



WOODSIM™

Log-Supply Simulation Program

WOODSIM™ is a comprehensive program that simulates log-supply operations, from standing trees or long logs, through to bucked logs ready for sawing, peeling, chipping, or other processing operations. Starting with cruise or log scale data, actual utilization parameters, specifications of the stem- and log-bucking methods to be used, and how logs are to be sorted, WOODSIM™ makes accurate predictions of the volumes in each log sort, and the details of the log mixes that will be produced.

WOODSIM™ Applications:

- Development of detailed harvest plans
- Log purchase / sale / trade evaluations
- Evaluation of alternative stem utilization criteria
- Evaluation of alternative woods-bucking and log sorting policies

WOODSIM™ Benefits:

Compared to log population reports from typical cruise compilation programs, using WOODSIM™ leads to a better understanding of how the total log supply breaks down into components, and what log purchases or trades may be required to fill gaps in the supply.

- WOODSIM™ simulates the way merchandising is actually done, so that mills can receive accurate estimates of the log mixes that they will receive.

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- Accurate predictions of log estimates enable mills to manage log-yard inventories more effectively. By simulating alternative stem- and log-bucking methods, the full value potential of the log supply can be realized.
- Rapid recalculation of wood flows and log mixes when such things as weather, insect attack, or mill requirements force changes to the harvest schedule.
- Above all, with better information on the logs they can expect to receive, mills can plan their operations more effectively. With a controlled log supply, mill bottlenecks can be identified and relieved to maximize production. With more assurance of the log mix they will receive, mills can manufacture the products that are in most demand, make firm product delivery commitments, and obtain premium prices.
- In operations with Scribner scaling, alternative woods-bucking practices can significantly change the scaled volume and also the sawlog mix available to the mill. The benefits from optimizing strategies relative to Scribner scale can be significant.

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WOODSIM™ considers:

- Timber cruise data or historical scale data for one or more stands of timber
- Timber utilization data, including:
 - Volume of each timber type to be harvested
 - Stump height and stem topping diameter
- Timber quality data, including:
 - Decay, waste, and breakage
 - Form characteristics
- Woods-bucking policies
- Mill-bucking policies
- Log sorting

WOODSIM™ includes a detailed model of decay, which results in a more realistic description of decay dispersion. Hence, decay-driven actions such as longbutting or sorting of peelers vs. sawlogs can be accurately modeled.

WOODSIM™ Outputs:

For a given harvesting plan, utilization standards, woods-bucking and mill-bucking policies, and sawlog, peeler, and pulplog specifications, WOODSIM™ calculates the number and volume of resulting sawlogs, peelers and pulplogs. It classifies these by diameter, length and quality and

calculates key statistics for each class, such as: average decay, average sweep and taper. The results may be written to database files that contain details of the log yields and wood flows, from which standard or custom reports can be generated.

WOODSIM™ also accumulates statistics for tree-length and long-logs, providing counts, volumes and decay percentages for these intermediate logs.

WOODSIM™ can be used to create sawlogs and peelers to be processed by SAWSIM®, the sawing and peeling simulation program of HALCO Software Systems. In this case, WOODSIM™ creates a sample of logs that represent the projected diet for a given mill or mills.

Modeling by Simulation

WOODSIM™ is an example of HALCO's approach to simulation and optimization. This is to develop detailed models of each step in the process, and to validate these against operating statistics for periods similar in length to the periods being modelled. By developing detailed models, the user can be confident that situations for which there is no operating experience, but which should be considered, will be modelled with sufficient accuracy.

