Online tool for quality classification of round-wood

Introduction

The online tool for quality classification of roundwood is intended for all users who want to conveniently determine the quality of roundwood and simultaneously gain knowledge about the evaluation of roundwood assortments. The information may be helpful for forest owners who aim to increase the utilisation of wood from their forests by using the quality criteria for the roundwood assortments.

Slovenia's geographical region in the moderate climate zone enables the cultivation and production of timber products of high quality. Due to its natural resources, it is not sensible to strive for mass production of wood but rather for directed cultivation and production of assortments of higher quality, which are consequently classified in a higher price range. Poor knowledge or round wood classification according to quality classes can ultimately devalue the quality of timber and work achieved through tending in the long-term process of silviculture.

The project has developed guidelines for forest owners to collect information for the correct measurement of dimensions and the rules for calculating the volume of round wood. Typical values of the bark thickness are given for each tree species, which is not considered when calculating the diameter. Furthermore, roundwood quality classes for Slovenia's most common soft- and hard-woods are presented. In the case of soft- and hard-wood species, we emphasise the quality measures for spruce, fir and beech. The guidelines for measuring dimensions, the rules for calculating the volume and the quality classification of logs are based on the standards and rules that apply to the broader European area. Thus, European standards (SIST EN 1309) and "Rules of Good Practice" as given by the German Forestry and Wood Processing Industry Council were used as the primary literature. Both standards define four quality classes of logs (A, B, C, D). In the past, the Slovenian standards of classifying roundwood defined assortments according to the purpose of use. In our case, however, the standards define only the quality from the best (A) to the low-quality logs (D) without a specific purpose. It is then left to the wood users to choose the most suitable class according to their needs. Traditional Slovenian classification rules also define dimensional requirements for an individual quality class, while dimension classes are entirely separate in the case of European or German quality grading. We also included indicative dimensional requirements for each quality class in the article, so we still needed to completely break the link between the Slovenian traditional classification and European rules.

Using the online tool for quality classification of roundwood the forest owners get know-how on wood

defects. Quality is usually determined by stating the maximum number and size of permissible defects that an assortment may still have in order to achieve a certain quality class. Wood defects spoil some of its properties and thus reduce its usefulness. Wood defects have different origins. They are formed due to the unfavourable influence of the natural site on the development of the tree or due to mechanical damage during the process of wood production. In the case of wood defects, we must know how to properly identify and define them. To determine its size, knowing the agreed method of measuring the defect is necessary. Last but not least, it is also necessary to determine the degree of defect influence for each defect, which consequently affects the classification of the assortment into a certain quality class. Wood defects that affect the quality of wood are the most important when defining assortments. When bucking, we estimate those defects of the wood that are noticeable on the circumferential surface and the cross-section of the trunk. Based on these, we also conclude on the wood quality of the trunk.

Lessons learned

Knowing wood defects is important in direct trunk bucking. Knowledge of how to eliminate the defect, how to reduce the impact of the defect, where to make demarcations between assortments of different quality and where to cut is a key element of bucking. In this way, we influence the quality and value of an individual assortment.

Figure 1: Overview of digital platform.

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The information presented in this factsheet was developed by the FOREST4EU partner, drawing on the innovations and knowledge generated by the indicated operational group with their explicit authorization.

Further information

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