Optimizing Joint Production of Timber and Carbon Sequestration of Afforestation Projects

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Optimizing harvesting decisions has been a matter of concern in forestry literature for centuries. However, in some tropical countries, growth models for fast-growing tree species have been developed only recently. Additionally, environmental services of forests gain importance and urge for being integrated in forest management decisions. We determine the impact of a joint production of timber and carbon sequestration on the optimum rotation of a fast growing species in north-western Ecuador, comparing different optimization approaches and taking the latest developments of the Kyoto Protocol into account. We find that payments for carbon sequestration have substantial impact on the rotation length: in contrast to an optimum of 15 years when focusing on timber production, only, joint production leads to a doubling of the rotation length, which means that timber harvest should be postponed until the end of the carbon project.

Keywords: carbon sinks, certified emission reductions, CDM, Faustmann, Hartman

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