

An information platform for forest harvesting technologies and working methods as decision support system for practitioners

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Problematic:

Harvesting costs commonly make up a major share of the total expenses. At the same time, the harvesting technology determines the produced assortments and thus the possible revenues from timber sales. Therefore it is crucial for the success of a forest enterprise to choose the best suited harvesting technology for any given situation in the forest.

Material and methods:

The most common working methods and procedures in Baden-Wuerttemberg were described and evaluated with a set of criteria, based on own experience and on interviews with practitioners. Data on performance and costs for each procedure were collected from literature.

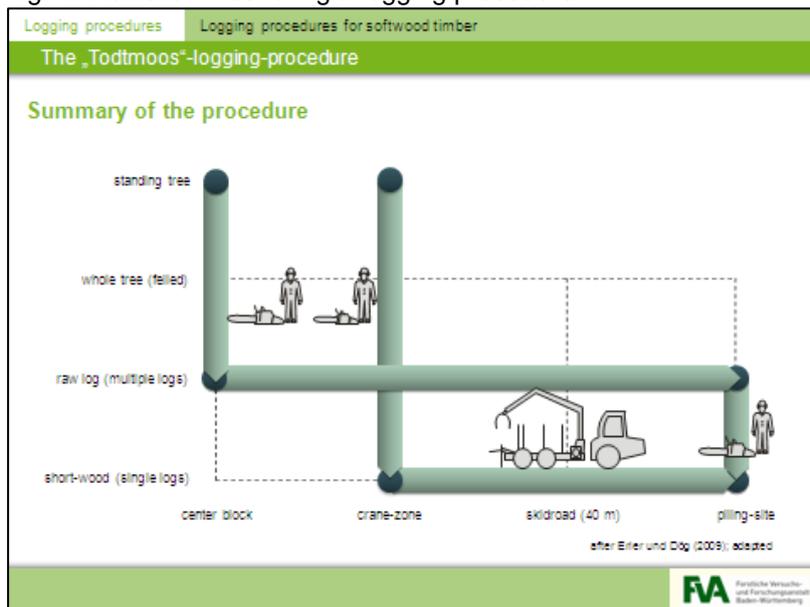
Results:

An information platform on harvesting technologies is now available and serves as a decision support system for forest practitioners. A wide span of working procedures for conventional logging and for the preparation of energy wood are described.

First, each procedure is described verbally, including the characteristics and the range of application of the procedure, as well as the needed workforce and equipment.

In the next step, the process flow is illustrated in a flowchart after ERLER and DÖG (2009), as shown in figure 1.

Fig. 1: Flowchart illustrating a logging procedure



The flowchart is further specified by a detailed verbal description of the process flow. Wherever possible, the working procedures are visualised with pictures or video clips.

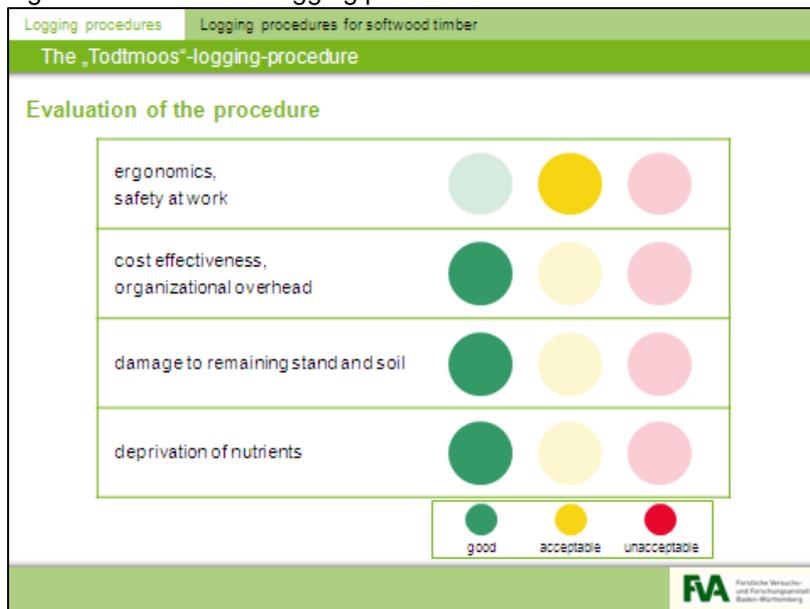
For each procedure, data on performance and costs under various conditions (slope, dbh-range) are indicated.

In a final step, the procedures are evaluated according to the following criteria:

- ergonomics, safety at work
- cost effectiveness, organizational overhead
- damage to remaining stand and soil
- deprivation of nutrients

The evaluation of the procedure is visualised with a “traffic-light” scale, as shown in figure 2:

Fig. 2: Evaluation of a logging procedure



To identify the best suited working procedure for a given situation, different channels are available: select a procedure according to the degree of mechanisation or according to the topographic situation. Another option is to select the appropriate working procedure with a selection tool, which considers slope, opening-up situation of the stand, dbh-class (diameter at breast height), broadleaved trees/coniferous trees and intended products.

Conclusion:

The presented information platform provides valuable information on common forest harvesting technologies. It supports the user in identifying the most suitable working method for any given situation, and thus can make a contribution to optimize the harvesting process. The platform is not considered as completed at any given time, but it shall be continually developed, complemented with new procedures and updated with new data on performance and costs.

Summary:

For the success of a forest enterprise, it is crucial to choose the best suited harvesting technology for any given situation in the forest. To this end, an information platform on harvesting technologies is now available, describing a wide span of working procedures and serving as a decision support system for forest practitioners.

References:

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Keywords:

Decision support system, information platform, harvesting technologies, working methods, rating.