

# Optimal Rotation under Different Stochastic Prices

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The optimal rotation of a stand of Scot pine in southern Finland for a private forest owner who faces uncertainty of price was the object of our study. Based on historic monthly data of Finnish stumpage price we imposed 12 different continuous stochastic models. In this article we developed a lattice construction method called two step transformation approaches that allows application of general stochastic model to a binomial method. We solved optimal rotation for multy period and included land value and compare the stochastic models optimal rotation results with those based on the deterministic Faustmann method. Optimal rotation is sensitive to type of process and it is shorter under mean reverting process than non-stationary ones. Inside the same category, optimal rotation is sensitive to the level of dependency of volatility to the price. At each certain age the optimal price to cut the stand depends on applied stochastic process so applying different type of models to historical price data gives decision makers more options to react to uncertainty of price.

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