions required independent answers (job, age, place of work), which later could be used to group the answers or to filter out irrelevant ones. The influencing factors in the questionnaire had to be rated on a scale of 1-10 (1 is the weakest 10 is the strongest). In the last reply, further comments could be made.

FIELD SURVEYING

The field data captures happened in Leka, Schwarzenbach and Langex. Some of these areas were 1-5 ha private forest. Allocation of ground plots was on Borossténykő and Köszeg mountains. It is important to mention the 45.5 lm/ha (linear metre pro hectare) accessibility in the area of the examined forests, which is very high. The reafforestation occurs naturally, the regrowth can be found everywhere, in different age distribution and density. A short-tree working system was used with harvesters and forwarders.

Data measured in the plots:
- skidding trails distances,
- plots areas,
- tree species, number of pieces, breast height diameters, tree heights,
- stem hurts, hurts sizes, skidding trails deep.

The Hungarian answers

The evaluation table

LOGGING DAMAGE

The basis of the research was the examination of 10 logging. Great emphasis has been placed on recording the circumstances so that the values obtained can serve as a basis for comparison. An evaluation table was prepared for processing the data, which contains all the measured data. The evaluation was always done with Microsoft Office Excel to facilitate usability. Each page has data for a plot and its evaluation, so it is easy to review and evaluate each plot in its own right. At the bottom of the page, sample data for each harvesting are summarized. The results of the examination of the injuries of the remaining pieces of wood were in accordance with our expectations and the literature. The beech (7.8%), spruce (7.2%) and fir (7.5%) were damaged area higher (above 20%), and the soil carrying capacity or the branch carpet thick was not enough. Only 2 test areas had a critical proximity skidding trail (soil damage) of more than 10 cm. Thanks to the soil integrity, the root system did not suffer from any major numerical damage. Thanks to the system of the skidding trail, there was enough space for the movement of the machines, so no stump damage occurred. After 30-40% thinning intensity, depending on the circumstances, the stem injury was 0-19%. The average rate of damaged trees was 8-9%.

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