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6.6 Why are undergrowth trees still pre-cleared before first thinning operations?

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Abstract

Pre-clearing undergrowth trees is intended to increase the operational efficiency during first thinning. Currently, the main problem with undergrowth is the occurrence of sight-hindering trees (generally small spruce trees) which makes positioning the harvester head time consuming. Larger undergrowth trees may also increase time consumption when repositioning the head, because the head's travelling distance may increase when the shortest distance between harvested trees is hindered. Hence, pre-clearing is justified by the forest industry because it facilitates reduced costs during the cutting work. However, pre-clearing is also very costly, and several studies indicate that pre-clearance often results in higher total thinning cost. Besides, with today's technology, it is possible to support operator vision and to clear-away (or cut and accumulate) those trees that block the harvester head from travelling the shortest possible path between harvested trees.

The objective of our study is to assess (using knowledge from several recent studies) the effect of undergrowth trees on the harvester's thinning efficiency and cost, and, using up-to-date pre-clearance costs, analyze the systems' total costs. Using current literature, we also aim to assess those technologies and methods that might eliminate the need for pre-clearance, while still maintaining high operational cost-efficiency during first-thinning cutting work. Our goal is to present possible solutions for practical implementation during first thinning. Preliminary results will be presented at the conference.