TECHLINE
Properties and Use of Wood, Composites, and Fiber Products

Computer Programs for Determining Lumber Grade Mix

Wood products manufacturers are often faced with the decision of which grade of lumber to use. Should they buy a high grade of lumber that has a lot of usable clear area and high cost? Or should they use a lower grade at a lower cost but requiring a larger volume of lumber?

Researchers at the USDA Forest Service's Northeastern Research Station in Princeton, West Virginia, are developing improved computer programs to help manufacturers determine the best lumber grade mix for their operations and products. OPTIGRAMI V2 (OPTImal GRAde MIx), OPTIGRAMI V3, and ROMI-GRAM (ROughMIll GRAde Mix) are three DOS-based computerized approaches to the least-cost lumber grade mix program.

OPTIGRAMI V2 is currently available from the Princeton Forestry Sciences Laboratory. This program is a user-friendly update to earlier work and is based on simulated yield data from the 1960s to the 1980s. It can be run quickly, and the only inputs are the cutting bill, procurement costs, and specification of lumber.

OPTIGRAMI V3, which is under development, updates the OPTIGRAMI program. Lumber grade mixes will be based on updated yield data that closely reflect today's mill operations. The inputs for OPTIGRAMI V3 will be cutting bill, procurement costs, and lumber grades

ROMI-GRAM will soon be available in a Beta version. Instead of using generic yield tables, the ROMI-GRAM program initiates a set of simulation runs and immediately analyzes the results of those simulation runs to determine the least-cost grade mix. This allows the results to reflect expected yields from a specific set of processing options. In addition, the users of this program can develop their own lumber data files to be processed by the cut-up simulator. Therefore, the least-cost grade mix produced by ROMI-GRAM reflects the characteristics of a specified set of lumber and the processing options used by a specific mill. This program takes more time to run than the OPTIGRAMI programs do, but users of this program are able to obtain a more customized lumber grade mix than that generated by the OPTIGRAMI programs.

For additional information, contact:
Kris Hoff or Penny Lawson
USDA Forest Service
Northeastern Research Station
Forestry Sciences Laboratory
241 Mercer Springs Road
Princeton, WV 24740–9628
Phone: (304) 431–2700; Fax: (304) 431–2772
E-mail: khoff/ne_pr@fs.fed.us
plawson/ne_pr@fs.fed.us

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United States Department of Agriculture	Forest Service	Forest Products Laboratory	Phone: (608) 231–9200; FAX: (608) 231–9592 E-mail: mailroom/fpl@fs.fed.us Web site: http://www.fpl.fs.fed.us/