

Saw log recovery and quality of birch from commercial thinning stands in Finland

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ABSTRACT

The aim of this study was to examine the timber quality of silver birch (*Betula pendula* Roth) and European white birch (*B. pubescens* Ehrh.) at the age of the first and second commercial thinnings in Central and Eastern Finland. The study material consisted of first and second thinning stands, 28 and 20 of them, respectively, divided into 26 planted (stratum 1), 12 naturally regenerated (stratum 2) and 10 mixed stands (birch and Norway spruce, stratum 3), totalling 7,768 sample trees. Detailed stand and tree wise measurements were carried out in all stands. The data was used in different simulated bucking-to-value alternatives, based on different combinations of timber assortments. The average stem volumes were 140 dm³ and 206 dm³ in the first and second thinning stands, respectively. Almost 60% of the harvested and 45% of the remaining log-sized stems were graded as pulpwood stems due to different technical defects. The most common defects in birch stems were multiple crooks and crooks in the middle sections of stems. Only minor between-stratum differences were detected in the numbers of defects. Naturally regenerated stands were slightly better self-pruned and had also smaller proportion of living crown. Depending on the bucking procedure applied, the average percentages of log quality timber obtained from the stands varied between 11.7 and 18.2. The saw log recovery was the highest in planted stands, varying between 13 and 20 per cent of the total removal. Saw log recovery was, on the other hand, at its lowest, 9–16 per cent, in naturally regenerated stands and mixed stands of conifers and birch. The highest share of small-sized saw logs was obtained from planted stands, ca. 18 per cent of the total harvesting recovery. The results of this study can be utilised in birch timber procurement planning for saw mills producing sound knotted or clear components for furniture, in particular.

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