

## Description of best practice

Best practice			
Title	MOTTI software		
Picture	MOTTI- a stand-level decision system		
	User-defined input Stand simulation		
	Stand inventory data     Prediction of stand dynamics in varying growth environment including the - impact of environmental chances		
	Management options - Impact of forest management practices		
	Regeneration - Growth - Mortality		
	Criteria Vield Analysis Carbon		
	Logging parameters -applied machinery -applied machinery		
	Economical Forest economics Biodiversity		
	Request for reports Output of the results		
Domain	Sustainable management and planning; Digitalization, data security, IT driven solutions		
Source of wood	Stemwood; Above and below ground woody biomass		
Location	Rovaniemi, Finland		
Implementers	Forest owners, companies, authorities, research, education		
Actual status	Running		
Approach	MOTTI is a stand-level analysis tool and decision support software by Luke. It contains the key results of the growth and yield research carried out by Luke, which can be used to predict the growth of forests managed using different techniques. The software also enables making comparisons between different silvicultural methods. MOTTI can also be used to investigate the effects of forest management or non- management, selection of tree species, regeneration chains or individual		
	silvicultural measures, for example, on forest growth, harvesting volumes, profitability of forestry or the amount of carbon sequestered by forests.		
Main results	The core of MOTTI is a stand-level simulator, which includes growth and yield models for e.g. natural regeneration, growth and mortality. It is designed to simulate stand development under alternative management		



	regimes and growth conditions in Finland. MOTTI predicts the development of the user-defined initial stand until the end of the rotation. The user can define various management schedules including management practices, such as precommercial and commercial thinnings, fertilization, and ditch network maintenance in peatland forests. The user can adjust parameters such as timing and intensity of thinning and proportions of tree species, and define the timing of final cut. Timber assortments include logs, pulpwood and energy wood compartments. If the user do not define management practices, MOTTI simulates a default management program for the stand based on the current recommendations for forestry practice in Finland. For the economic analysis (net present value and bare land value), the user can enter stumpage prices by tree species and timber assortments, costs (e.g. costs of first commercial thinnings, fertilisation and ditch network maintenance) and interest rate. The results will be presented in the form tables, graphs and files exportable to Excel.	
Lessons learned	MOTTI is widely used among professional foresters, forest owners, teachers, researchers, authorities and companies in Finland. It has been updated regularly with the newest growth models. It has also been tailored for special purposes, e.g. for teaching and for calculating economic effects of forest protection. It has been published in several languages (Finnish, Swedish, English, Russian) and it has also been piloted in other countries and tree species.	
Contact information	Dr. Hannu Salminen Natural Resources Institute Finland (Luke) Ounasjoentie 6 FI-96200 Rovaniemi Finland <u>hannu.salminen@luke.fi</u> +358 29 532 5330	
Link to website	https://www.luke.fi/en/natural-resources/forest/silviculture/motti- software-enables-the-comparison-of-different-techniques/ http://www.metla.fi/metinfo/motti/index-en.htm	
Code	BP_FI_16	



## Best practice assessment

Region	Finland
Time scale	From 2005
Mobilization Potential	Not possible to assess.
Kind of wood concerned	Stemwood; Above and below ground woody biomass (ex. shrubs, wood for fibres, wood for energy)
Sustainability Potential	Positive, a tool for more detailed planning of forest operations (timing, cutting amounts)
Impact on environment & biodiversity	Positive, versions of software for carbon sequestrion and economical impacts of protected forests are available
Ease of implementation	Easy
Economic impact	Positive, helps in planning of forest operations
Job effect	Positive, helps in planning of forest operations
Income effect	Not possible to assess.
Specific knowledge needed	Normal IT skills
Costs of implementation	Open application
Technical readiness level	Immediately applicable
Key information for adoption	Application loadable on Luke web pages (Windows 7): <u>http://www.metla.fi/metinfo/motti/asennus.htm</u> (Finnish version) <u>http://www.metla.fi/metinfo/motti/index-en.htm</u> (English version) New versions will be published in 2019 (Windows 10).