

Simulation of long-term effects of different strategies for precommercial thinning in *Pinus Sylvestris*

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Abstract

The influence of the intensity and timing of precommercial thinning (PCT) on stand development and financial return was studied in Scots pine stands. Functions describing the early development of the stand structure after PCT were developed. The functions were based on 195 plots within 41 PCT experiments in Sweden. The dimension distribution of the established stand was estimated and used as input to the decision support system Heureka, to simulate the stand development until final felling. The studied treatments included PCT to 1000, 2000 and 3000 stems ha⁻¹ at mean heights of 2, 4 and 6 m. Separate simulations were carried out for different site fertilities. Mean annual volume increment increased with increasing number of stems after PCT whereas the timing of PCT had only a small effect. The land expectation value (LEV) generally decreased with increasing mean height at PCT, primarily because of the increased cost of PCT. LEV decreased with increasing number of stems after PCT at low fertility sites whereas only minor differences were found for PCT to 1000 and 2000 stems ha⁻¹ at medium and high fertility sites. The general pattern persisted when different scenarios of future timber quality were simulated.

Keywords

Scots pine, thinning grade, timing, growth, economy