

# **Economic Analysis of Exploitation and Regeneration in Plantations with problematic site productivity<sup>2</sup>**

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In the paper we study the impact of declining forest productivity on the land expectation value and the optimal rotation age. We start from the research by Lu & Chang (1996) by filling the gap between the “best” and the “worst” case. For that we extend the classical Faustmann model by availability of different recovering technologies. In general the model allows to analyse the two plantation groups: “mining the site by high productive plantation with a following management of degraded areas” and “high productive plantation and regeneration cycling” with the same comparative statics. The model, the analysis and the comparisons with the two extremes in Lu & Chang (1996) leads a detailed understanding of land use management when site productivity declining is possible. Particularly the relation between declining periods by intensive land use and land use alternatives after declining periods by regeneration can be well understand. Findings are: Not ever declining process asks for regeneration. Many declining processes can be stopped in an early time by high cash flows in after mining periods. Shortenings of the regeneration time can boost site mining intensities.

<sup>2</sup> This study bases on the diploma thesis by Andreas Halbritter on coppice in short rotation time plantations.

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