



SÉMINAIRE CONJOINT / JOINT SEMINAR

GLEN MURPHY
Oregon State University, Etats-Unis/USA



« **MANAGEMENT TOOLS FOR OPTIMAL ALLOCATION OF WOOD FIBRE TO
CONVENTIONAL LOG AND BIO-ENERGY MARKETS IN IRELAND** »

Résumé / Abstract

World demand for wood fibre is expected to almost double, in line with world population growth, by mid-century. Interest in wood-fibre as a renewable bio-energy source is likely to increase demand even more. Tools for optimally allocating wood fibre to conventional and bio-energy markets are needed at strategic, tactical and operational planning levels. A set of tools are described for optimal allocation at operational planning level. These were applied to a case study in Ireland. Allocation was based on optimising net value recovery (delivered price minus harvesting and transportation costs) while meeting market demands and operational constraints (mainly crew capability and productivity limits). Two new models were developed to predict harvesting costs and transportation costs for Irish forest conditions. A new model was developed to link Sitka spruce biomass expansion factors to optimal log-making algorithms so that log and bio-energy product yields could be estimated for individual harvest areas. An existing operational allocation model based on a tabu-search heuristic procedure was used. The case study included 16 forest harvest areas and 12 processing plants (saw logs, pallet logs, stakes, pulp, bio-energy slash bundles). Terrestrial lidar scans from over 4000 trees were used to obtain representative stem profiles for the 16 forests. We demonstrated that optimal allocation of bio-energy and log products, while complex, can be achieved through the use of appropriate management tools. Value gains of >5% over other near optimal solutions were shown. This level of gain is similar to the lower end of gains reported in the literature.

Note : Professeur/Professor, College of Forestry , Oregon State University
Glen.Murphy@oregonstate.edu et/and <http://www.cof.orst.edu/100faces/bios/murphy.php>:

MARDI / TUESDAY

**19 Janvier 2010 /
January 19, 2010**

10h30

**Salle / Room 5441
Pavillon André-Aisenstadt
Université de Montréal**

Bienvenue à tous / Welcome to all

Responsable/Organizer : Bernard Gendron

*Information : Pierre Marchand
Responsable des communications du CIRRELT
pierre.marchand@cirreлт.ulaval.ca*

