

Title

Do markets for forest carbon and wood-based energy products always save carbon?

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Abstract

Carbon markets would encourage forestland owners to increase rotation ages of their plantations. Emerging wood-based energy markets would increase prices of small-diameter timber products, thereby encouraging forestland owners to opt for shorter rotation ages. This study shows that an increase in rotation age might not save any additional carbon relative to standard rotation ages over a planning horizon of 100 years. A decrease in rotation age is not necessarily beneficial from carbon perspective either with respect to standard rotation ages especially when all the timber products obtained at a given rotation age were utilized for manufacturing wood pellets. However, utilization of all timber products for manufacturing of wood pellets to ultimately generate electricity maximizes saving in carbon emissions in absence of any change in the rotation age. Suitable safeguards need to be incorporated in existing forest and bioenergy certification schemes to ensure efficacy of forestry as a potential tool of carbon mitigation else, forestry could become net source of carbon emissions over time. Any policy stakeholder group should take a systemic approach while ascertaining overall carbon benefits of forest resources over time in presence and absence of rotation ages.