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Scandinavian Forest Economics
No. 44, 2012



Proceedings of the Biennial Meeting of the
Scandinavian Society of Forest Economics
Hyytiälä, Finland, May 2012

Anne Toppinen, Heimo Karppinen & Kati Kleemola (eds.)

Growth and yield in forest sector models: a review and application of individual tree models in Norway

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Recent history has seen an increase in the utilization of forest sector models to identify potential impacts of various policies or timber market shocks. These models are particularly useful in that they employ economic theory to capture the interaction of supply and demand in a framework where commodity prices are endogenous to the policy or shock simulated. The models vary widely in terms of geographic scope, intertemporal dynamics, product incorporation, and forest growth representation. These variations lead to distinct differences in both the types of policies or shocks that can be evaluated and the simulated market responses. This study begins with a presentation of the timber supply methodology of a suite of current forest sector models along with a discussion of their advantages and limitations. Next we present an application of an individual tree model to the National Forest Inventory data of Norway for inclusion in a partial, spatial equilibrium model of the Norwegian forest sector (NorFor). We conclude with a comparison of projected harvest and inventory levels using this individual-tree supply approach with the current NorFor supply representation based on a stand-level growth and yield model.